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3.3.3: Number of books and chapters in edited volumes/books published and papers published in National/ International conference proceedings per teacher during year

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Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Year of publication	ISBN/ISSN number of the proceeding	Affiliating Institute at the time of publication
1	Prof.C.M.Mankar	2022 IEEE IAS Global Conference on Emerging Technologies (GlobConET)	ML Hybrid Approach for IntrusionDetection in Networks	2022 IEEE IAS Global Conference on Emerging Technologies (GlobConET)	IEEE IAS Global Conference on Emerging Technologies(GlobConET-2022) held online during May 20-22,2022.Certificate No.GlobConET/2022/242	International	2021-22	ISBN:978-1-6654-4357-9	SSSGMCE,Shegaon
2	Prof. J. M. Patil	SSRN	MLEDM: Hybrid Machine Learning Approach using Real Time Data Processing for	Proceedings of the 3rd International Conference on Contents, Computing & Communicat	3rd International Conference on Content,Computing and Communication 2022	International	2021-22		SSSGMCE,Shegaon

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			Educational Data Mining	ion (ICCCC-2022)					
3	Prof. J. M. Patil	NIL	Literature Review :Educational Data Mining and Learning Analytics	NIL	International Conference on EMERGING TRENDS IN INTELLIGENT COMPUTING(ICETIC'21) on 23 to 24 December 2021.	International	2021-22		SSSGMCE,Shegaon
4	Priyanka Deshmukh	Lecture Notes in Networks and Systems	A Review on Data Hiding Mechanism for Enhancing Embedding Capacity	Proceedings of Second International Conference on Sustainable Expert Systems pp 499–507	Second International Conference on Sustainable Expert Systems pp 499–507	International	2021-22		SSSGMCE,Shegaon
5	Prof. A. K. Shahade	NIL	systematic literature review on advancements and	NIL	National Conference on Emerging Trends in Communication Engineering,Computing System and	National	2021-22	NIL	SSSGMCE,Shegaon

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			innovations done in Digital libraries through recent trending technologies		Applications(ETCECSA2022) on 27 April 2022				
6	Prof. A. K. Shahade	2022 Second International Conference on Artificial Intelligence and Smart Energy (ICAIS)	An Effective High Level Capacity Reversible Data Hiding in an Encrypted Images	2022 Second International Conference on Artificial Intelligence and Smart Energy (ICAIS)	International Conference on Artificial Intelligence and Smart System(ICAIS 2022) on 23-25 february 2022.	International	2021-22	ISBN:978-1-6654-0052-7	SSSGMCE,Shegaon

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A Comprehensive Survey on Multilingual Opinion Mining

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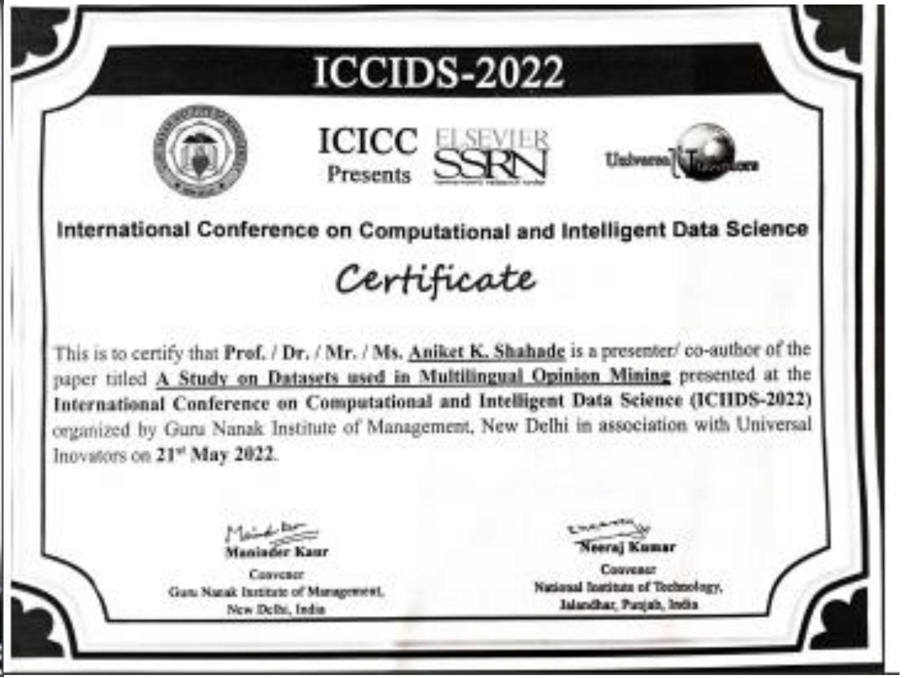

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Assessment of Artificial Neural Network-based Induction Motor Fault Classifier Using Continuous Wavelet Transform

A. U. Jawadekar [a*], G. M. Dhole [a], S. R. Paraskar [a] and S. S. Jadhao [a]

DOI: 10.9734/bpi/nper/v7/3473E

ABSTRACT

Induction motors are widely used in industrial, commercial, and residential applications due to their significant advantages over other types of electric motors. These motors are subjected to a variety of operating stresses that can result in faults. Bearing faults, stator interturn faults, and cracked rotor bars are the most common recurrent faults in induction motors. Early detection of induction motor faults is critical for reliable and cost-effective operation. Faults and failures of induction motor can lead to excessive downtimes and generate large losses in terms of maintenance and revenues. The purchasing and installation cost of equipment usually cost less than half of total expenditure over the life of machine for maintenance. Maintenance cost is 15% to 40% of the total cost and it can go up to 80% of the total cost. In many cases, the failure of a critically loaded machine can bring an entire industry process to a halt. The growing demand for high-quality and low-cost production has increased the need for automated manufacturing systems with effective monitoring and control capabilities.

Condition monitoring and fault diagnosis of an induction motor are critical in the manufacturing process. It can reduce maintenance costs and the risk of unexpected failures by allowing for the early detection of catastrophic failures. There are many condition monitoring methods, including vibration monitoring, thermal monitoring, chemical monitoring, acoustic emission monitoring, but all these methods require expensive sensors or specialized tools. Whereas the current monitoring does not require additional costly sensors as basic electrical quantities voltage and current are readily measured by voltage and current transformers that are always installed as a part of the protection system. As a result current monitoring is non-intrusive and may be implemented even if the motor is at the remote end from the motor control center. Thus MCSA proves to be a low cost online nondestructive fault diagnosis and detection system to provide accurate assessment of motor faults. This chapter presents experimental results for multiple fault detection in induction motors using signal processing and artificial neural network approaches. The continuous wavelet transform was used to analyse motor line currents recorded under various fault conditions. A feedforward neural network was used for fault characterization based on fault features extracted using continuous wavelet transform.

Keywords: Artificial neural networks; continuous wavelet transform; induction motor; multiple fault detection.

1. INTRODUCTION

As induction motors are a critical component in the majority of industrial processes, any failure in the machine has a negative impact on the industries. Early detection of motor faults is highly desirable to reduce downtime and also for safety considerations, which necessitates condition-based monitoring of the induction motor. Bearing faults, stator winding faults, and rotor faults are the most common induction motor faults. Bearing failures account for roughly one-fifth of all faults. One-third of reported

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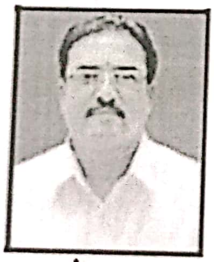

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Chapter 2
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Study on Discrimination between Inrush and Fault in Transformer: ANN Approach

S. R. Paraskar [a#*]

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ABSTRACT

Transformer protection is a critical issue in power systems because it involves accurately and quickly distinguishing magnetising inrush current from internal fault current. An artificial neural network has been proposed and demonstrated its ability to solve the transformer monitoring and fault detection problem using a low-cost, dependable, and noninvasive procedure. This paper presents an algorithm in which statistical parameters of detailed d1 level wavelet coefficients of signal are used as an input to the artificial neural network (ANN), which develops into a novel approach for online detection method to discriminate the magnetising inrush current and inter-turn fault, as well as the location of fault, i.e. whether the interturn fault lies in primary or secondary winding, using discrete wavelet transform and artificial neural network (ANNs). In the laboratory, information from controlled experiments was collected using a custom-built single-phase transformer. Following feature extraction with the discrete wavelet transform (DWT), a neural network model MLP was designed and rigorously trained. It is also discussed the proposed on-line detection scheme.

Keywords: Neural networks; transformer; fault detection; discrete wavelet transform (DWT); inrush current.

1. INTRODUCTION

Power transformers are critical components of any power system. As a result, it is critical to avoid any malfunctioning of the necessary protective system. Differential protection has been used as the primary protection of power systems for many years. It houses the differential relay, which operates for all internal power transformer fault types and blocks caused by inrush current. The main disadvantage of differential protection relays is the possibility of misoperation caused by the transient inrush current that flows when the transformer is energised. The inrush current contains a large second harmonic component. Most of the methods for digital differential protection of transformers are based on harmonic content of differential current. These methods are based on this fact that the ratio of the second harmonics to the fundamental component of differential current in inrush current condition is greater than the ratio in the fault condition.

However, the second harmonic may also be generated during faults on the transformers. It might be due to saturation of CTs, parallel capacitances or disconnected transformers. The second harmonic in these situations might be greater than the second harmonic in inrush currents. Thus, the commonly employed conventional differential protection based on second harmonic restraint will face difficulty in distinguishing inrush current and internal faults. Thus, an improved technique of protection is required to discriminate between inrush current and internal faults [1].

To overcome this difficulty and prevent the mal-function of differential relay, many methods have been presented to analyze and recognize inrush current and internal fault currents. As both inrush current

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Mr. Ravishankar Shaligram Kankale, Assistant Professor
Presented the paper entitled
Classification of Power Quality Disturbances in Emerging Power System Using Discrete Wavelet Transform and K-Nearest Neighbor
at "International Conference on Smart Innovations for Society **(ICSIS)** 2021" held online during **August 20-21, 2021** at Poornima Institute of Engineering & Technology, Jaipur, Rajasthan.

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HOD I Year, PIET, Jaipur
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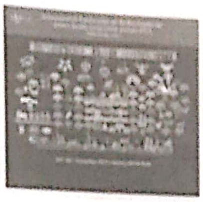
CLASSIFICATION OF POWER QUALITY DISTURBANCES IN EMERGING POWER SYSTEM USING DISC WAVELET TRANSFORM AND K-NEAREST NEIGHBOR



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Ravishankar Kankale
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Abstract

Power quality becomes a highly important issue in the power system operation due to the increasing use of power electronic devices. Waveform distortions are frequent by the power quality disturbances such as sag, swell, interruption, harmonics, flicker, transients, and notch. These disturbances cause malfunctions, instabilities, and fail user equipment's [1].

It is important to select appropriate features for the classification of PQDs. In order to extract features from the captured signal, signal processing techniques are used. T features are further fed to the classifier. The feature extraction is done in two steps. To begin, the time domain voltage signal is processed using signal processing techni Second, extraction of appropriate feature is done using the processed signal. A well selected feature vector reduces the classifiers load [2]. Features can be directly extra the original time domain signals, and from the transformed frequency domain signals. To convert the time domain signal into a frequency domain signal, signal processi techniques such as Fourier transform (FT), short-time Fourier transform (STFT), wavelet transform (WT), and S-transform (ST) are utilized.

The frequency contents in the signal were extracted using FT. The frequency content of the signal can be used to identify some PQDs. However, FT is ineffective for trans signals. This is due to the fact that FT only tells you if a frequency component exists, but not when it appears [2]. In order to get this information, the time-frequency loca techniques are used. This enables you to obtain time-evolved signal components in different frequency ranges. This problem can be solved by using STFT, but it has a fix size. The STFT approach is found to be insufficient for evaluating non-stationary signals. Hence there is a requirement of efficient and powerful techniques for analysing stationary signals [3-6]. Many researchers have recommended Wavelet transform for the analysis of PQDs to overcome the fixed window width problem of STFT [7]. This automatically adapts to give correct time and frequency resolutions. High-frequency signal components have a higher time resolution, whereas the low-frequency signal components have higher frequency resolution with this technique. These characteristics make the WT ideal for analysing power system transients induced by a variety o

In Wavelet transform wavelet is used as the basis function, and it scales according to the frequency under consideration. The WT delivers superior results than the FT an because the basis function is a wavelet rather than an exponential function. The WT divides the signal into several frequency levels and displays them as wavelet coeffici ntinuous wavelet transform (CWT) and discrete wavelet transform (DWT) are used based upon type of signal under study. CWT-based decomposition is used for contir signals, while DWT-based decomposition is used for discrete time signals [8].

This paper proposes a discrete wavelet transform and KNN based approach for the classification of PQDs. The PQDs such as sag, swell and interruption are created by si the emerging power system using MATLAB Simulink. These disturbances are further analyse using wavelet transform for feature extraction. The features extracted from further used for training and testing the KNN classifier.

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AIES 2021
Review on Detection and Classification of Underlying Causes of Power Quality Disturbances using Signal Processing and Soft Computing Technique

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Abstract--- The new age power system is highly subjected to PQ disturbances that require proper attention and address. The research in this field is mainly categorized into different parts such as mathematical modelling, basic PQ principles, standards, impact and solutions, sources, and analysis. There are several underlying causes behind the occurrence of the PQ disturbance. Therefore, it is important to address the exact underlying cause for proper mitigation of the PQ disturbance. There are several methods available in the literature, which concentrated on to detection and classification of power quality events rather than root cause of the PQ events. So an effective method for root cause identification of PQ events is the need of the day. This article covers a broad review of signal processing and soft computing techniques used for the detection & recognition of the underlying cause of it. This will help the researcher, engineers, designers working in the field of detection, recognition, and monitoring of power quality. The comparative study of existing methods used in the literature is tabulated. The major concerns and obstacles in categorizing the recognition of power quality disturbances are thoroughly examined and discussed. The potential for new researchers in the field of power quality disturbance detection and recognition of underlying causes is further explored in this review.

Keywords--- *Underlying Cause of Power Quality Disturbances, Signal Processing Methods, Soft Computing Techniques*

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Classification of Power Quality Disturbances in Emerging Power System using S-transform and Support Vector Machine

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***Abstract*— Classification of Power Quality Disturbances (PQDs) becomes a key issue for end-users in order to enhance the Power Quality (PQ). S-transform (ST) based Support Vector Machine (SVM) classifier is presented in this paper for classification of PQDs in emerging power systems. S-transform is a new and powerful signal processing technique used for feature extraction in the PQDs classification algorithms. In this article, an energy threshold-based algorithm for the classification of PQDs is also presented. In this research work three PQDs namely voltage sag, swell, and interruption are considered under study. The data required for the analysis of PQDs is generated by simulating the emerging power system with these PQDs in a MATLAB Simulink environment. By using S-transform, the non-stationary voltage signal was transformed to extract the appropriate features needed for the classification of PQDs. For automatic classification of PQDs, the features extracted using S-transform are used for training and testing the SVM classifier. The proposed approach uses less features hence the classifier requires less memory and learning time. The simulation results reveal that S-Transform in combination with SVM is an effective way of classifying different PQDs in emerging power system.**

Keywords*— *Power quality disturbances, S-transform, Support Vector Machine, Signal processing techniques.

I. Introduction

It has always been a top priority for electric utilities around the world to reduce PQDs because they can have adverse effect on the reliability and security of electrical power system. Faults in power system, increasing use of power electronic devices, switching operation, penetration of inverter-based renewable energy sources, operation of distributed generation, and improper grounding are the most common causes of PQDs [1]. If the disturbances were caused by the operating conditions of the emerging power system, the power utility needs to immediately rectify these issues to prevent a recurrence of the problem. The information about the type of PQD and its cause is very important. This information will help to make decisions and take corrective actions for the improvement of power quality. Therefore, power utilities must take some practical steps in order to identify the types of PQDs that could arise from the emerging power system [2].

PQDs have different characteristics, and we can classify them on the basis of their characteristics. Voltage variation, frequency deviation, transients, and presence of notches are some of the common characteristics used to classify PQDs [4].

A variety of signal processing techniques have been proposed by many researchers for the classification of PQDs.

It is important to note that the PQDs are non-stationary by nature. Fourier Transform (FT), Short Time Fourier Transform (STFT), Wavelet Transform (WT), and Filter Bank Method have been proposed for the analysis of signals from various fields [5]. There is a large amount of work being done on PQ that makes use of WT for analyzing power signals. Nonstationary signals are decomposed into time-scale distributions using the WT. WT is the widely used signal processing technique for the detection and classification of PQ disturbances, but it has the limitation that it is unable to estimate the Fourier frequencies and has a local phase reference [6]. The S-transform is a powerful time-frequency analysis tool. The S-transform is widely used in PQ studies as well as many other domains because it has the ability to estimate the time localized Fourier frequency spectrum and has a global phase reference. It also has the capability to accurately detect the PQDs in a noisy environment. This capability attracts many researchers to use S-transform for the detection and classification of PQDs. When using the S-transform instead of WT, you don't have to test various mother wavelets to find the best one for a better classification result, which is another benefit. The S-transform is similar to the WT but with some phase correction. In the case of PQDs with noise, the S-transform produces patterns that closely match the disturbance type and hence requires a simple classification method. By visualizing the contour of the S-transform one can classify the type of PQDs which is another advantage of the S-transform over WT. Because of all these superior features, S-transform is now significantly used in the classification of PQDs [7].

A variety of soft computing techniques are available in the literature for the classification of PQDs. As far as classification problems are concerned, SVM is the most widely used supervisory algorithm available [8]. In this paper, PQDs are classified using the unique combination of S-transform and SVM. To classify PQDs in emerging power systems, the features from the S-transform are directly applied to SVM.

II. S-Transform

In the field of signal processing, the S-transform is regarded as one of the most recent developments. A time-domain signal is converted to a time-frequency representation. Currently, it is used as a tool to monitor power quality. S-Transform is able to accurately detect disturbances in noisy environments, whereas Wavelet

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PQDs. The classification algorithm developed based on threshold values of Parseval's energy gives accurate results for all cases of PQDs. A dataset is generated from the feature vector by computing the Parseval's energy for different cases of PQDs for training and testing the SVM classifier. The classification results show that the SVM classifier accurately classifies the type of PQDs with 100% training and testing accuracy. The proposed approach was validated using simulation waveforms. The simulation results reported in this research paper effectively demonstrate the ability of the proposed algorithm to correctly classify the PQDs. We can conclude from the analysis that the suggested methodology outperforms existing methods. The proposed approach was found to be much faster and simpler than other WT-based approaches. The use of this technique on a broad scale could improve the power quality monitoring system and finally the quality of the power.

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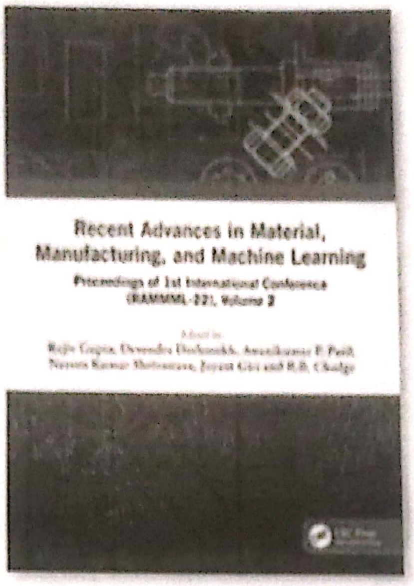

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2	M.N.Tibdewal	Application of Modified Restricted Boltzmann Machine (mRBM) for denoising of motion-Artifacted MRI scans	10th International Conference on Emerging Trends in Engineering and Technology - Signal and Information Processing (ICETET-SIP-22)
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08:45-09:05	MIST1057	Long-tone-burst Ultrasound Enhanced Microbubble Thrombolysis *Prof. Xianghui Chen, First Affiliated Hospital of Jinan University, China*
09:05-09:25	MIST1058	Generative Adversarial Network for Medical Image Synthesis: A Case Study in Realistic Knee Image Generation *Dr. Hong-Seng Gan, Universiti Malaysia Kelantan, Malaysia*
09:25-09:40	MIST1038	Imaging and Computer Vision for Biomedical Robotics *Asst. Prof. Liangjing Yang, Zhejiang University, China*
09:40-10:00	MIST1051	Brain Tumor Segmentation in MRI Images using Di-Phase Midway Convolution and Deconvolution Network *Prof. PL. Chithra, University of Madras, India*
10:00-10:25	MIST1029	A Bi-splitting Radial Curve Method for Region based Segmentation of Tumour Detection *Mr. Radhamadhab Dalai, Birla Institute of Technology Mesra, India*
10:25-10:35		**BREAK**
10:35-10:50	MIST1031	Imaging Noise Models, Poisson Noise Reasons and its Effect on X-Ray Images *Asst. Sajid Ullah Khan, University of Lakki Marwat, Pakistan*
10:50-11:20	MIST1052	Analysis of Psychophysiological Effects of Meditation Through Electroencephalogram *Dr. Manish N. Tibdewal, Shri Sant Gajanan Maharaj College of Engineering, India*
11:20-11:30	MIST1018	Robotic Device for MRgFUS Applications in Veterinary Medicine *Ms. Anastasia Antoniou, Cyprus University of Technology, Cyprus*
11:30-11:50	MIST1003	Digital Passports: Biometric & Vaccine Information *Prof. Khaled A. Nagaty, British University in Egypt, Egypt*
11:50-12:05	MIST1037	Application of Wavelet Theory in Medical Imaging (Knee : Patella) *Dr. Belarbi Mansour, Mascara University, Algeria*
12:05-12:20	MIST1042	Fractional Brownian Motion Model for Bone X-ray Images Characterization *Dr. Khaled Harrar, University M'Hamed Bougara of Boumerdes, Algeria*
12:20-12:35	MIST1021	Deterministic Global Optimization Methods for the Study of Inverse Problems *Dr. Dmitri E. Kvasov, University of Calabria, Italy*

MIST1052: Analysis of Psychophysiological effects of Meditation through Electroencephalogram

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Abstract. Meditation has a metaphysical influence on the physical as well as mental health of humans. It promotes relaxation to the human being which is required for alleviating stress. This experiment investigates the psychophysiological effects of meditation using an electroencephalogram (EEG). In this research work, the analysis of EEG signals is done for cognitive effects on the human brain for before and after meditation intervention of 25 subjects. The aim of this study is to analyze brain functioning after a month of meditation intervention using statistical and spectral analysis. The statistical and spectral analysis was performed through Sample entropy and Power spectral density respectively. The statistical analysis shows that the Sample Entropy decreased after meditation. The spectral analysis stated that theta power has increased 88 % of subjects whereas the alpha power is increased for the entire subjects after meditation. These features index the meditation improves relaxation, cognitive functions. In future, the work shall be extended by increasing more subjects with a sustained period of meditation to present the more benefits of meditation.

Keywords: EEG; Meditation; Sample Entropy; Power Spectral Density

MIST1018: Robotic Device for Mrgfus Applications in Veterinary Medicine

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Abstract. Magnetic Resonance guided Focused Ultrasound (MRgFUS) constitutes an emerging non-invasive therapeutic modality in modern oncology. Since application of this technology in veterinary medicine contributes to optimizing therapeutic protocols and more rapidly translating research into clinical practice, a robotic device intended for veterinary MRgFUS has been developed. The device comprises a positioning mechanism dedicated to navigating a single element spherically focused transducer operating between 1-3 MHz in four PC-controlled axes. All the motion stages are actuated by piezoelectric motors, whereas two optical encoder setups are arranged on each stage, thus providing precise position estimates. Sufficient accuracy and repeatability of motion were demonstrated through caliper-based and Magnetic Resonance Imaging (MRI) techniques, with an estimated mean positioning error smaller than 0.1 mm. Highly accurate motion was also confirmed through visual examination by performing multiple ablations on a plastic film. For MR compatibility assessment, quantitative evaluation was performed by calculating the signal-to-noise ratio during device activation in a 1.5 T scanner using an in-house phantom, as well as through a more comprehensive approach of quality assurance and a series of specialized tests. The system was proven safe for operation inside the scanner without significantly affecting the overall image quality. Due to its compact and simple design, it is easily transportable, ergonomic, and suitable for integration into the bore of up to 7T MRI scanners. Upon veterinary validation, the developed system could be easily translated into clinical medicine for treating abdominal cancer in humans with minimal design modification.

Keywords: MRgFUS; Robotic Device; Veterinary Medicine

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Analysis of Psychophysiological effects of Meditation through Electroencephalogram

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***Abstract* — Meditation has a metaphysical influence on the physical as well as mental health of humans. It promotes relaxation to the human being which is required for alleviating stress. This experiment investigates the psychophysiological effects of meditation using an electroencephalogram (EEG). In this research work, the analysis of EEG signals is done for cognitive effects on the human brain for before and after meditation intervention of 25 subjects. The aim of this study is to analyze brain functioning after a month of meditation intervention using statistical and spectral analysis. The statistical and spectral analysis was performed through Sample entropy and Power spectral density respectively. The statistical analysis shows that the Sample Entropy decreased after meditation. The spectral analysis stated that theta power has increased 88 % of subjects whereas the alpha power is increased for the entire subjects after meditation. These features index the meditation improves relaxation, cognitive functions. In future, the work shall be extended by increasing more subjects with a sustained period of meditation to present the more benefits of meditation.**

Keywords—EEG, meditation, Sample entropy, Power spectral density.

I. INTRODUCTION

Meditation has been used to address the various health related problems for ages. Basically, meditation is an activity that supports to enhance the understanding of self realization. Nowadays, the psychological stress arises from decrescent work load, tends to insomnia, negativity, depression and many other symptoms that turns into long term heath related issues.

Meditation is an effective solution to reduce the stress which can remarkably affect on physical as well as mental health as studied in previous [1], [2]. The EEG is a temporal technique that record and monitor the electrical activity of human brain cerebrum. The rootlet of EEG activity is the electric potential within the neurons of the human brain. The EEG activity produces oscillations at different types of frequencies [3]. This technique used to analyze the effects of meditation.

The EEG signal analysis is frequently grouped in frequency bands: delta, theta, alpha, beta, and gamma. Delta band (0.5–4 Hz), the slowest and strongest brain wave which is mainly involved with deep sleep or dreamless sleep is also found during deep meditation. Theta band (4–8 Hz) is linked with drowsiness, light sleep, concentration, deep relaxation, or meditation. Alpha band (8–12 Hz) is related to relaxation, calmness, or peaceful state. Beta band (12–30 Hz) is associated with normal awaking consciousness, high alert, active thinking, angry, anxiety, or focus. Normally, a person functions in this frequency band during daytime. Gamma band (30–100 Hz) is the fastest brain wave associated with hyperactivity or the processing of information from different brain areas.

EEG studies have been used with different signal processing techniques to mention the brainwave changes that arise during meditating [4]. Dillbeck et al. found that significant changes in frontal alpha coherence in TM practice [5]. Incagli et al. conducted the meditation program to examine the cognitive process [6]. Ahmed et al. studied the effect of mental behavior through DWT [7]. Ahani et al. proposed methods to analyze the changes of EEG and respiration signals for meditation and control state [8]. Mingqian et al. carried the experiment to investigate the insight of mindfulness meditation [9]. Fulpatil et al. examined the EEG signal during meditation using a wavelet function [10].

Andrew et al. investigated the utilization of EEG screening for personalized approach in the meditation [11]. Sobolewski et al. explored the effect meditation impact on emotional regulation [12]. Sharma et al. implied that regular meditation practice can affect the positive impact on brain areas especially, on frontal and parietal areas [13]. Frederick Travis narrated the importance of narrow frequency bands that reflects the different cognitive process [14]. Kora et al. elaborated the different meditation styles on Brain waves concerning physical and mental health [15].

Meditation produces changes in certain frequency bands. It is essential to process EEG signals because of non-stationary, highly non-linear, and stochastic behavior. Hence in order to investigate the meditation impact on human brain, this study examines EEG signals for before meditation and after a month of meditation intervention. The analysis performed through statistical and spectral features for 25 subjects using the features: Sample entropy and power spectral density.

II. METHODS AND MATERIAL

In this work, the 'Medicaid Neuro-Compact 2400' system is used to acquire EEG signals from different subjects using Ag-Cl types of electrodes for analyzing the impact of meditation. There are total 21 electrodes for data acquisitions with 10-20 international system. The sampling frequency (Fs) is observed as 114 Hz. Here, the experiment conducted on 25 novice healthy subjects between the age group of 16–50 year including male and female genders.

The EEG signal recording is done before meditation and after a month of meditation intervention for the same 25 subjects. Before meditation, the EEG data recorded when the subjects are in a calm and relaxed state with their mind stable for 10 min. The same subjects have performed meditation continuously for a minimum 15-30 minutes daily for a month. After a month of meditation, the EEG of meditators was recorded for 5-7 min.

The prefrontal cortex is majorly responsible for the cognitive process [9]. Thus, for analysis of the cognitive effects of meditation the frontal lobe electrodes (F3, F4, F7, F8, FP1, FP2, Fz) are used. Each epoch has a total of 912 samples. The EEG signals are sampled at 114 Hz over 8 second time duration. All the datasets are processed by designing every step. The implementation is done through the MATLAB (R2015a) 8.5.0.197613 platform. The ethical clearance is acquired from the Government Medical College Akola, Maharashtra, India.

The feature extraction carried by utilizing finite impulse response (FIR) filter for the separation of EEG bands as per frequency bands. FIR band pass filter process by assigning the '0.001' value as band attenuation, '1' value as the pass band ripple and '20' as the density factor.

All features are evaluated at the frontal electrodes for various bands, including delta, theta, alpha, and beta. The delta is excluded in the study because of its hyperactivity in nature. The statistical and spectral analyses are performed by extracting Sample Entropy and Power spectral density. These features are extracted band wise for both control and meditators group with frontal lobe channels of EEG time series. The student t-test is performed to examine the discrimination of control and meditators group. The p-values estimated from the t-test show how better these data discriminate between both cases. The equations for computation of each of the features are demonstrated as below:

Sample Entropy (SampEn)

The Sample Entropy measures the randomness of a time series. A high random brain indicates creativity or anxiety. It is useful to obtain the nonlinear interrelations and complexity of brain areas. The sample Entropy is one of the types of different entropies.

It is a measure of information as the measure probability distribution. The SampEn is less affected by the presence of noise. So as to evaluate the SampEn, two parameters are required, which is length of compared window m and tolerance r. The SampEn [16] value is calculated for the time series with N samples, as discussed below:

$$sampEn(m,r,N) = -\ln[\frac{A^m(r)}{B^m(r)}] \quad (1)$$

Where, $B^m(r)$ = Probability that two vectors will match for 'm' samples and $A^m(r)$= Probability that two vectors will match for $m+1$ samples.

Power spectral density (PSD)

The spectral analysis will illustrate the activity of brain over different regions and different states, which reflect the general arousal levels of brain. Power spectral density represents the power distribution of EEG series per unit frequency. PSD is evaluated using Fast Fourier Transform (FFT) quantifies the amount of activity in a different frequency band of EEG signal that reveals the strength of variation as the function of frequency.

Let $x[n]$ = EEG data

$$Power = \frac{1}{N}\sum_{k=0}^{N-1}|X[k]|^2 \quad (2)$$

where, N = Length of EEG signals, $X[k]$ = DFT of $x[n]$.

PSD estimation is a non-parametric method utilized to calculate the power spectrum of EEG time series as a function of frequency while maintaining the balance between smoothing in time and frequency resolution. The analysis is performed through all four bands after averaging frontal electrodes for before and after meditation intervention. All 25 subjects' EEG signals processed using band pass filter. After feature extraction each band is separated and hence delta, theta, alpha and beta power is calculated as shown in fig.1.

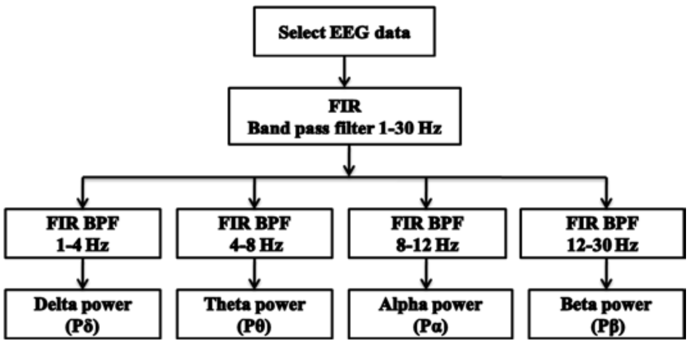

Fig .1. Flow chart of PSD estimation

III. RESULTS AND DISCUSSION

Statistical Analysis

According to the methodology the analysis of each subjects' EEG signals is done for before and after meditation. The study estimates the statistical and spectral analysis after averaging the seven frontal channels of EEG data. Here it is demonstrated the features such as Sample Entropy and Power Spectral Density. Table 1, shows the differences in statistical and spectral features of all 25 subjects for pre and post meditation.

It is inferred that the average sample entropy value for average of theta and alpha band is decreased in meditators whereas in delta and beta bands it is increased after a month of meditation intervention. The theta and alpha bands' sample entropy is low for meditators as compared to the control group. The sample entropy of delta band is 0.23 and 0.24, theta band is 0.48 and 0.45, alpha band is 0.49 and 0.48, beta band is 0.68 and 0.69 for the control and meditators group respectively. A high random brain indicates creativity or anxiety. Hence, decreased sample entropy indicates decrease in randomness and increase in non-linearity of EEG signals. As the non-linearity increases, brain cognitive functions perform better.

The *p*-value is evaluated from student t-test for different bands with < 0.05 as a significant level. Table 2 shows the p-values for both features between control group and meditators group.

Table 1: Sample entropy and Power features for before (control group) and after a month of meditation intervention (meditators group)

Subjects/ Gender/Age	Features	EEG bands: Control Group				EEG bands: Meditators Group			
		Delta	**Theta**	**Alpha**	**Beta**	**Delta**	**Theta**	**Alpha**	**Beta**
S1/M/19	**Sample entropy**	0.23	0.45	0.5	0.6	0.25	0.48	0.46	0.65
	Power	180.52	23.85	0.25	4.97	153.58	27.14	7.1	1.58
S2/F/19	**Sample entropy**	0.32	0.48	0.46	0.61	0.28	0.46	0.49	0.6
	Power	282.22	20.95	0.23	3.17	139.45	35.19	4.75	1.69
S3/F/19	**Sample entropy**	0.26	0.52	0.51	0.62	0.29	0.49	0.47	0.75
	Power	120.39	27.9	0.4	15.64	128	41.7	19.34	3.79
S4/F/22	**Sample entropy**	0.22	0.51	0.41	0.63	0.29	0.36	0.54	0.62
	Power	109.38	17	0.19	4.35	34.29	31.73	11.27	3.42
S5/F/18	**Sample entropy**	0.24	0.42	0.47	0.7	0.21	0.49	0.47	0.64
	Power	137.19	38.33	0.27	3.53	531.35	85.4	50.79	1.26
S6/M/32	**Sample entropy**	0.26	0.49	0.54	0.64	0.22	0.45	0.49	0.71
	Power	463.74	19.69	0.17	7.67	101.35	53.47	11.62	1.58
S7/M/29	**Sample entropy**	0.28	0.47	0.51	0.57	0.24	0.5	0.48	0.93
	Power	100.43	14.35	0.51	7.69	71.25	71.86	5.25	2.12
S8/F/22	**Sample entropy**	0.2	0.48	0.47	0.88	0.25	0.44	0.54	0.78
	Power	624.08	14.01	0.2	1.92	71.25	14.35	18.86	2.12
S9/F/23	**Sample entropy**	0.18	0.48	0.52	0.87	0.26	0.52	0.51	0.76
	Power	748.78	19.33	0.24	4.04	132.34	22.51	4.79	2.34
S10/F/21	**Sample entropy**	0.28	0.47	0.42	0.69	0.27	0.48	0.48	0.68
	Power	132.85	65.16	0.69	5.46	90.11	62.76	9.62	4.5
S11/F/50	**Sample entropy**	0.21	0.48	0.47	0.64	0.3	0.42	0.52	0.61
	Power	254.43	96.89	0.53	12.63	76.07	32.94	8.26	4.9
S12/M/24	**Sample entropy**	0.22	0.43	0.5	0.69	0.23	0.52	0.52	0.67
	Power	132.71	34.34	0.15	2.81	428.47	65.8	20.74	4.13
S13/F/18	**Sample entropy**	0.38	0.48	0.5	0.71	0.26	0.41	0.48	0.72
	Power	107.25	140.3	1.68	131.53	342.05	162.69	84.1	151.11
S14/F/18	**Sample entropy**	0.21	0.5	0.53	0.74	0.25	0.38	0.46	0.7
	Power	1302.16	73.07	0.22	1.91	444.75	141.51	15.73	3.73
S15/F/23	**Sample entropy**	0.19	0.44	0.51	0.67	0.23	0.49	0.51	0.77
	Power	324.08	17.46	0.15	5.73	154.49	19.64	12.58	1.27
S16/M/24	**Sample entropy**	0.22	0.49	0.49	0.67	0.28	0.45	0.42	0.6
	Power	273.4	16.4	0.21	1.33	138.3	28.85	13.02	6.07

S17/F/19	**Sample entropy**	0.21	0.49	0.48	0.57	0.22	0.45	0.49	0.59
	Power	253.62	20.01	0.51	3.63	159.16	71.85	8.23	7.73
S18/F/16	**Sample entropy**	0.19	0.54	0.5	0.65	0.25	0.48	0.46	0.65
	Power	104.09	17.35	0.14	2.4	153.58	27.14	7.1	1.58
S19/F/18	**Sample entropy**	0.19	0.45	0.55	0.71	0.21	0.38	0.55	0.7
	Power	337.26	24.22	0.09	3.62	127.95	60.78	17.95	1.52
S20/F/18	**Sample entropy**	0.22	0.45	0.54	0.76	0.19	0.51	0.52	0.79
	Power	117.49	63.73	0.68	18.62	418.91	57.56	23.37	24.78
S21/M/28	**Sample entropy**	0.2	0.51	0.49	0.72	0.23	0.51	0.41	0.78
	Power	397.05	10.98	0.41	3.22	154.16	55.61	10.57	2.86
S22/F/18	**Sample entropy**	0.23	0.51	0.52	0.71	0.21	0.49	0.48	0.68
	Power	716.44	49.71	0.28	6.31	208.08	82.41	16.42	1.26
S23/F/48	**Sample entropy**	0.24	0.48	0.49	0.56	0.25	0.49	0.48	0.56
	Power	159.17	28.34	1.02	18.99	1157.57	57.81	63.49	10.88
S24/M/30	**Sample entropy**	0.2	0.49	0.51	0.71	0.19	0.52	0.44	0.76
	Power	476.73	16.97	0.26	1.45	164.58	24.05	15.31	2.38
S25/F/18	**Sample entropy**	0.25	0.52	0.49	0.69	0.21	0.43	0.41	0.62
	Power	470.55	38.13	34.97	3.22	309.47	43.4	0.86	5.27

Table 2: *p*–Values of different EEG rhythms for Sample Entropy and Power

features	**p-value (EEG Band)**			
	Delta	**Theta**	**Alpha**	**Beta**
Sample Entropy	1.01E-01	1.01E-01	1.06E-01	2.50E-01
Power	1.01E-01	8.70E-04	7.71E-08	2.35E-01

Power Spectral analysis: The aim of this work is to investigate the effects on human being brain after the meditation. This is done by examining the different brain rhythms. The Spectral analysis gives information regarding to the existence of different frequency bands of EEG that reflects the general arousal levels of the brain [18]. Here the spectral analysis calculated by using FFT shows the power distribution over the brain regions. The FFT method is utilized to convert a signal from the time domain to frequency domain.

The maximum power value is extracted from the maximum amplitudes of the EEG signals shown in Table 1. It is observed that there is an overall increase in power after a month of meditation, in theta and alpha bands compared with the control group. While delta and beta band power decreases. Increased power in the alpha band implies high activity while doing easy tasks and theta band indicates subject alert to the external environment [9]. Whereas the delta band and beta band power are decreased in the corresponding subject.

From the analysis, theta and alpha bands are stronger with respect to band power in meditators than the control group which implies that theta and alpha changes appear from meditation practice. The increases in alpha and theta band power and decrease in frequency correlates with the lower level of anxiety and a higher level of calmness [1]. As the subject get calm it said that emotionally stable state and thus, subjects can increase concentration level. The alpha and theta band shows that $p \ll 0.05$ while delta and beta bands indicate $p > 0.05$. From the observation of p-value, it is implied that the theta band has a lower *p*-value while alpha band has higher discriminating data set between the control group and the meditators group as shown in table 2.

Through the power spectral analysis, it is perceived that power in theta and alpha bands increases significantly which supports and signifies the previous studies conducted on meditation. It is stated that, after meditation, there is a considerable increase in theta power for 88 % subjects' and an increase in alpha power for all the subjects. Whereas the delta and beta bands power are decreased. Theta band is associated with alertness, attention, working memory, concentration, and increased awareness of surrounding. Hence, the psycho-physiological effects are obtained by statistical and spectral features as the evidence by alpha and theta bands.

IV. CONCLUSION

The purpose of this innovative work is to analyse the psycho-physiological effects of meditation. The spectral analysis stated that theta power has increased 88 % of subjects whereas the alpha power is increased for all the meditators after meditation. From the quantitative analysis, it is stated that meditation improves psychological parameters in terms of relaxation, stress relief whereas, physiological parameters in terms of cognitive abilities. In future, the work shall be extended by increasing more subjects with sustained period of meditation to enact the more benefits of meditation.

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Application of Modified Restricted Boltzmann Machine (mRBM) for denoising of motion-artifacted MRI scans

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***Abstract*—One of the key difficulties that might impact the diagnosis is motion artifact in MR imaging. A Restricted Boltzmann Machine (RBM) may train itself using a probability distribution over a set of inputs. As a result, RBM may be used to create MRI scans that are devoid of artifacts. The suggested approach for denoising motion artifact-induced MRI data uses a feedback network to modify the existing restricted Boltzmann machine (RBM). Because to RBM, the number of weights and biases that must be calibrated is limited to visible and hidden layers, considerably speeding up the training process. Once trained, RBM output for a 256 x 256-pixel image takes roughly 2 seconds. mRBM has a root mean squared error (RMSE) of 0.00343. Because mRBM does not require repeat MRI, the speed and accuracy of diagnosis can be increased.**

***Index Terms*—MRI, mRBM, motion artifact**

I. Introduction

Human movements are unavoidable and may lead to motion artifacts during magnetic resonance imaging [1], [2]. The motion artifact-induced MRI is generally degraded in its image quality [3]. Because of the low SNR, such MRIs are not very useful in diagnosis. Low SNR due to the gradient echos cause blurring in the MRI images [4].

Restricted Boltzmann Machine (RBM) is used to extract features from an image [5]. Typically hidden layers are trained in an RBM using feature activation of its visible layer [6], [7]. RBM has two biases which are distinctive features in comparison to other methods reported in the literature [8], [9]. The hidden bias allows activation in the forward path.Visible layer bias helps in the reconstruction of the RBM in the backward direction. RBMs are shallow networks consisting of only two layers - the visible layer and the hidden layer. Nodes are interconnected across the layers but no two nodes of the same layer are linked. RBMs are called restricted Boltzmann machines because there is no intralayer communication.

Figure 1 shows the proposed methodology of the modified RBM. As shown in Fig. 1 (a) MRI scans are pre-processed to remove the name and other printed information. The name-removed output is then transformed into a 1-D array, with the region of interest (ROI) moved in the center. Each pixel on the visible layer gets its multiplying weight.When all of the pixels of a 2-D image are processed through the visible and hidden layers, a difference image is formed. This image is then compared to the ground truth, yielding a different image. The learning rate and the values in the difference image are used to alter all of the weights and biases. In Fig. 1 (b), a blinded sample with trained mRBM is used for real-time motion artifact correction testing. The RMSE was calculated using the ground truth and the generated output image. With the available dataset, the minimal RMSE value can be as low as 0.008.

II. Literature Review

Lyu *et al.* [10] employed a recurrent neural network to reduce heart motion artifacts. They claim that their approach produces superior image quality than any of the cardiac images published in the literature. Lyu employed a recurrent neural network to reduce heart motion artifacts in MRI images. They integrated bidirectional convolutional long short-term memory with multiscale convolution. They also recommended using the same approach to rebuild missing frames in order to improve temporal resolution. Zhao *et al.* [11] has presented deep learning-based MRI artifact reduction (DMAR). They were successful in lowering the RMSE to 0.068. They were able to obtain a maximum PSNR of 23.38 dB. Oh *et al.* [12] corrected motion artifacts in MRI pictures using unsupervised deep learning algorithms. The photos were 320 × 320 pixels in size. Their recorded PSNR was 24.47, which was higher than the value given by pix2pix. They obtained a PSNR of

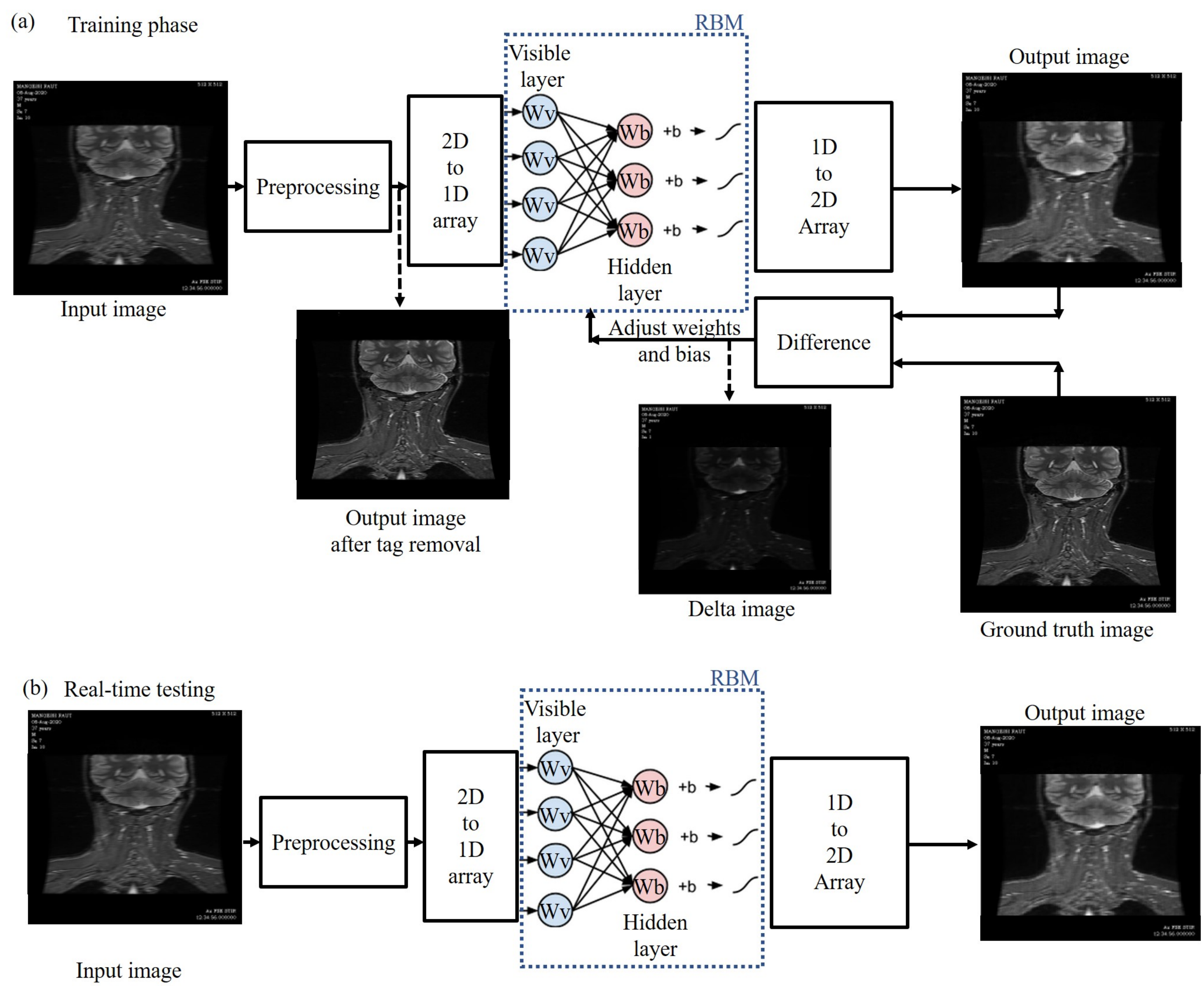

Fig. 1. Concept diagram for the proposed methodology. (a) The proposed system architecture uses a blurry MRI scan and its corresponding ground-truth version that was recaptured, as inputs. The name and other printed information are removed from the MRI images during preprocessing, and the data is converted to a 1D array. The 1D array is then sent into the RBM, where each pixel on the visible layer gets its multiplying weight. After that, all of the pixels are passed through the hidden layers, the weight of each hidden layer is multiplied, and the bias is added. To generate a difference image, the 1D output image is transformed to a 2D image before being compared to the ground truth image. (b) The proposed method is tested in real-time on a blinded sample using trained mRBM, with the resulting output image being used for RMSE estimates. We discovered that RMSE can be as low as 0.008.

34.13. Armanious *et al.* [13] proposed using cycle GAN to fix motion artifacts. They received an MSE of 375.01 for the 256 × 256 image size. Cycle-MedGAN and Cycle-MedGAN V2.0 were also created. Ciric *et al.* [14] improved MRI scans by 100 times using motion estimation and mathematical expressions. In addition, motion artifacts could be corrected in as little as 40 minutes to 4 hours.

Pipe *et al.* [15] employed Propeller MRI techniques to fix spatial discrepancies by sampling K-Space data. Their approach identifies and rejects data that has motion artifacts. Diffusion-weighted imaging (DW) was employed by Liau *et al.* [16]. They discovered that signal dropout occurs during heart scanning and is proportional to the b value. To eliminate motion artifacts in MRI, Smith *et al.* [17] employed a pulse sequence, better scanning, and a specific pulse design. To reduce motion artifacts, Goto *et al.* [18] employed regional displacement interaction (RDI) and scrubbing. Wang *et al.* [19] employed a convolutional constrained Boltzmann machine to predict breast cancer pathological response. The feature map is extracted using the CRBM, which is subsequently used for classification. In both the visible and hidden layers of their convolutional RBM model, they used a 2D block. They utilized a standard PCR as a comparison. They were able to obtain a maximum accuracy of 80 %.

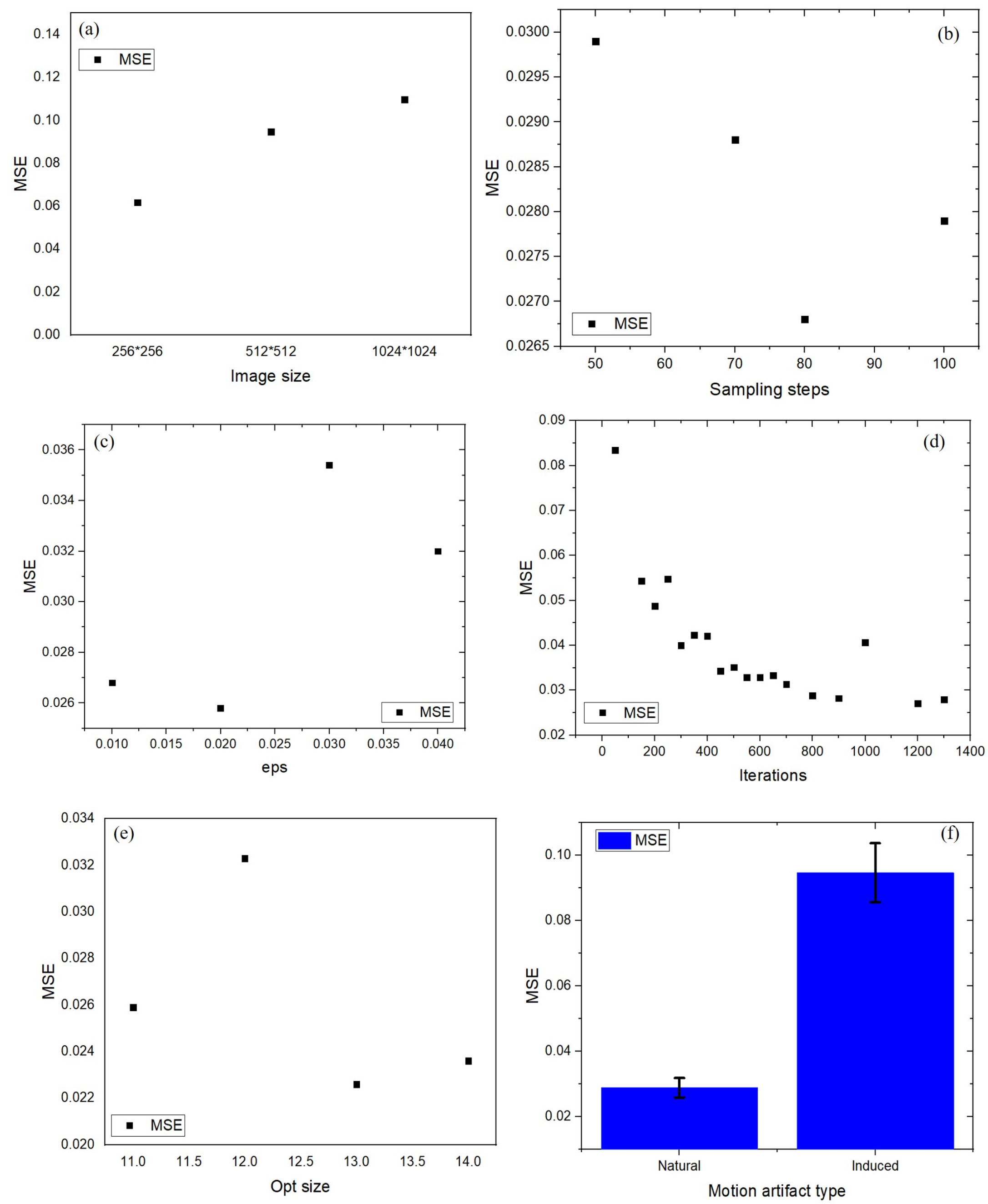

Fig. 2. Optimizing learning parameters with respect to Mean Square Error (MSE). (a) Plot of variation of input image size vs MSE. 256 X 256 pixels yields the lowest RMSE. (b) Plot of variation of sampling steps vs MSE. 80 sampling steps was the most optimal value. (c) Plot of variation of learning rate vs MSE. MSE was lowest at the learning rate of 0.02. (d) Plot of variation of the maximum number of iterations vs MSE. The lowest RMSE was produced in 900 iterations. (e) Plot of variation of the mini-batch size vs MSE. A mini-batch size of 13 yields the lowest RMSE value. (f) Comparison of RMSE for natural and artificially-induced motion artifacts in MRI scans. The average RMSE for natural motion artifacted MRI scans was lower than the average RMSE value of artificial motion artifacted MRI scans. Hence the proposed mRBM system should be preferred in cases of natural motion artifacts occurring in MRI scans.

III. Methodology

All of the image files that needed to be trained were housed in a single folder. The training inputs were set to a size of 256 × 256 pixels for the length and breadth of the images. We also tried 512 X 512 pixels and 1024 X 1024 pixels as size variations. If there were any colored images, they were transformed to grayscale, and all of the photos were changed from their standard uint-8 format to double format for mathematical computation.

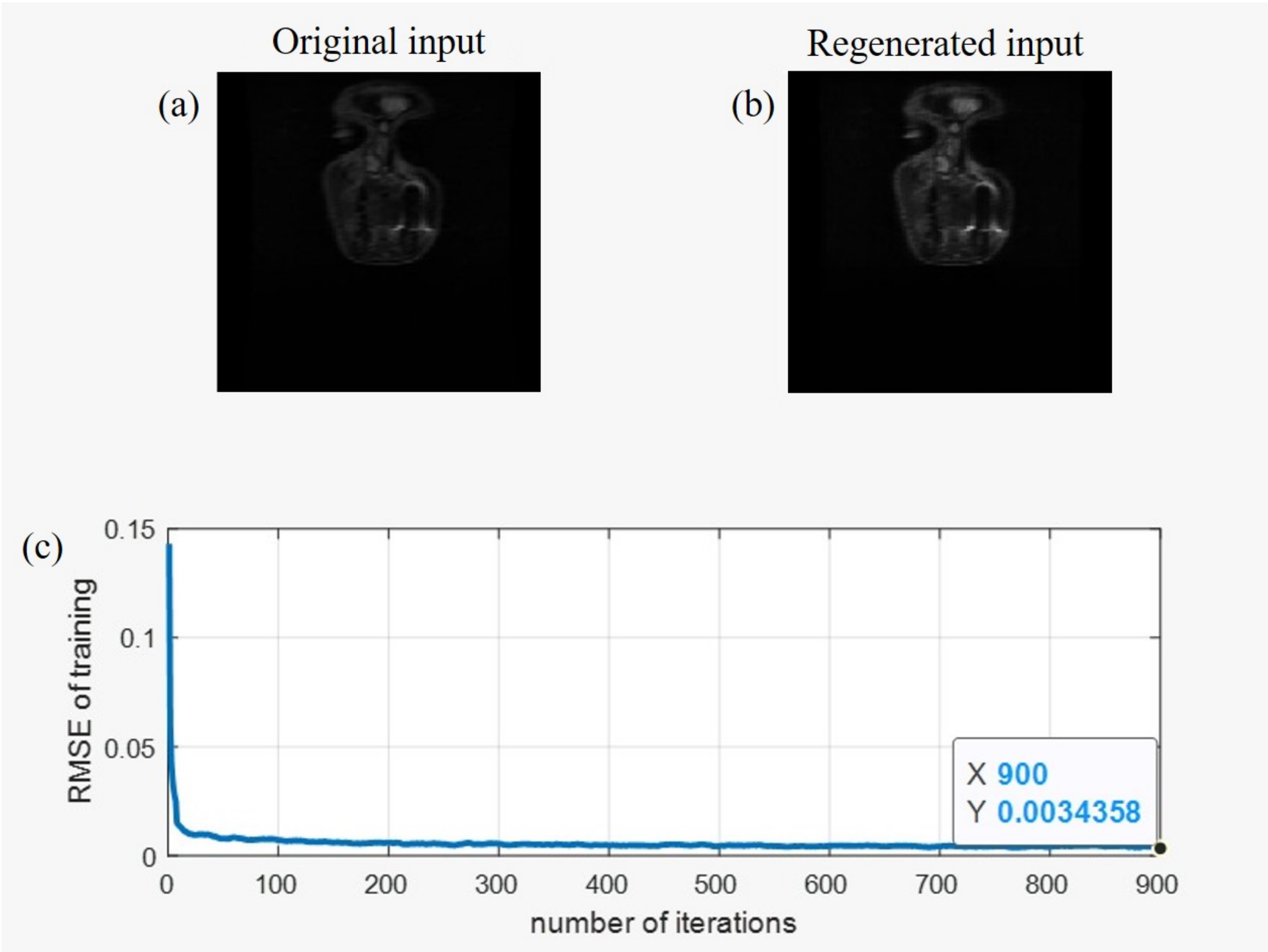

Fig. 3. Testing the proposed mRBM algorithm. (a) A motion blurred MRI scan is provided as input to the system. (b) Corresponding output generated by mRBM. (c) Plot of iterations vs Root Mean Square Error (RMSE). For this particular pair of input and output images, the lowest RMSE was 0.00343 obtained after 900 iterations.

We employed a conventional restricted Boltzmann machine (RBM method) and adjusted its parameters based on the difference between motion artifact corrected photos and their ground truths. The number of learning iterations that could be performed was limited to 900. We performed the algorithm from 50 to 1300 iterations with a configurable step size of 50, 100, and 200 to get the optimal number of iterations for the desired accuracy. The number of neurons in the hidden layer was set to 256 and the size of the mini-batch data was set at 13 images. We experimented with changing the learning rate from 0.01 to 0.04 in 0.1 increments. We also attempted Gibbs sampling steps of 50, 60, 70, 80, 90, and 100. The RMSE was minimized in all of these versions.

A. Details of training with mRBM

The entire input data was normalized between 0 to 1 using equation 1 and 2.

$$xn(i) = x(i) - min(x) \tag{1}$$

Where,
xn(i) is difference between the current value and the minimum value.
x(i) is the pixel value at ith location where i goes from 0 to (m X n).
min(x) is minimum value in image x.

$$xnormalized(i) = xn(i)/(max(x) - min(x)) \tag{2}$$

Where,
xnormalized is the normal value of x.
max(x) is maximum value in image x.

For both visible and hidden layers, all starting biases were set to 0. The seed point was chosen at random and mini-batch data was loaded following the seed point for training. Each neuron's initial weights were created at random. We began Gibbs sampling with the energy function. The hidden weights were adjusted using sigmoid functions of the visible layer weights. Equation 3 gives the sigmoid function.

$$S(w) = 1/1 + e^{-w} \tag{3}$$

Where,
S(w) is the sigmoid function at w.
w is the weight value of the other layer.

The weights of visible layers were adjusted as a sigmoid function of the weights of newly discovered hidden layers. In terms of ground truth, positive divergence (pd) and negative divergence (nd) were calculated. As indicated in equation 4, the network weights were changed according to the learning rate specified and constructive divergence.

$$w(itr) = w(itr-1) + \epsilon\ X\ (pd - nd) \tag{4}$$

Where,
w(itr) is the weight value of the current iteration.
w(itr-1) is the weight value of the previous iteration.
ϵ is the learning rate.
pd is the positive divergence.
nd is the negative divergence.

The overall difference between the visible layer and the ground truth image from the mini-batch with which we started was used to update the bias of visible layers.

$$b(itr) = b(itr-1) + \epsilon\ X\ (O(itr) - GT) \tag{5}$$

Where,
b(itr) is the bias value of the visible layer in the current iteration.
b(itr-1) is the bias value of the visible layer in the previous iteration.
O(itr) is the output of the current iteration.
GT is the ground truth

$$hb(itr) = hb(itr-1) + \epsilon\ X\ (O(0) - O(itr)) \tag{6}$$

Where,
hb(itr) is the bias value of the hidden layer in the current iteration.
hb(itr-1) is the bias value of the hidden layer in the previous iteration.
O(0) is the output of the first iteration.
O(itr) is the output of the nth iteration at which the node is activated.

$$RMSE = \sqrt{\frac{1}{m\ X\ n}\sum(O(i) - GT(i))^2} \tag{7}$$

Where,
RMSE is the root mean sqaure error.
m X n is the total number of locations
O(i) is the output of the ith location.
GT(i) is the ground truth of the ith location.

The visible layer's revised biases are presented in equation 5. Similarly, the hidden layer's biases were adjusted using the learning rate and the difference between the initial output and the output of the last iteration, where the output image is identical to the ground truth (as shown in equation 6). The RMSE of a mini-batch image is calculated by comparing the output of the last visible layer to the ground truth for that image. The existing trained mRBM network is used to import all of the training parameters, such as weights and biases. Visible layer biases and hidden layer biases are examples of these biases. The input is denoised using this trained network after the accuracy is within the specified range. By comparing the output of the last visible layer to the ground truth for that particular mini-batch image, the RMSE is calculated (as shown in equation 7).

B. *Experimental Procedure*

A group of local hospitals in Mumbai and Akola provided us with 160 motion artifact-induced MRI images. The photographs were in the 32-bit Digital Imaging and Communications in Medicine format (DICOM). Before sending the dataset, the hospital erased the identities of all patients for data privacy reasons. All of the photos were saved in two different datasets, one with 50 % training data and the other with 50 % testing data. The original graphics were 512 by 512 pixels in size. The images were downscaled to a size of 256 × 256 pixels for analysis and speed optimization. Between the labeling of the two images, there is a perfect correlation. The images were upscaled to a resolution of 1024 by 1024 pixels to better comprehend the influence of size fluctuation. We treated an entire range of 50 samples to 100 samples with a configurable step size to optimize the amount of Gibbs samples to be considered. The number of Gibbs samples and the image size were both optimized. The mRBM's mini-batch size ranged from 11 to 14 images in 1 image increments. We also attempted to create a motion artifact image and fix it for better analysis. Finally, the mRBM's mini-batch size ranged from 11 to 14 images in steps of 1.We employed a rotation and translation procedure to create the intentionally created motion artifact images. The image was rotated by a 10-degree angle and translated to a 10-pixel motion, and the final image was created by averaging the original image with the rotated and translated image. We utilized a motion blur filter with fspecial for averaging, and the final image was created with the imfilter function. For the required image and the generated image from the modified restricted Boltzmann machine, the RMSE was calculated.

IV. Results

The image sizes were modified from 256 x 256 pixels to 1024 × 1024 pixels, as shown in Fig. 2 (a). The RMSE increases from 0.6 to 0.11 as the image size increases. The sample steps were varied between 50 and 100, as shown in

TABLE I
COMPARISON OF THE PROPOSED MRBM WITH METHODS REPORTED IN THE LITERATURE

Method	RMSE	Iterations	Execution time (Sec.)	Number of images	PSNR
Tamada *et al.* [3]	0.01	80	–	40	–
Zhao *et al.* [11]	0.068	–	–	375	23.38
Armanious *et al.* [13]	0.805	–	–	–	26.03
Oh *et al.* [12]	0.9078	–	3.2	150	34.13
Rotman *et al.* [20]	0.013	120	159	7474	–
Proposed algorithm mRBM	0.00343	900	1.926	160	34.0875

Fig. 2 (b). As a consequence, 80 sample steps and a 256x256 pixel image size were determined to be ideal.

When the learning rate (eps i.e. ϵ) is altered between 0.01 and 0.04, the RMSE ranges from 0.0255 to 0.036. The effect of iterations variation on the least RMSE is shown in Figure 2 (c). With a learning rate ranging from 50 to 1300 in stages of 50, 100, and 200, the minimum RMSE occurs at 900 iterations as shown in Fig. 2 (d).

Because of the small size of the data set, the RMSE of a minibatch of motion artifact photos ranges from 0.022 to 0.034. The effect of changing the size of the mini-batch from 11 to 14 images is seen in Fig. 2 (e). As illustrated in Fig. 2 (f), we compared 160 naturally induced motion-artifact images to programmatically induced motion-augmented images. Artificially generated motion artifact images have an RMSE roughly three times that of naturally occurring motion artifact images. Artificially produced motion artifact images have an error bar of 0.098, whereas naturally, caused-motion artifact images have an error bar of 0.028. Both sorts of images have the same error bar. As a result, the suggested method outperforms the artificially induced method in the situation of naturally induced motion artifact images.

A sample motion blurred MRI scan and it's corresponding mRBM regenerated output is shown in Fig. 3. The RMSE of a trained mRBM can be as low as 0.00343 after 900 iterations, as shown in Fig. 3. Because the error decreases exponentially after the first 50 iterations, it is expected that at least 100 iterations will be necessary to fix any image with motion artifacts.

A. Discussions

The suggested mRBM technique is compared to existing methods reported in the literature in Table 1. The best approach for RMSE is mRBM, which has a value of 0.00343. Tamada *et al.* [3] and Rotman *et al.* [20] both have good RMSE in the 0.01 area. Other methods have reported only 80 [3] to 120 [20] iterations, however, the suggested technique takes the maximum number of iterations, ensuring greater quality. We also discovered that after the first 50 rounds, our algorithm works well, and we recommend at least 100 iterations for good accuracy. After training, the suggested approach has the best execution time of around 2 seconds, although others have reported 3 seconds [12] and 159 seconds [20]. The proposed approach has the second-best PSNR with 34.08, and Oh *et al.* [12] has the maximal PSNR of 34.13. Rotman *et al.* [20] utilized 7474 images, which was the maximum number of images used in the reported literature. Others, including the suggested technique, have samples ranging from a few hundred to a few thousand (it is difficult to get motion artifact data since most of the time rescan is immediately performed and such data is then discarded to save memory).

We needed a ground truth as well as motion artifact-induced images for this particular mRBM technique. To obtain rapid results, we employed an eight-core processor with 16 GB RAM and 6 GB of GPU. Because the entire network size is dependent on the size of the image, tuning a network like RBM is extremely challenging. Our network's accuracy is determined by the ground truth and their edge-to-edge matching with previous scans. Because the photographs were not aligned in the specific domain, we had to delete around 60 % of the images received. Only when the edge is not blurred can we align a ground truth image with the motion artifact-induced image using an extra pre-processing step based on the Canny edge detector.

V. CONCLUSIONS

Rescanning the MRI is the standard method for eradicating motion-induced artifacts. It is now possible to fix motion artifact photographs using advances in machine learning. The proposed method takes a limited Boltzmann machine and turns it into a closed-loop system that repeats until the error is within acceptable bounds. This mRBM (modified RBM) allows us to fix motion artifacts in less than 2 seconds with an RMSE of 0.00343. PSNR of 34.08 was attained with the proposed approach. The suggested approach required 900 iterations, and we anticipate that in the future, researchers will be able to employ this mRBM algorithm to fix motion artifacts in less time.

DECLARATIONS

Funding information

No funding was involved in the present work.

Conflicts of interest

Authors V. R. Tripathi, M. N. Tibdewal and R. Mishra declare that there has been no conflict of interest.

Code availability

Not applicable.

Authors' contributions

Conceptualization was done by V. R. Tripathi (VT), M. N. Tibdewal(MT), and R. Mishra (RM). All the literature reading and data gathering were performed by VT. All the experiments and coding was performed by VT. The formal analysis was performed by VT and RM. Manuscript writing- original draft preparation was done by VT. Review and editing was done by MT and RM. Visualization work was carried out by VT, MT and RM.

Ethics approval

All authors consciously assure that the manuscript fulfills the following statements: 1) This material is the authors' own original work, which has not been previously published elsewhere. 2) The paper is not currently being considered for publication elsewhere. 3) The paper reflects the authors'own research and analysis in a truthful and complete manner. 4) The paper properly credits the meaningful contributions of co-authors and co-researchers. 5) The results are appropriately placed in the context of prior and existing research.

Consent to participate

This article does not contain any studies with animals or humans performed by any of the authors. Informed consent was not required as there were no human participants. All the necessary permissions were obtained from Institute Ethical committee and concerned authorities.

Consent for publication

Authors have taken all the necessary consents for publication from participants wherever required.

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Application of Modified Restricted Boltzmann Machine (mRBM) for denoising of motion-artifacted MRI scans

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Abstract:
One of the key difficulties that might impact the diagnosis is motion artifact in MR imaging. A Restricted Boltzmann Machine (RBM) may train itself using a probability distribution over a set of inputs. As a result, RBM may be used to create MRI scans that are devoid of artifacts. The suggested approach for denoising motion artifact-induced MRI data uses a feedback network to modify the existing restricted Boltzmann machine (RBM). Because of RBM, the number of weights and biases that must be calibrated is limited to visible and hidden layers, considerably speeding up the training process. Once trained, RBM output for a 256 x 256-pixel image takes roughly 2 seconds. mRBM has a root mean squared error (RMSE) of 0.00343. Because mRBM does not require repeat MRI, the speed and accuracy of diagnosis can be increased.

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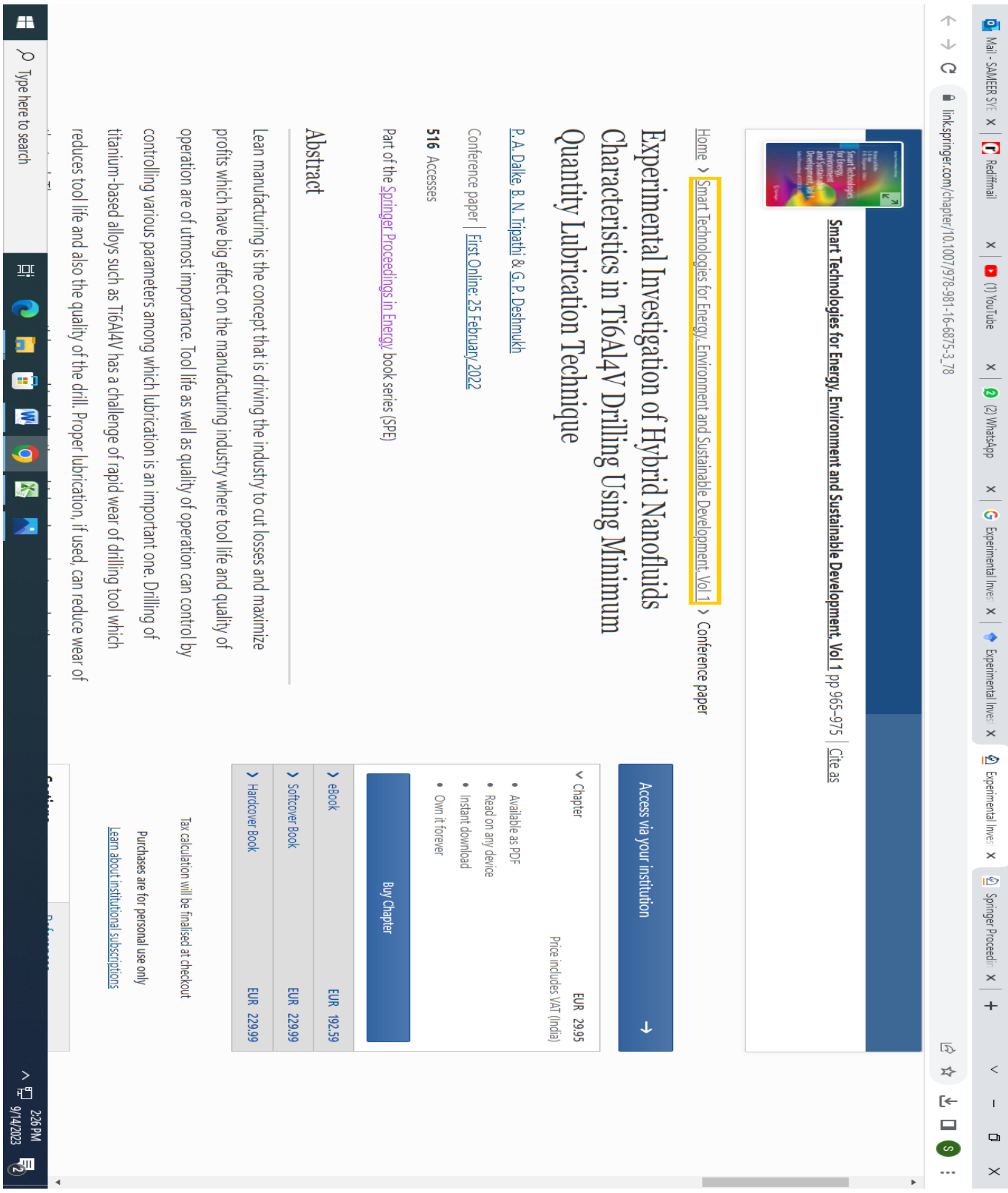

This book helps the aspirants in management fraternity to explore the untraveled, unsought, experimental and futuristic attributes of the contemporary organizations. The nature of problems being faced and the probable solaces to resolve them can be better revisited through the varied areas, allied case studies, data and analysis presented herein. The odyssey of business ventures, small and medium enterprises, multinationals, conglomerate, corporate is finely illustrated and investigated emphasizing their practices. This will prove to be a lighthouse for students, academicians, research scholars, entrepreneurs, employees, managers, policy makers and management enthusiasts. The truly innovative approaches illuminated in this book will undoubtedly assist recasting, remodeling and transformation of the organizations and economies in twenty first century.

The chapters in the book are classified into sections given below:

1. Innovation in Human Excellence
2. Innovation in Finance
3. Innovation in Marketing
4. Innovation in Rural Development and Entrepreneurship
5. Emerging Trends in Innovation

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It has been a very challenging and massive task to secure support of so many academicians, researchers and students besides a few industry representatives and receive their intellectual work in form of research papers and finally bringing it to a successful culmination in the release of the hard bound volumes at the inaugural function of the conference. We wish to express our sincere gratitude and appreciation to the many who made this publication possible.

- At the outset we offer our prayer in the lotus feet of Shri Sant Gajanan Maharaj for showering his blessings for all our endeavors.
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Hari Mohan Jha "Bidyarthi"
Pawan Mahadeo Kuchar
Satya Mohan Mishra
Vishal Vinayakrao Patil

Introduction

Inevitable are the changes and optional, the growth! Innovation is basically a change backed by novelty. That's the reason why nearly every innovation is preceded by a sort of chaos. But the end of this chaos brings the best possible things. Such fruitful innovative inputs can be witnessed in the efforts by the greatest management personalities like Chanakya, Niccolo Machiavelli, Robert Owen, Adam Smith, Fredrick Taylor, Thomas Watson, Abraham Maslow, Peter Drucker, Henry Fayol, Elton Mayo, and William Deming. The gravity of innovations has been on rise since last century and managerial innovation has become a buzzword in the first half of the twenty first century. The big players in the market keep aside a handsome amount to initiate, channelize and implement innovative practices. This amount is expected to originate and build win- win scenarios. Eventually, rupee rules, dollar dominates, money matters.

The research papers and case studies in this book are themselves rich and further enrich the orbits of managerial innovations through a fine focus on utilizing each penny, moment, machine/ equipment, method and manpower. This book presents five sections viz. innovation in human excellence, innovation in finance, innovation in marketing, emerging trends in innovation, innovation in rural development and entrepreneurship.

Innovation in Human Excellence

The first section of this book addresses human touch to business and the excellence parameters. The first chapter Leadership Effectiveness and Quality Decisions: Innovative Insights from Sanskrit Scriptures written by Pawan Kumar Singh throws light on ancient texts, their in-depth meanings, and increased relevance in recent times. Dr. R. Narayanan, through second chapter

Organizational Climate and Attitudes on Job Performance of Nurses enquires recurring organizational patterns and behaviors reflecting climate in nursing profession. The next chapter, Determinants of Employee Engagement: A Study on Physical Work Setting by Saket Ranjan Praveer and Malvika Tiwari discuss enhancing employee engagement through conducive and supportive environment through an empirical study based primary data collected from engineering colleges of Central Chhattisgarh.

In the fourth chapter, functions and recent trends of human resource management (HRM) in the field of education related to teachers and students, Vasudev N. Joshi elaborates a need for adequate, skilled and well-motivated workforce operating within a sound human resource management program.

HRM Practices and Innovation – An Empirical Systematic Review by Florence Thomas, Manish Awasthi, Sanyukta Khandare and Mahek Iram Qureshi, the last chapter in this section expresses concerns about relationship between human resource management practices (HRMP) and innovation described as a black box.

Innovation in Finance

The second section of the book makes the readers realize the recent innovation happenings in finance stream. The first chapter, a study on Health Insurance Service Sectors in India by Dr. P. Mohanasundaram elucidates huge and lasting impact of the expected, augmented and potential innovations in Finance.

Sushant Vichare, in the second chapter Financial Derivatives Market in India: Scope of increase in Financial Derivative Instruments and Underlying Assets in Indian Financial Market, justifies and argues with valid reasons the possibilities of acceleration of the derivatives market.

Vishal Vinayakrao Patil, Komal Pradip Murumkar and Vaishnavi Jagdish Sahu emphasize on achievement of bigger goals including profitability, maturity, customer satisfaction through concentrating smaller still vital innovations in the third chapter, Dynamically Continuous Innovations in Financial Services – A Case of AU Small Finance Bank (Badlaav Hamse Hai).

The fourth chapter, Financial Performance of Axis Bank for the Period of 2017-2020 – A Review by Darshana M.Bhamburkar, Puja Bannagare and Gauri S.Kalmegh focuses on comprehending nearly all aspects of performance of financial entities by taking the private sector giant in India like Axis Bank for the said period.

In fifth chapter, Innovation in Financial Services, Meghna C. Khatri throws a fine light on the developing economies, desperate need for innovation, current practices and wide array of service products being offered by the financial organizations.

Sarah Tahseen Ahmed and S.G. Chapke, in chapter six, fetch the attention of the readers to a holistic approach with which the insurance industry can be seen. They also put forth the necessity to nurture leadership in their paper, Emotional Intelligence & It's Impact on Effective Leadership in Insurance Sector in Western Vidarbha.

Innovations in Marketing

The third section, innovation in marketing, elaborates functioning of several organizations and some practices that are full of novelty. The first chapter in this section assists the readers to grasp swapping in petroleum industry in Indian context. The research done by L. B. Deshmukh and Kapil S. Talreja has taken a form of this chapter, Petroleum Swap: An Innovative Approach to Enhance Petroleum Customer Service Level (CSL).

Raju Pralhad Gawai,in chapter second Innovative Marketing in Business, presents a very fine analysis of viral marketing, paid media marketing, Internet marketing, e-mail marketing, Direct selling, POP marketing, conversational marketing, earned media and proposes to go beyond 4P's.

In the third chapter, Opportunities and Challenges of Agro Processing Industry in Indian Context, Mahavir Neminath Sadavarte composes a quest for the unexplored areas and informs the readers about the possible obstacles as well.

Bilal T. Husain and Shriprabhu G. Chapke come up with their profound research in exceptional area of different risks which occur in road construction projects in fourth chapter, Identification and Assessment of Risks Involved in Construction Projects In Western Vidarbha from The Perspective of Civil Contractors.

Rural Development and Entrepreneurship

The fourth section is about the pioneering and spread of the innovative zeal in the rural pockets of the country and at grass root level. The first chapter, Evolution of Various Schemes by The Government of India for The Welfare of Rural Farmers: With Special Reference to Pradhan Mantri Fasal Bima Yojana (PMFBY) – Crop Insurance by Ankita Parikh and Ajay Trivedi illustrates the unavoidable role of insurance in the lives of the farmers in India and ignites the hope of betterment of the rural popular through innovative approaches.

Wechansing Z. Suliya and Vaishnavi Ambadas Dhumale, in chapter second, Vibrant Hands For Rural Development in India- A Study emerge with a very distinctive way of looking towards the problems and propose equally distinct remedies to resolve them.

In third chapter, Diffusing Family Business Innovations- A Case of Treasure Trove "Khandelwal Jewellers", Mayur A. Dande, Vaishnavi Bathe, Vaishali Gadkar, Kajal Kenekar, Abhijit Kharode and Dhiraj Shende weave an elegant case of a mediocre scale business in the semi- urban parts of India and purse the readers to replicate such attempts with individual touch of innovation.

Rajesh. B. Sasane, in chapter four, Inclusiveness of Scheduled Castes Entrepreneurs into Entrepreneurship: With Reference to Role of DICCI in Promoting Inclusiveness makes the masses aware about DICCI's initiatives and hopeful future scene of bringing Castes Entrepreneurs into mainstream.

In fifth chapter, Potential For Rural Economic Development Model In Tribal Pockets Of Nimad Region, Madhya Pradesh- An Enquiry, Wechansing Z. Suliya and Mahesh. S. Gaikwad suggest a new, constructive, precise model fitting to the said area. They also draw the attention towards essential alterations to be made in the conventional developmental models.

S. M. Mishra, M. A. Dande, P. M. Kuchar and Mamta Korde, in sixth chapter, Recipe for Inclusive Growth– Women Empowerment, present justifications and real life situations revealing auxiliary advantages of empowering women and come up with observation that woman empowerment tends to be the foremost catalyst for inclusiveness.

Emerging Trends in Innovation

The last section of this book is exclusively about the latest, off the track and out of box innovative mindsets and their implications. These ideas have the vigor to lead. The first chapter, Assessing the Need of Personalizing Activities and Role to Drive Academic Innovation written by Santosh Bothe, Monali Bothe and H. M. Jha "Bidyarthi" conveys the prerequisites for improvements in academics and suggests some genuine ways to address them.

The second chapter, Men and Women From Mars And Venus At Work by Pavan M. Kuchar, Satya Mohan Mishra, Mayur A. Dande, Vishal V. Patil identifies a minute still valuable scope of innovation for fostering the growth of the human side of the organizations with analysis of pros and cons of recruiting the better halves at the same workplace.

H.M. Jha “Bidyarthi” and Rajiv B. Jawale, in third chapter, Millennial Trend in Disruptive Innovation, present through a sample survey, an analytical study on disruptive innovations in two decades and fetch our attention to challenges of managing technology and commercialization.

Chapter fourth, Productive Mental Health: Need of Individuals and Organizations written by Wechansing Z. Suliya and Rajkumar Dhanuka provides insights into positive psychology, universal human values, ethos and holistic attributes for the blooming of the people, processes and organizations.

Mayur A. Dande, Pavan M. Kuchar, Satya Mohan Mishra, Vishal V. Patil in the fifth and last chapter, Revitalizing Non Profits- An Enquiry into Innovative Inputs By Vinoba Bhave and Baba Amte, make us feel the necessity of brainstorming, experimenting and applying the literature by the great social exemplars of the Indian soil for injecting more life into non profit world.

Hari Mohan Jha “Bidyarthi”
Pawan Mahadeo Kuchar
Satya Mohan Mishra
Vishal Vinayakrao Patil

INNOVATION IN HUMAN EXCELLENCE

Leadership Effectiveness and Quality Decisions: Innovative Insights from Sanskrit Scriptures

Pawan Kumar Singh

All those persons whose intellect follow scriptures, are never subjected to infatuation (येषां शास्त्रनुगा बुद्धिर्न ते मुह्यन्ति। yeshaam shaastra anugaa buddhih na te muhyanti – Mahaabhaarat: Aadiparva: 1/244).

Sanskrit scriptures are old but wisdom inherent in those scriptures are applicable to modern management practices. Eternal sutras need interpretation in modern context. Like a high quality mirror can be old but its reflections are modern. Some books are like old calendars thus applicability of the contents could be short-lived. Scriptures are like mirrors, hence the applicability of the contents are for all time. This article has two objectives. First, it is an attempt to introduce mainly Sanskrit scriptures and a few non-Sanskritscriptures. Second,to interpret sutras of vast Sanskrit scriptures and only one source of non-Sanskrit scriptures of Tulasidas in context of leadership effectiveness and quality decision making in all domains, be it in the context of self-management or management of organisations, politics, society or family.

Brief Introduction to Sanskrit Scriptures

In Favour of Scriptures

Scriptures are the most precious jewels available to mankind. No proposition can be against the dictates of scriptures. What is not a right proposition would be calamitous (श्रुत्या विरोधे न भवेत्प्रमाणं भवेदनर्थाय विना प्रमाणम्। *shrutyaa virodhe na bhavet pramaanam bhavet anarthaaya vinaa pramaanam* – Brahmavidyaa Upanishad: 32). Having cast aside the injunctions of the scripture, he who acts in an arbitrary way according to his own sweet-will neither attains perfection nor the supreme goal nor even happiness. Therefore, the scripture alone is your guide in determining what should be done and what should not be done. Knowing this, you ought to perform only such action as is ordained by the scriptures (यः शास्त्रविधिमुत्सृज्य वर्तते कामकारतः न स सिद्धिमवाप्नोति न सुखं न परां गतिम्; तस्माच्छास्त्रं प्रमाणं ते कार्याकार्यव्यवस्थितौ ज्ञात्वा शास्त्रविधानोक्तं कर्म कर्तुमिहार्हसि। *yah shaastravidhim utsrijya wartate kaamakaaratah na sa siddhimawaapn otinasukhamnaparaamgatim;tasmaatshaastrampramaanamte kaarya akaarya vyavasthitau gyaatwaa shaastra vidhaan uktam karma kartumihaarhasi* – Bhagvadgeeta: 16/23-24). Shukra Neeti suggests that after knowing about the virtuous acts and vice acts through the scriptures, one should shun the vice acts, and should adopt the virtuous acts (शास्त्रतः सदसज्ज्ञात्वा त्यक्त्वाऽसत्सत्समाचरेत्। *shaastratah sat sajgyaatwa tyaktwaa asat sat samaacharet* – Shukra Neeti: 1/50). Sage Naarad suggests that even after strong determination (of following the path of

Self Realization), scriptures should be protected (one should follow scriptures). Otherwise there is possibility of downfall (भवतु निश्चयदाढ्र्यादूर्ध्वं शास्त्ररक्षणम् अन्यथा पातित्याशङ्कया। *bhavatu nishchaya daardhyaadoordhwam shaastra rakshanam anyathaa paatityaa shankayaa* – Naarad Bhakti Sutra: 12-13). No one, on the basis of his own (convenient) logic can turn aside the quintessential issues of scriptures, which have been tested against parameters of justice and Truth (हेतुभिर्न्यायसंयुक्तैर्ध्रुवां वेदश्रुतीमिव। *hetubhih nyaaya sanyuktai dhruwaam vedashruteem iva* – Raamaayan: Aranyakaand: 50/22).

Brief Introduction:

Sanskrit Scriptures are vast. Even full gamut of one life time is perhaps not sufficient for getting properly introduced to Sanskrit Scriptures. Sutras are profound. It is said that sutras themselves decide the extent to which it has to reveal to the seeker depending upon the eligibility of the seeker. Thus there is emphasis on enhancing the capabilities of the seeker to understand a sutra in its full dimensions. Here are some descriptions of some important scriptures.

There are four Vedas: Rigveda, Yajurveda, Saamveda, and Atharvaveda.The word 'Veda' comes from the root word 'Vid' meaning the Knowledge. So knowledge in any domain belong to the Vedas. It is said that Ved Vyaas shared each of the Vedas to different four disciples. Rigveda was given to Pail, Yajurveda was given to Vaishampaayan, Saamveda was given to Jaimini, and Atharvaveda was given to Sumantu. In Indian tradition of education the wisdom travels from the guru (teacher) to shishya (disciple). This is called *paramparaa* (the tradition). Only knowledge travelling through *paramparaa* is said to be authentic. The issue of modern concept of copyright does not strictly apply to such tradition because the knowledge belongs to the cosmos and the teacher is only the carrier of the knowledge. Ved Vyaas is not the originator of the Vedas, he is a supreme compiler par excellence. Among many other issues, basically Rigveda deals with the Knowledge (Gyaana), Yajurveda deals with Karma, Saamveda deals with prayers (Upaasanaa), and Atharvaveda deals with varieties of subjects including the three as mentioned earlier. In general Vedas have chapters (Mandala), sub-chapters (Sookta) Mantras (sutras, or in context of Vedas, they are called Richaas). Every part of the sutras of the Vedas belong to a Rishi (seer), to a Devataa (demi-gods), and to a Chhanda (poetic meter). It is said that the God or Paramaatmaa basically prefers communication through poetry compared to prose. That is why poetic meter is also important dimension of the Vedas. Out of the four Vedas, the Rigveda is most vast. This has 10,552 Mantras compiled under 10 Mandalas and 1028 Sooktas. Yajurveda has 2086 Mantras, Saamveda has 1810 Mantras, and Atharvaveda has 5987 mantras. Out of the four Vedas, the Rigveda is the basic, and some of its Mantras have been reproduced in other Vedas.

There are six Vedaangas: Shikshaa, Vyaakaran, Nirukta, Kalpa, Chhanda, andJyotish. Vedaangas means parts of the body of Vedas. To understand Vedas, study of Vedaangas is a pre-condition. Shikshaa deals in pronunciation, Vyaakaran deals in grammar, Nirukta deals in etymology, Kalpa deals in methods of rituals, Chhanda deals in poetic meters, and Jyotish i.e. combination of astronomy and astrology deals in identifying auspicious time to perform functions.

To my knowledge, available number of Upanishads is 243. The Upanishads are also called as Vedanta. Upanishad means learning the profound Knowledge by sitting close to or at the feet of the guru. Vedanta means the most quintessential part of the Vedas. Two Upanishads, Brihadaaranyak Upanishad and Chhandogya Upanishad, are vast in size. Most of the Upanishads are of moderate size, and several Upanishads are of such small size that each of such Upanishads can be written on one page! But size does not matter in context of Upanishads. Even one sutra of an Upanishad can be so profound that it may contain entire wisdom required to lead a meaningful life. Some of the well-known Upanishads are: Ishaavaasyopanishad, Kenopanishad, Kathopanishad, Prashnopanishad, Shwetaashwatarop anishad,Taittareeyopanishad, Mundakopanishad, Maandookyopanishad, Aitareyopanishad, Brihadaaranyakopanishad, Chhandogyopanishad, Nirwaan Upanishad, Sarvasaar Upanishad, Kaivalya Upanishad, Aadhyaatma Upanishad, Aatmapoojaa Upanishad, Akshya Upanishad,and others. Upanishads and the four Vedas have been studied in India and word-wide by many seekers for long. The interpretation of the Vedas by Saayan is common reference source to understand the Vedas and the Upanishads. Among many others the Vedas and the Upanishadas have been studied by foreign scholars likeMax Muller, Arthur Schopenhauer etc.

There are 23 well known Smritis. The Vedas and the Upanishadas are also called Shrutis (domain of knowledge that advanced through listening). The other part of scriptures is called Smritis (domain of knowledge that advanced through keeping in memory). Shrutis basically deal in the ultimate truth and the meaning of the life. Smritis basically deal in human values, ethics, morale, and social codes. Theyare vast reservoirs of the knowledge connected to what ought to be done (Niyama) and what ought not to be done (Yama). The three Smritis are more popular: Manu Smriti, Parashar Smriti, and Yaagyavakya Smriti. The others are: Gautam Smriti, Aushanam Smriti, Vashishtha Smriti, Shaataatap Smriti, Aaangiras Smriti, Yama Smriti, Likhit Smriti, Kaatyaayan Smriti, Vishnu Smriti, Samvartta Smriti, Daksha Smriti, Vedvyaas Smriti, Aapastamba Smriti, Haareet Smriti, Shankh Smriti, Atri Smriti, Brihaspati Smriti, Bodhaayan Smriti, Ladhwaashwalaayan Smriti, and Pulastya Smriti.

There are 18 main Puraanas and other Upa-Puraanas. They were mainly compiled by Ved Vyaas. The five main themes of Puraanas are: description of creation (Sarga), description of destruction (Prati-sarga), description of clan-trees (Vansha), description of characters (Vanshaanucharit), and description of time-cycle or periods (Manvantara). The 18 main Puraanas, with number of shlokas in parantheses according to Matsya Puraana are: Brahma Puraana (13,000), Brahmaanda Puraana (12,200), Brahma-vaivarta Puraana (18,000), Padma Puraana (55,000), Vishnu Puraana (23,000), Bhaagvad Puraana (18,000), Matsya Puraana (14,000), Koorma Puraana (18,000), Vaaraaha Puraana (24,000), Vaaman Puraana (10,000), Shiv Puraana (24,000), Linga Puraana (11,000), Skanda Puraana (81,100), Naarad Puraana (25,000), Maarkandeya Puraana (9,000), Agni Puraana (16,000), Bhavishya Puraana

(14,500), and Garud Puraana (19,000). According to Brahma-vaivarta Puraana and Bhaagvad Puraana, the number of shlokas in case of four Puraanas, i.e. Brahma Puraana, Brahmaanda Puraana, Agni Puraana, and Koorma Puraana are respectively 10,000; 12,000; 15,400; and 17,000. The supreme wisdom, various prayers, stories, history of universe, history of clans, and description of myriad of characters are intertwined throughout all the Puraanas. There are various Upa-Puraanaas, and according to Koorma Puraana, they are: Vaayu Puraana, Narsingha Puraana, Nandi or Shivadharma Puraana, Ganesh Puraana, Saamba or Aaditya Puraana, Sanat Puraana, Aashcharya Puraana, Kapil Puraana, Maanav Puraana, Ushanaa Puraana, Varun Puraana, Kaalikaa Puraan, Maaheshwara Puraana, Saura Puraana, Parashar Puraana, Maareecha Puraana, and Bhaargava Puraana.

There are six pillars of Indian psycho-philosophy. They are called Shad-Darshans (six schools of approaching Knowledge) They are: Upanishads compiled by Ved Vyaas, Yog Sutra by Patanjali, Saankhya by Kapil, Nyaaya by Gautam, Vaisheshik by Kanaad, and Mimaansa by Jaimini. Upanishads deal in the Supreme Knowledge, Yog Sutra deal in path of meditation and experiencing of consciousness, Saankhya deals in description of nature and the field of Supreme Brahma, Nyaaya deals in logic and reasoning, Vaisheshik deals in chemistry and formation of universe, and Mimaansa deals in philoshophy of karma that liberates.

There is a set of scriptures that is called Prasthaan Trayee. Prasthaan means departure (from ignorance), and Trayee means set of three books. Thus Prasthaan Trayee means set of three books that lead to departure from ignorance to Knowledge, from darkness to Light, and from death (impermanence) to Eternity. Prasthaan Trayee includes: Upanishads, Brahma Sutra by Ved Vyaas, and Bhagvadgeetaa (treated as independent book but in fact part of the epic Mahaabhaarat, Chapter 25-42 of Bheeshma Parva i.e. chapter on Bheeshma).

There are two scriptures in the shape of great history books, They are: Raamaayan by Sage Vaalmiki, and Mahaabhaarat by Ved Vyas. These two scriptures are highly popular and their contents cover various paths such as Knowledge, meditation, karma, and devotion for self-realization through historical description of ages of Tretaayug and Dwaaparyuga. Raamaayan basically narrates story of the great king Ram, and Mahaabhaarat narrates stories of Krishna, Kauravas, and Paandavas. Bhagvadgeeta, Vidur Neeti, and Vishnu Sahastranaam are parts of Mahaabhaarat. The vast spread of the epic Mahaabhaarat can be imagined by its number of shlokas those are more than 1,03,000.

To my understanding, three other profound scriptures deal in the subject of Supreme Knowledge. These are: Yog Vaashishtha of Sage Vashishtha, Ashtaavakra Geetaa of Sage Ashtaavakra, and Shiv-sutra – profound wisdom shared by Lord Shiv to Goddess Paarvati. These mainly deal in subjects like Knowledge, Realization, and Liberation through detachment.

There are two important scriptures dealing in Bhakti or matter on devotion exclusively. They are Naarad Bhakti Sutra, and Shaandilya Bhakti Sutra. These scriptures are unparalleled on the matter of describing path of devotion and ecstatic blissfulness through this path.

Literary creation of Aadi Shankaraachaarya are important part of Sanskrit scriptures. Some main contributions are: Tattwabodh, Aatmabodh, Nirwaan Shatakam, Bhaj Govindam, Vivek Choodaamani, Aparokshaanubhooti, Vaakya Vritti, Dakshinaamoortti Stotram, Saundarya Lahari, Shivaananda Lahari, andUpadesha Sahasri. Books of Aadi Shankaraachaarya deal in preparatory level course for understanding Vedanta, jewel of wisdom, narration on Brahma, devotion, and prayers.

Three books on Neeti (ethics) are important. They are Shukra Neeti, Bhartrihari Shatak Traya, and literature of Chaanakya (Chaanakya Neeti, Chaanakya Sutra, Chaanakya Saar Sangraha, Arthashaastra). Shukra Neeti basically deal in various ethical codes applicable to person, organization, administration, and society. Bhartrihari deals in his subject through three stages- indulgence, ethics, anddetachment. Chaankya deals in political economics, and ethical codes for self and society.

Three great story books dealing in matters of self-management, management of organization, administration, society, polity, defense for state, diplomacy, and conflict are: Panchatantra by Vishnu Sharma, Hitopadesha by Naaraayan Pandit, and Kathaa Sarit Saagar by Pandit Somdeva Bhatt.

Two books by Raman Maharshi are important: Upadesha-saar, and Saddarshanam.

Some prominent literature in Sanskrit not in the category of scriptures nevertheless great source of knowledge and wisdom are: Swapnavaasavadattamand other 12 plays by Bhaas, Saundaraananda and other Mahaakaavya by Ashwaghosh, Pancha Mahaakaavya (Raghuvansham and Kumaarsambhavam by Kaalidas, Shishupaalvadham by Maagh, Kiraataarjuniyam by Bhaaravi, and Naishadheeya Charitam by Shree Harsha), two great plays by Bhavabhooti called Uttar-Raamcharitam and Maalatimaadhavam, the play Mrichhakatikam by Shoodrak, and Gadya-trayee (three great prose) called Daskumaarcharitam andAvantisundari Kathaa by Dandi, Kaadambaree by Vaanabhatta, and Vaasavadatta by Subandhu.

The other great sources of knowledge those can be categorized as scriptures in non-Sanskrit languages are: Books by Tulasidas – Ramcharitmanas, Kavitaavalee, Dohaavalee, Vinay Patrika, Barve Raamaayan, Jaanakee Mangal, Paarvatee Mangal, Ramaagyaa Prashna; Books by Sant Kabeer – Beejak, and Saakhee;Books by Naanak and Sikh Gurus and Saints – Guru Granth Saheb and others by Guru Gobind Singh; Tripitak in Buddhism; Jin Sutra and others in Jainism; The Bible in Christianity, Holy Quran in Islam, Zend Avesta in Zoroastrianism, Torah in Jews, etc.

Books on/by Raamakrishna Paramahansa, Shree Maa, and Swami Vivekanand are also prominent sources of Knowledge. Other prominent sources are books by Saints and Soofees: Sant Gyaaneshwar, Naamdev, Tukaram, Samarth Ramdas, Meera, Gorakh, Raidaas, Raheem, Raskhan, Fareed, Dadu, Dariya of Rajsthan and of Bihar, Malookdaas, Dayabai, Sahajobai, Charandas, Rajjab, Vaajid, Sarhapaa-Tilopaa, Yaaree, Doolan, Laal, Bheekhaa, Gulal, Jagjeevan, Sundardaas, Dharamdaas, Paltoo, etc.

Leadership and Decision Making Wisdom in Sanskrit Scriptures

Effective Leadership

Importance of quality of leadership needs no emphasis. To a great extent the quality of a leader for a given period defines the quality of the period itself. A leader needs to be kind but every time she need not to be mild, otherwise one may not be able to protect rights and duties of many others and success may be affected (नच शुद्धानृशंस्येन शक्यं राज्यमुपासितुम्। *na cha shuddhaanrishansyena shakyam raajyamupaasitum* – Mahaabhaarat: Shaantiparva: 75/18). For the protection of subjects, a nurturing king should not hesitate from taking an action, which may be harsh or mild or even with certain flaw (नृशंसमनृशंसं वा प्रजारक्षणकारणात्; पातकं वा सदोषं वा कर्तव्यं रक्षता सदा। *nrishansamanrishansam vaa prajaarakshanakaaranaat; paatakam vaa sadosham vaa kartavyam rakshataa sadaa* – Raamaayan: Baalkaand: 25/17-18). A leader is never expected to shun righteous path. However in some cases there may be flaw in every alternative decision available. On this it is suggested that better is one's own duty, though devoid of merit, than the duty of another well performed; for performing the duty ordained by own nature man does not incur sin. Therefore, one should not abandon one's innate duty, even though it may be tainted with blemish, for even as fire is enveloped in smoke, all undertakings are clouded with demerit (श्रेयान्स्वधर्मोविगुणः परधर्मात्स्वनुष्ठितात् स्वभावनियतं कर्म कुर्वन्नाप्नोति किल्बिषम्; सहजं कर्म कौन्तेय सदोषमपि न त्यजेत् सर्वारम्भा हि दोषेण धूमेनाग्निरिवावृताः। *shreyaatswadharmovigunah paradharmaatswanushthitaat swabhaawaniyatam karma kurwan aapnoti kilbisham; sahajam karma Kaunteya sadoshamapi na tyajet, sarwaarambhaa hi doshen dhoomenaagniriwaavritaah* – Bhagwadgeetaa: 18/47-48). About the influence of leadership on the quality of the tenure of the leader has been described with analogy of pure or foul odour of wind. Clean and pure wind is called of foul odour, or of pleasant odour, depending on the objects with which it comes in contact. Similarly a period is also called good or bad, depending upon good or bad governance by the leader (जथा अमल पावन पवन पाइ कुसंग सुसंग; कहिअ कुबास सुबास तिमि काल महीस प्रसंग। *jathaa amal paawan pawan paai kusang susang; kahia kubaas subaas timi kaal mahees prasang* – Dohaawali: 505).The leader's position in the hierarchy is not a matter of great importance but the leader's personal power and quality what matters more. Chaankya says in terse way that a person attains superiority due to virtues, and not due to higher position. Can ever a crow sitting at the top of a gorgeous building become an eagle? (गणैरुत्तमतां यान्ति नोच्चैरासनसंस्थिताः; प्रासादशिलरस्योऽपि किं काकः गरुड़ायते। *ganaih uttamataang yaanti na uchchaih aasana sansthitaah, praasaada shilarasyah api kim kaakah gaduraayate* – Chaanakya Neeti: 16/6).A leader bears great responsibilities on the matter of maintain one's conduct because others are prone to imitate her behaviorus. For whatever a great person does, that very thing other persons also do; whatever standard she sets up, the generality of persons follow the same (यद्यदाचरति श्रेष्ठस्तत्तदेवेतरो जनः; स यत्प्रमाणं कुरुते लोकस्तदनुवर्तते। *yaddyadaacharati shreshthastattadevetaro janah; sa yatpramaanam kurute lokastadanuvartate* – Bhagvadgeeta: 3/21). Leadership does not come by position and authority alone, leadership is earned. Authority flows from top to down but leadership flows from down to top. Without intelligence and forgiveness, restraint of the senses, and liberality being present in a person of wisdom, no individual or group would be ready to follow the leader (नान्यत्र बुद्धिक्षान्तिभ्यां नान्यत्रेन्द्रियनिग्रहात्; नान्यत्र धनसंत्यागाद् गणः प्राज्ञेऽवतिष्ठते। *naanyatra buddhi kshaantibhyaam naanyatra indriya nigrahaat; naanyatra dhana santyaagaad ganah praagyeh avatishthate* – Mahaabhaarat: Shaantiparva: 81/26). Effective leader's IQ (Impartiality Quotient) is high and she allocates resources and treats people with proportional equality (not absolute equality). Tulasidas says that a chief should be like the mouth, which alone does all the eating and drinking but supports and nourishes all the other limbs with discretion (मुखिया मुखु सो चाहियै खान पान कहुँ एक; पालइ पोषइ सकल अंग तुलसी सहित बिबेक। *mukhiya mukhu so chaahiyai khaan paan kahun ek; paalai poshai sakal ang Tulasi sahit bibek* – Raamcharitmaanas: Ayodhyaakaand: 315).

Effective leadership also requires effective followership. An effective leader is necessarily an effective follower also, though the reverse may not be always true. It has been said that, that worker is of supreme category who after being assigned to an arduous task completes that task, and in addition to that, also completes other tasks (if other tasks are not in conflict with the main task). That is of medium category who does only what he has been asked to do, and though equipped with ability and capability, does not do the other favourable tasks of the owner. That worker is of inferior category who after being assigned to a task does not complete that with care, though possessing the required ability and capability to do the task (यो हि भृत्यो नियुक्तः सन् भर्त्र कर्मणि दुष्करे, कुर्यात् तदनुरागेण तमाहुः पुरुषोत्तमम्; यो नियुक्तः परं कार्यं न कुर्यान्नृपतेः प्रियम्, भृत्यो युक्तः समर्थश्च तमाहुर्मध्यमं नरम्; नियुक्तो नृपतेः कार्यं न कुर्याद् यः समाहितः, भृत्यो युक्तः समर्थश्च तमाहुः पुरुषाधमम्। *yo hi bhrityo niyuktah san bhartraa karmani dushkare, kuryaat tat anuraagen tamaahuh purushottamam; yo niyuktah param kaaryam na kuryaannripateh priyam,bhrityo yuktah samarthah cha tamaahuh madhyamam naram; niyukto nripate kaaryam na kuryaad yah samaahitah, bhrityo yuktah samarthah cha tamaahuh purushaadhamam* – Raamaayan: Yuddhakaand: 1/7-9).

Quality Decisions/Choice of Action/Managing Dilemma:

Quality of decision maker influences the quality of decisions. Absence of attachment is said to be the basic cause of pragmatism (असङ्गः श्रेयसो मूलं। *asangah shreyaso moolam* – Mahaabhaarat: Shaantiparva: 298/3). Vedanta suggests that appear like a doer externally, but internally remain non-doer, thus do exist with your pure Self in this world (कर्ता बहिरकर्ताऽन्तर्लोके विहर शुद्धधीः। *kartaa bahirkartaah antarloke vihar shuddhadheeh* – Mahopanishad: 6/68). Scriptures have duly emphasized on choosing the righteous (Shreyas) and shunning the pleasanter (Preyas). The better (shreyas) is one thing, and the pleasanter (preyas) quite another. Both these of different aim, bind a person. Of these two, well is it for him who takes the better; he fails of his aim, if chooses the pleasanter. Both the better and the pleasanter come to a man. Going all around the two, the wise man discriminates. The wise man chooses the better, indeed, rather than the pleasanter. The unwise man,from getting-and-keeping (yoga-kshema), chooses the pleasanter (अन्यच्छ्रेयोऽन्यदुतैव प्रेयस्ते उभे नानार्थे पुरुषङ्सिनीतः, तयोः श्रेय आददानस्य

साधु भवति हीयतेऽर्थाद्य उ प्रेयो वृणीते; श्रेयश्च प्रेयश्च मनुष्यमेतस्तौ सम्परीत्य विविनक्ति धीरः, श्रेयो हि धीरोऽभि प्रेयसो वृणीते प्रेयो मन्दो योगक्षेमाद् वृणीते। *anyat shchhreyoh anyadutaiva preyasteubhe naanaarthe purushamsineetah, tayoh shreya aadadaanasya saadhu bhawatiheeyateh arthaadya upreyo vrineete; shreyashcha preyashcha manushyametastausampareetya vivinakti dheerah, shreyo hi dheerobhi preyaso vrineetepreyo mando yogakshemmad vrineete*Kathopanishad: 1/2/1-2). The path of righteousness is never to be sunned. Though an action may be highly beneficial with respect to worldly scale, a wise person should not do that action if that is against righteousness (धर्मोदपेतं यत् कर्म यद्यपि स्यान्महाफलम्, न तत् सेवेत मेधावी न तद्धितमिहोच्यते; धर्मेण सहितं यत् तु भवेदल्फलोदयम्, तत् कार्यमविशङ्केन कर्मात्यन्तं सुखावहम्। *dharmaah udapetam yat karma yadyapi syaat mahaafalam, na tat seweta medhaawee na taddhitamihochyate; dharmena sahitam yat tu bhavet alpafalodayam, tat kaaryam avishankena karmaati antam sukhaawaham* – Mahaabhaarat: Shaantiparva: 293/8-9).

Every decision is an action. Regarding quality of action Bhagvadgeetaa suggests that the action, which is ordained by the scriptures and is not accompanied by the sense of doer-ship, and has been done without any partiality or prejudice by one, who seeks no return, is called Saatwik. That action however, which involves much strain and is performed by one who seeks enjoyments or by a man full of egotism, has been spoken of as Raajasik. The action which is undertaken through sheer ignorance, without counting the upshot, loss to oneself, injury to others and one's own capacity, is declared as Taamasik. Free from attachment, unegotistic, endowed with firmness and vigour and unswayed by success and failure – such a doer is said to be Saatwik. The doer, who is full of attachment, seeks the fruit of actions and is greedy, and who is oppressive by nature and of impure conduct, and is affected by joy and sorrow, has been called Raajasik. Lacking piety and self-control, uncultured, arrogant, deceitful, inclined to rob others of their livelihood, slothful, down – hearted and procrastinating, such a doer is called Taamasik (नियतं सङ्गरहितमरागद्वेषतः कृतम् अफलप्रेसुना कर्म यत्तत्सात्त्विकमुच्यते; यत्तु कामेप्सुना कर्म साहङ्कारेण वा पुनः क्रियते बहुलायासं तद्राजसमुदाहृतम्; अनुबन्धं क्षयं हिंसामनवेक्ष्य च पौरुषम्मोहादारभ्यते कर्म यत्तत्तामसमुच्यते; मुक्तसङ्गोऽनहंवादी धृत्युत्साहसमन्वितःसिद्ध्यसिद्ध्योर्निर्विकारः कर्ता सात्त्विक उच्यते; रागी कर्मफलप्रेप्सुर्लुब्धो हिंसा त्मकोऽशुचिःहर्षशोकान्वितः कर्ता राजसः परिकीर्तितः; अयुक्तः प्राकृतः स्तब्धः शठोऽनैष्कृतिकोऽलसःविषादी दीर्घसूत्री च कर्ता तामस उच्यते। *niyatam sangarahitamaraagadweshatah kritamafalaprepsunaa karma yattatsaattwikamuchyate; yattu kaamepsunaa karma saahankaaren waa punahkriyate bahulaayaasam tat raajasamudaahritam; anubandham kshayam hinsaamanawekshya cha paurushammohaat aarabhyate karma yattattaamasamuchyate; muktasangoh anahamwaadee dhriti utsaahasamanwitahsiddhi asiddhyonirwikaarah kartaa saattwik uchyate; raagee karmafalaprepsuh lubdho hinsaatmakoh ashuchihharshashokaanwitah kartaa raajasah parikeertitah; ayuktah praakritah stabdhah shatho anaishkritikoh alasahvishaadee deerghasootree cha kartaa taamas uchyate* – Bhagwadgeetaa: 18/23-28).

Decision making may not require consultation with others in a few situations but ordinarily it requires consultation with others if necessarily the decision might create impact on large number of persons. It is prescribed that if you are in a dilemma about choice of an action or about a conduct, persons having Knowledge should be consulted. As they conduct themselves, you should follow accordingly (अथ यदि ते कर्मविचिकित्सा वा वृत्तविचिकित्सा वा स्यात्; ये तत्र ब्राह्मणाः सम्मर्शिनः ...यथा ते तत्र वर्तेरन् तथातत्र वर्तेथाः। *ath yadi te karmavichikitsaa vaa vrittavichikitsaa vaa syaat ye tatra braahmanaah sammarshinah… yathaa te tatra varteran tathaatatra vartethaah* – Taittiriya Upanishad: 1/11). It is suggested that while dealing with juniors, one need to give due importance to her opinions. Words of even juniors, engaged in spreading righteousness, should not be violated (नातिक्रामेदपि लघुं कचित् सत्कार्यबोधकम्। *naatikraamedapi laghum kachit satkaaryabodhakam* – Shukra Neeti: 3/84).That person is of supreme category who initiates a task after consulting with benefactors and who offers his action to the God. Person of medium category decides about his duties on his own, decides about righteousness alone and does all works alone. That person is of inferior category who does not think over merits and demerits of an act, initiates a task without offering to the God and with only a mentality of 'shall do', but later on he ignores that task (सहितो मन्त्रयित्वा यः कर्मारम्भान प्रवर्तयेत, दैवे च कुरुते यत्नं तमाहुः पुरुषोत्तमम्; एकोऽर्थं विमृशेदेको धर्मे प्रकुरुते मनः, एकः कार्याणि कुरुते तमाहुर्मध्यमं नरम्; गुणदोषौ न निश्चित्य त्यक्त्वा दैवव्यपाश्रयम्, करिष्यामीति यः कार्यमुपेक्षेत् स नराधामः। *sahito mantrayitwaa yah karma aarambhaan pravartayet, daive cha kurute yatnam tamaahuh purushottamam; ekoartham vimrishedeko dharme prakurute manah, ekah kaaryaani kurute tamaahuh madhyamam naram; gundoshau cha nishchitya tyaktwaa daivavyapaashrayam, karishyaameeti yah kaaryamupekshet sa naraadhamah* – Raamaayan: Yuddhakaand: 6/8-10).Decision making requires consultation at individual level as well as at group level. It is suggested that know the individual viewpoints of different members separately, and again know their viewpoints jointly. Thereafter take the decision that is beneficial to you (तेशां स्वं स्वमभिप्रायमुपलभ्य पृथक् पृथक्; समस्तानां च कार्येशु विदध्याद्धितमात्मनः। *teshaam swam swamabhipraayam upalabhya prithak;samstaanaang cha kaaryeshu vidadhyaddhitam aatmanah* – Manu Smriti: 7/57).

Management in any domain requires putting efforts in many directions for achieving single goal or multiple goals. It is suggested that while trying to accomplish multiple goals, the attention should never be missed for the main goal or the basic purpose. Vaalmiki Raamaayan suggests that the root (basic purpose) of a task should be protected. Only when the root is protected, every act becomes fruitful; this is the policy of learned that knows the quintessence of action (मूलमर्थस्य संरक्ष्यमेश कार्यविदां नयः; मूले हि सति सिध्यन्ति गुणाः सर्वे फलोदयाः। *moolam arthasya sanrakshyam esha kaaryavidaang nayah; moole hi sati sidhyanti gunaah sarve falodayaah* – Raamaayan: Kishkindhaakaand: 65/25). It is suggested that one who properly evaluates the possibility of desirable and undesirable outcomes and chooses the actions accordingly, and one who can quickly sense the long-term effect before initiating an action, enjoys prosperity for long period (यः सुदुनिश्फलं कर्म ज्ञात्वा कर्तुं व्यवस्यति; द्रागादौ दीर्घदर्शी स्यात् स चिरं सुखमश्नुते। *yah sudunishfalam karma gyaatwaa kartum vyawasyati; draagaadau deergha darshee syaat sa chiram sukhamashnute* – Shukra Neeti: 3/56). These suggest following action plan for achievement of goals: The main goal should not be neglected for subsidiary goals; keeping the quantity and quality of outcome, the actions need to be decided; keeping the long-term impact on organization, society, politics, or on nation, the actions need to be decided.

This article attempted to understand wisdom leadership and making quality decisions through exploration of sutras. The alternative method could be understanding leadership and decision making through anecdotes available in the scriptures.

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Organizational Climate and Attitudes on Job Performance of Nurses

R. Narayanan

Abstract: *The present study is on Organizational Climate and Attitudes on Job Performance of Nurses in Cuddalore district. A sample of 100 respondents selected randomly were studied in Cuddalore district. All the respondents were asked the some questions in the same fashion and they were informed the purpose of study. Correlation and regression analysis were applied to test the hypotheses. The findings and observations are the result and outcome of the interpretations made during the study of analysis.*

Keywords: Organizational Climate, Attitude, Job Performance and Nurses

Introduction

The worldwide nursing is dealing with a huge shortage of work force that creates a consequential threat to society's majority vulnerable populations and has adverse implications on the quality of health care. Dealing with these situations, nurse's job performance has been emerging as a big concern for the health care administrators globally. In today's globalized business environment, any organization has to cover various spitefulness and competitions. This scenario has been an impetus for several organizational researchers to study specific employee goal in joining an organization. In today's business world, "Business" dealing caters to different sectors and industries however the end result involves human beings at diverse roles and dimensions. It may be an employer, employee or client as the end-user.

The literature contours that, the organizational climate is defined as the employee's subjective perceptions of how their work environment influences them as individuals. It is an addition related to the individual and to the adjacent work environment; the organizational climate is based on anticipated patterns in the precise skills and behaviors of people in organizations. Also, the structural literature confirmed a distinction between organizational climate, which encapsulates the method persons perceive their work environment and the organizational culture, which refers to measure and the way things are done in an organization.

The Impact of Climate on Performance can be viewed at both organizational or unit levels. Marcomick and Parker posit that the climate is a group level concept. Individuals within an organization need to agree on their opinion of the environment to be meaningfully together to represent organizational climate. Schneider suggested that, the environment could be influenced by performance of both the person and the group (aggregated). The holistic nature of climate perceptions is such that perceptions act as a frame of reference for the achievement of some agreement between behavior and the organization's practices and procedures. It is noted that, performance is a personal assessment of an organization's practices and procedures, people in the system will tend to disagree on their satisfaction than on their nature of the system climate.

Review of Literature

Davis (2012) conducted a project commenced to ascertain whether the addition of peer, self and nurse evaluators (360- degree performance evaluation) would an augment faculty assessment of resident performance. An evaluation form, containing 16 items under three major headings: clinical competency, interpersonal skills and overall assessment, was developed to evaluate resident nurses. This small study braced the use of peer evaluations in an accumulation to attending evaluations for residents in training.

Tzeng and Ketefian (2013) defined the hospital employers' perceptions on the stretch to which the identified 21 nursing aids were desired for staff nurses in Taiwan's medical care industry. They showed that, the levels of nursing aptitudes varied depending on type of service and hospital.

Carson (2014) investigated the characteristics of registered nurse performance appraisals in 87 hospitals contribution general medical and surgical services and identified any sign of inclusion of Watson's creative factors. The study is an endeavored to regulate whether there is any correlation between hospital size and inclusion of Watson's creative factors. The findings specified little relationship between hospital size and Watson's factors, only second factor was statistically significant based on size.

Brimicombe and Yang Li (2018) analyzed the spatial analysis of accessibility to health and health related services with an objective of contributing such analysis to the modeling and planning of social infrastructure at the level of the Primary Care Trust. The conveniences analyzed are, GP Surgeries, dental surgeries, pharmacies, opticians, general hospitals and bus stands (as an example of access to the public transport network). The three techniques of mapping accessibility are used, concentric circles of Euclidean distance facilities show general coverage of an area and are simple to take-out using standard buffering techniques in Geographical Information System and energy time along a road network outward from a facility is more acculturating and relies on specialist functionality within GIS.

Rekha Nair (2019) stated that, the increasing importance of workplace climate on employee job satisfaction, creativity, motivation and preservation. Because of the importance of workplace climate, Apollo hospital made adjustments and set best practices which in turn have helped the organization to stay on top. In between organizational climate and company performance, employee plays a central role because employee's job satisfaction is highlighted as the intermediary between organizational climate and company performance.

Objectives of the Study

- To understand the role of organizational climate with job performance
- To examine the personal attitudes factors in the hospital climate.

Methodology

The previous chapter discusses the review of related literature to role of organizational climate and personal attitude influencing with nurses job performance in the hospitals. This chapter explains the methodology adopted this research topic. Research design is the conceptual structure for the research which is conducted. This chapter explains types of the research, research tool, construction of research tool, pilot study, reliability analysis, sampling procedure, data collection procedures, statistical tools applied in this research and limitations of the present study. The purpose of this research is to examine the role of organizational climate and Personal attitude with nurse job performance in the hospitals of Cuddalore District, Tamil Nadu. This research further examines, what are the organizational climate factors and personal attitude factors influencing nurse job performance in hospitals. A samples of 100 respondents selected randomly were studied in Cuddalore district. Correlation and regression analysis were applied to test the hypotheses.

The researcher has approached to the hospitals dean or chief doctors to get the permission for collecting data from the hospital nurses. The chief doctors or administrative manager provided a list of nurses working in their hospital with name, designation, address, mailing address, duty details and contact numbers. The researcher verified the address and contact number of the participants. Then, the researcher made a phone call to the nurses and got their appointment. After that, the researcher personally met the nurse, explained the purpose, assured that their data would be kept confidential and will be used only for academic purpose. Then the researcher circulates the questionnaire to the nurse. Nurses had taken enough time to fill the questionnaires. After a gap of weeks, the researcher met hospital nurses to collect the filled questionnaires.

Analysis and Discussion

Table 1: Relationship between Attitude and Relationship Oriented Job Performance

Personal Attitude	*Relation Oriented Performance*	
	r- value	*P-value*
Our hospital goals are clear to me	0.922	0.001*
Our hospital objectives are clear to do	0.935	0.001*
Hospital structures have been established	0.964	0.001*
Right skills sets perform their duty function	0.953	0.001*
Our hospital utilized my skill for current role	0.928	0.001*
My work adds value to the hospital	0.963	0.001*
Group norm across the hospital	0.960	0.001*
Nurses speak highly about this hospital	0.943	0.001*
Hospital management knows that relationship between the nurse contribute to hospital performance	0.958	0.001*

Source: Primary data computed. (*Significant at One percent level)

Ho: Attitude factors are not having relationship with relation-oriented job performance in hospital.

Pearson correlation test was applied to verify the above stated hypothesis. The result is displayed in the table 4.22. The calculated r-values are between 0.964 and 0.922. The P-values are found to be 0.001, which are significant at one percent level. Hence, the stated hypothesis is rejected.

It is inferred that; attitude factors are having the relationship with relation-oriented job performance. From r-values, it is observed that, the hospital structures have been established (0.964) is having positive and higher relationship with relation oriented job performance in hospital followed by nurse work is added value to the hospital (0.963), group norm across the hospital (0.960), hospital management knows that relationship between the nurse contribute to hospital performance (0.958), right skills sets perform their duty function(0.953), nurses speak highly about their hospital (0.943), hospital objective are clear to nurses (0.935), hospital not utilized nurses skill for current role (0.928) and hospital goals are clear to nurses (0.922).

Table 2: Relationship between Work Environment and Task Oriented Job Performance

Work Environment	*Task Oriented Job Performance*	
	r- value	*P-value*
I have enough information to do my duty well	0.922	0.001*
I feel encouraged to come up with new and better ways of doing things	0.938	0.001*
My supervisor listens to my ideas and concerns	0.962	0.001*
My work gives me a feeling of personal accomplishment	0.947	0.001*
Adequate training is provided when new technologies are introduced	0.931	0.001*
The people I work with cooperate to get the job done	0.961	0.001*

Source: Primary data computed. (*Significant at One percent level)

Ho: Work environment factors are not having relationship with task-oriented job performance in hospital.

Pearson correlation test was applied to verify the above stated hypothesis. The result is displayed in the table 4.23. The calculated r-values are between 0.962 and 0.922. The P-values are found to be 0.001, which are significant at one percent level. Hence, the stated hypothesis is rejected.

It is inferred that; work environment factors are having the relationship with task-oriented job performance. From r-values, it is observed that, the hospital supervisor listens to nurse ideas and concerns (0.962) is having positive and higher relationship with task oriented job performance in hospital followed by people give cooperate to get the job done (0.961), nurse work gives personal accomplishment (0.947), doctors encouraged to come up with new and better ways of doing things (0.938), Adequate training is provided, when new technologies are introduced (0.931), and they have enough information to do their duty well(0.922). The hospital supervisor listens to nurse ideas and concerns having strong relationship with task-oriented job performance in hospital.

Table 3: Attitude Based Nurse Job Performance Relation Oriented in Hospital Model

R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*F-value*	*P-value*
0.983[(a)]	0.966	0.965	0.23007	1294.917	0.001*

Coefficients[(a)]

Attitude factor	*Non-standardized Coefficients*		*Standardized Coefficients*	*t-Value*	*P-Value*
	B	*Std. Error*	*Beta*		
(Constant)	0.002	0.039	–	–0.041	0.001*
Our hospital goals are clear to me	0.032	0.049	0.032	0.643	0.521**
Our hospital objectives are clear to do	0.234	0.128	0.232	1.833	0.008*
Structures have been established	0.117	0.147	0.117	0.797	0.001*
Right skills set perform their duty function	–0.013	0.090	–0.013	–0.143	0.001*
Our hospital utilized my skill for current role	–0.340	0.113	–0.344	–3.017	0.003*
My work adds value to the hospital	0.216	0.053	0.210	4.099	0.001*
Group norm across the hospital	–0.006	0.119	–0.005	–0.047	0.001*
Nurses speak highly about this hospital	0.415	0.052	0.433	7.924	0.001*
Hospital management knows that relationship between the nurse contribute to hospital performance	0.345	0.086	0.347	4.014	0.001*

Source: Primary data computed. (*Significant at One percent level, **Significant at five percent level)
Ho: attitude factor does not influence the relation-oriented job performance in hospital.

In order to examine the above stated hypothesis, linear regression is applied. Here, attitude factor namely hospital goals, hospital objective, hospital structure, right skill set, not utilized nurse skill, work added value, group norms, nurses speak about hospital service and hospital management performance measure have been taken as influencing variables. Relation oriented job performance in hospital has been taken as a dependent variable. Further, linear regression analysis has been carried out. The result is displayed in the table 4.30.

From the regression model summary result, the calculated adjusted R^2 value is found to be 0.966. Corresponding F-value is 1294.917, which is significant at one percent level (0.001). It shows that regression model is fit. From this information, it is inferred that independent variables such as attitude factor namely hospital goals, hospital objective, hospital structure, right skill set, not utilized nurse skill, work added value, group norms, nurses are speak out hospital service and hospital management performance measure are influencing the nurse relation oriented job performance in hospital , Where, adjusted R^2 value indicates that independent variables significantly influenced the attitude factor towards task oriented job performance at 96.6 percent level. Further the regression coefficient value indicates the strength of relationship between the independent variables and dependent variable. This is expressed by the following equation:

Attitude factors to relation-oriented job performance = Constant (0.002) + nurses are spoken out hospital service (0.415) + hospital management performance measure (0.345) + hospital objective (0.234) + nurse work added value (0.216) + hospital structure (0.117) – right skill set (0.013) – not utilized nurse skill (0.234).

From the regression equation, it is inferred that nurses speak about hospital service, hospital management performance measure, hospital objective, nurse work added value and hospital structure are positively influenced the attitude. But right skill set and not utilized nurse skills are negatively influenced the attitude factor in the case of job performance with relation oriented. However, the hospital goals awareness does not influence the attitude factor in case of relation-oriented job performance.

Further in the regression equation, the non standardized beta coefficient explains the relative importance of each independent variable on the dependent variable. From the beta value, it is inferred that to have one unit increase or decrease in the attitude factor in hospital due to the relation-oriented job performance. To have one unit increase in attitude factor, nurses are spoken out hospital service in the personal attitude factors are influenced at 0.415 levels, while other factors are remains constant. Similarly, to have one unit increase of personal attitude factor in the hospital, hospital management performance measures at 0.345 levels, and hospital objective at 0.234 levels, nurse work added value at 0.216 levels and hospital structure at 0.176 levels. But, the other factor like right skill set and not utilized nurse skill are having negative impact on personal attitude factor. Here, to have one unit decrease of personal attitude factor, right skill set is affected at -0.013 levels and not utilized nurse skill is affected at -0.234 levels.

It is inferred that, nurses speak out hospital service, hospital management performance measure, hospital objective, work added value and hospital structure are the factors influence attitude factor to nurse perform with relation oriented.

Managerial Imlications

This study revealed that the better understanding to identify the hospital climate that related to nurses attitude and job performance, both in general and related to specific provinces of enquiry into job performance and attitudes, that were measured in this study.

- **Nurse attitude:** The positive attitudes of the nurses towards nursing care may have several possible explanations. Perceived core-values that are attached to the profession of nursing act as resources that help nurses achieve moral competence and adherence to their intrinsic work-related values and this may enable nurses to perform their work and be more satisfied despite challenges, such as limited resources, high workload, less experience and low salaries. Nurses who have held their jobs for fewer experiences are likely to still be adjusting to their working environments, which could have a negative effect on their attitudes compared to senior nurses who are more acclimated to their working environments. Nurse leaders may therefore need to be aware of the need to nurture new nurses into the profession to promote positive attitudes.

- **Job Performance:** The findings in several of the previous studies reviewed suggest moderate job performance among nurses, which is consistent with the findings of this study. These studies further suggest some performance and non performance elements of the nursing profession across innumerable cadres of nurses and cultures. Participants of the present study were generally performed with the questionnaire content related to relationships with coworkers and praise and recognition. It is worth noting that nurses in this study were satisfied with praise and recognition from both peers and supervisors, which is contrary to some previous studies that have reported dissatisfaction with supervisors. Praise and recognition are important because supporting and motivating healthcare workers improves performance and quality care provision.

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Determinants of Employee Engagement: A Study on Physical Work Setting

Saket Ranjan Praveer and Malvika Tiwari

Abstract: *Conducive and supportive environment at the workplace is essential to generate the needed work performance from employees in any social setting for which a work environment must be such that keeps an employee motivated and performing (Kamarulzaman et al., 2011).Among all the parameters to describe the work environment, the physical work setting is often assumed to directly or indirectly influence the employee's well-being and their performance levels.The elements of physical environment have been studied and found to have impact on work performance. But these elements individually are not found in studies while determining engagement levels. A study has been conducted on the faculty members of engineering colleges of Chhattisgarh. The study aims at measuring the impact of physical environment factors on the engagement level through an empirical study based primary data collected from engineering colleges of Central Chhattisgarh. The expected contribution of the study is to improve the employee engagement hence benefiting both the employees and the organizations.*

Keywords: Employee Engagement, Work Environment, Physical Workspace, Temperature, Air Quality, Lighting, Noise, Furniture, Layout and Time Flexibility

Introduction

Employee engagement is becoming one of the significant factors in improving the organizational performance. According to Kahn (1990), employee engagement refers to employees being psychologically as well as physically present when occupying and performing any job role. There have been various studies that have discovered numerous antecedents that might increase the level of engagement of employees among which work environment has been a significant factor. The sum of the interrelationships that exist between employees and the setting in which they work is the workplace environment (Kohun, 2002). According to Heath (2006), the physical location as well as the immediate surroundings, behavioural procedures, policies, rules, culture, resources, working relationships, and work location are all factors that influence how individuals accomplish their jobs. Physical work setting comprises of office layout and design. Furniture (tables, seats, etc.), machine arrangement, ventilation, and lighting are all part of it. Noise level, protective equipment, workstations, office gadgets, computers, and office space are some of the others. Although the physical environment factors are still not researched to a greater extent.

Employees spend most of their time in their workspace provided the ergonomics, aesthetics, Ambient conditioning, Office setting; availability of equipment might affect the work concentration, health and productivity of employees. When the physical work environment serves the needs of employees, providing a setting where people can communicate and work successfully, organizational performance improves. When the physical environment makes it difficult to work, performance is typically harmed. This interference causes stress and discontent, which has an impact on the performance of both the individual and the organization.

Evolving technology, competition and other drastic changes in the world have led to a significant change in the workspace, working styles and job roles. Employees working in any organization not particularly engineering institutes often face the brink of these new facets in the organization which has made the relationship between the physical aspects of work environment and performance more relevant. In order to encourage the adoption of these changes and achievement of desired organizational performance, organizations must adjust their physical facilities where an employee perform so that he is comfortable and engaged with his job.

Background of the Study

Be it an engineering institute or any other organization in Chhattisgarh, development is evident since the state's inception. The developmental needs of the industries call for constant improvement in the performance. Gruman and Saks (2011) suggest that producing desired performance outcomes may be best achieved by orienting performance management system to promote employee engagement. The determinants of employee engagement connote a healthy work surrounding that reflects enhanced peer relationships, job satisfaction and positive attitude towards work. The type of work environment that exists in an organization has a bearing on the calibre of people, how they behave, how well they perform, and how long they stay in the organization. How well people fit into their physical workstation and work environment will have an impact on how well they perform (Srivastava, 2008). Past studies have revealed factors of work environment that could influence the job performance of employees. The current study revolves around the impact of physical work space setting over the individual's performance measured via its impact on employee engagement levels.

Industry Scenario

The Education industry in Chhattisgarh is as wide as any other industry and has flourished dramatically with the growing competition since the state's inception. Technical education has been one of the fastest-growing areas in the state over the last two decades. Many engineering Institutes emerged over the time imparting various courses. In order to survive the competition, institutes need to impart quality and effective technical education. The competing institutes are coming up with new teaching-learning pedagogy, qualified teaching staff, ICT up-gradation, equipment and aids to stay ahead in the long run.

However, in recent years, the situation has deteriorated in terms of student exodus from the state. Students are constantly migrating from the state for higher education with a desire to earn quality learning and certificate. This has resulted in a decrease in number of admissions putting up a constant pressure over the institutes and its employees to come up with new ways of engaging students. Amidst this, employee performance, their engagement and involvement are sure to be affected.Considering this scenario, it becomes important to put due consideration towards improving the employee's working condition to generate the desired level of performance outcomes. This study will serve as a guide for improving physical workspace, employee engagement, job satisfaction, and performance.

Literature Review

Gladys et al (2017) found that a well-designed and user-friendly physical workspace is significant for engaging employees and thereby achieve organizational success. A properly designed, comfortable and flexible work environment will promote mobility, focus and a sense of connection to job roles giving higher engagement levels. They found a significant relationship between flexible office design as well as supportive environmental condition and Employee engagement.

Kamarulzaman et al (2011) found that the indoor environment in an office greatly influence the attitude, behaviour, satisfaction and work performance of employees in an organization. A comfortable working environment with apt physical design, indoor temperatures, colour, noise levels enable employees to concentrate on the job assigned which will in turn ensure quality of work life and overall performance.

Olson (2015) found that a conducive physical work environment does not have a direct influence over work performance of employees rather it affects the satisfaction level creating a genuine increase in engagement. Also, the researchers concluded that facilities provided at the workplace be the cause of this effect instead of the layout & design of the physical workspace.

The physical work environment is all physical circumstances around the workplace affecting employees directly or indirectly. These physical factors include the temperature of the air in the workplace, the area of work space, noise, density and distress (Adi and Natalia, 2017).

Paul (2017) found in his work thatthe physical work environment can manipulate organizational outcomes such as overall performance,collaboration, innovation, effective human-resourcemanagement and profitability. It will also affect employee outcomes such as engagement levels, job performanceand job satisfaction.

Kohun (2002) summarises physical work environment as the office layout and design including elements such as spatial arrangement and usefulness of the surrounds The size and shape of machinery, equipment, and furniture, as well as the spatial relationships among them, are all part of the spatial layout. Becker (2002) revealed that the amount and nature of communication between persons was observed to be affected by the spatial layout of furniture. Physical Work Environment, according to Mas'udah et al. (2012), encompasses a variety of factors such as chair or office seating, humidity, illumination, and working hours that propel greater performance.

Al-Anzi (2009) has explored eight physical factors viz., furniture, noise, flexibility, comfort, communication, lighting, temperature and air quality as the constituents of an office design and productivity. Ravindran (2019) conducts an experiment and finds room temperature, furniture setup, and repetitive task as the significant physical factors influencing performance. Khaled and Haneen (2017) find Air, Temperature, Sound, Light and Space as the physical factors as the determinants of work performance.Leblebici (2012) find that work place quality has a significant impact on performance.

Ergonomics in the workplace supports a healthy work environment. A healthy workplace environment, such as a well-designed office and well-placed furniture, can lead to increased productivity, improved employee morale, and lower stress levels (Michael, 2007).

Literature Gap

Studies reveal that physical work environment influences work performance but it is not found in these studies that physical factors influence engagement. Somewhat is found in Olson (2015) but he explains physical factor as a whole and not segregating individual elements of physical factor as the determinants of employee engagement.

Variables Identified

Independent Variables	*Index*	*Source*
Temperature	X_1	Kamarulzaman et al (2011); Ravindran (2019); Khaled and Haneen (2017); Al-Anzi (2009); Ravindran (2019); Leblebici (2012); Mas'udah et al. (2012); Olson (2015)
Air Quality	X_2	
Lighting	X_3	
Noise	X_4	
Furniture	X_5	
Layout	X_6	Kohun (2002)
Time Flexibility	X_7	Mas'udah et al. (2012)
Dependent Variable		
Employee Engagement	Y	Kahn (1990)

Framework of the Study

Conceptual Framework

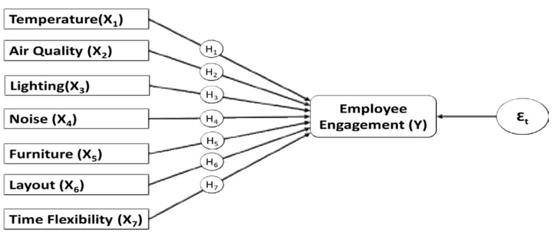

Figure 1: Conceptual Framework of the Study

Source: Researchers' Own Construct based on Literature

Temperature (X_1), Air Quality (X_2), Lighting (X_3), Noise (X_4), Furniture (X_5), Layout (X_6) and Time Flexibility (X_7) are taken to be exogenous variables on Employee Engagement (Y) as endogenous variable.

Mathematical Framework

$$\hat{Y} = \beta_0 + \sum_{i=1}^{7} \beta_i X_i + e_t$$

Hypothesis

H_1: Temperature of workplacehas a significant impact on Employee Engagement;
H_2: Air Quality of workplace has a significant impact on Employee Engagement;
H_3: Lighting of workplace has a significant impact on Employee Engagement;
H_4: Noise Level at workplace has a significant impact on Employee Engagement;
H_5: Furniture at workplace has a significant impact on Employee Engagement;
H_6: Physical Layout of workplace has a significant impact on Employee Engagement; and
H_7: Time Flexibility at workplace has a significant impact on Employee Engagement.

Methodology

The target population is faculty members working in engineering colleges. The sampling frame consist of the employees of engineering colleges of Raipur, Bhilai and Durg City. The study has been conducted through causal research design based on primary data collected through self-administered structured questionnaires on 7-point Likert's scale.There are around 3 dozen engineering colleges in Durg and Raipur districts with more than 7000 faculty members (Engineering; Engineering Colleges in Durg 2022). The data is infinitely large. Therefore, Cochran's Method for sample size determination has been used which results 385 as the sample size for 5% level of significance. Systematic sampling technique has been used to collect the sample. The data has been analysed with the help of multivariate analyses, viz., Factor analysis and Multiple Regression Analysis.

Data Analysis and Interpretation

Descriptive Statistics

Table 1: Descriptive Statistics

Factors	*Mean*	*Std. Deviation*	*Skewness*		*Kurtosis*		*Normality from Skewness*	*Normality from Kurtosis*
	Statistic	*Statistic*	*Statistic*	*Std. Error*	*Statistic*	*Std. Error*		
Y	6.46	1.08	–2.77	0.12	8.73	0.25	–0.04	0.03
X_1	5.53	1.76	–1.35	0.12	0.90	0.25	–0.09	0.27
X_2	6.11	1.22	–2.29	0.12	5.77	0.25	–0.05	0.04

Factors	*Mean*	*Std. Deviation*	*Skewness*		*Kurtosis*		*Normality from Skewness*	*Normality from Kurtosis*
	Statistic	*Statistic*	*Statistic*	*Std. Error*	*Statistic*	*Std. Error*		
X_3	2.75	2.02	0.94	0.12	–0.48	0.25	0.13	–0.52
X_4	3.92	2.41	–0.06	0.12	–1.69	0.25	–1.93	–0.15
X_5	5.85	1.72	–1.75	0.12	2.06	0.25	–0.07	0.12
X_6	4.45	0.78	–2.39	0.12	7.22	0.25	–0.05	0.03
X_7	3.80	0.84	–0.92	0.12	1.39	0.25	–0.13	0.18

Inferential Statistics

Factor Analysis

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.722
Bartlett's Test of Sphericity	Approx. Chi-Square	7526.877
	df	276.000
	Sig.	0.000

Table 3: Rotated Component Matrix

	Component							
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Y1	0.009	0.024	–0.295	0.405	0.312	0.383	–0.188	0.513
Y2	0.394	0.013	–0.230	0.458	0.218	–0.031	–0.215	0.485
Y3	0.311	–0.092	–0.257	0.224	0.091	0.414	0.129	0.562
X11	0.915	0.042	0.025	0.076	0.161	0.047	–0.130	0.032
X12	0.934	0.088	0.012	0.070	0.088	0.049	–0.056	0.018
X13	0.803	0.167	0.063	–0.013	0.392	0.160	0.032	–0.027
X21	0.214	0.017	0.014	0.033	0.803	0.300	0.159	0.034
X22	0.178	0.206	–0.058	0.162	0.857	0.052	–0.026	0.004
X23	0.245	0.049	–0.268	0.103	0.662	0.215	0.032	0.148
X31	–0.051	0.146	0.861	0.002	–0.034	–0.092	0.035	0.054
X32	0.038	0.083	0.899	–0.130	–0.116	0.109	0.106	0.109
X33	0.034	0.027	0.924	–0.107	–0.049	0.060	–0.036	–0.004
X41	0.062	0.902	0.057	–0.032	0.029	0.131	–0.076	–0.016
X42	0.105	0.942	0.077	–0.056	0.077	0.134	–0.047	0.040
X43	0.083	0.929	0.127	–0.044	0.148	0.088	–0.017	0.015
X51	0.052	0.216	0.063	0.005	0.265	0.827	0.015	0.037

	Component							
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
X52	0.041	0.203	0.138	0.019	0.121	0.817	0.080	–0.107
X53	–0.018	0.037	0.168	0.019	0.101	–0.020	–0.074	0.895
X61	0.104	0.098	–0.077	0.768	–0.051	0.006	0.236	0.229
X62	0.018	–0.006	–0.133	0.875	0.165	0.082	0.073	–0.119
X63	0.024	–0.268	0.003	0.852	0.107	0.026	0.190	–0.004
X71	–0.365	–0.180	0.096	0.184	0.099	0.111	0.671	–0.086
X72	–0.180	–0.063	0.018	0.086	0.226	0.110	0.819	–0.169
X73	0.156	0.031	0.016	0.191	–0.141	–0.087	0.794	0.148

Regression Analysis

Table 4: Model Summary

R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
0.721	0.52	0.511	0.754	1.903

Table 5: ANOVA

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Regression	232.376	7	33.197	58.416	0.000
Residual	214.241	377	0.568		
Total	446.618	384			

Table 6: Coefficients

Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig. Tolerance*	*Collinearity Statistics*	
	B		*Std. Error*			*VIF*	
Constant	2.446	0.31		7.885	0.000		
X1	0.176	0.026	0.286	6.843	0.000	0.727	1.375
X2	0.182	0.039	0.206	4.628	0.000	0.644	1.553
X3	–0.100	0.02	–0.187	–4.923	0.000	0.883	1.132
X4	–0.028	0.018	–0.062	–1.559	0.120	0.81	1.235
X5	0.164	0.026	0.262	6.358	0.000	0.747	1.338
X6	0.424	0.055	0.308	7.691	0.000	0.794	1.259
X7	–0.140	0.052	–0.109	–2.698	0.007	0.784	1.275

Interpretation, Findings and Discussion

It is clear from descriptive statistics that all the variables are more than average except lighting, noise and time flexibility (Table 1). Small values of standard deviation suggest that there is consistency of the data. The values of normality suggest that the data is normally distributed in terms of both skewness and kurtosis as all the values are less than 1.96.KMO value (Table 2) is 0.722 which suggests that the sampling is adequate while Bartlett's Test of Sphericity indicates that the rotation of components is orthogonally adequate. Every component of each variable is valid reliable except X_{53} (Table 3) and hence it is removed from rest of the analysis. It is found from Rotated Component Matrix that all the variables are found valid. The impact of all the independent variables viz., Temperature, Air Quality, Lighting, Noise, Furniture, Layout and Time Flexibility has been tested on employee engagement through multiple regression analysis (Table 4, 5, 6). The coefficient of determination is 0.52 which is sufficiently adequate. The model explains 52 percent of variance. There is no chance of autocorrelation which is evident from Durbin-Watson Statistics. It is clear from ANOVA Table (Table 5) that it is a model fit. There is no chance of collinearity (Table 6). It is seen from the coefficient table that all the variables except X_4, i.e. Noise significantly influence employee engagement. All the hypotheses except H_4 are accepted.

Conclusion

It is concluded that Physical Work Setting has a significant impact on employee engagement. Olson (2015) has argued physical set up to be associated but specific elements are not mentioned. This study has specified the elements as Temperature, Air Quality, Lighting, Furniture, Layout and Time Flexibility are found to have significantly associated with employee engagement while Noise is not significantly associated.

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Functions and Recent Trends of Human Resource Management (HRM) in the Field of Education Related to Teachers and Students

Vasudev N. Joshi

Abstract: *Human resource management in education is very important toy with it would result in jeopardy. This is because education personnel are the major instrument for achieving educational goals and specify consequently, national development. Human resources are the key to rapid socio-economic development and efficient service delivery. That's why this paper emphasizes that without an adequate, skilled and well-motivated workforce operating within a sound human resource management program, development is not possible. Every educational system at every level for teachers and students depends heavily on the human resources for execution of its program. The function of human resource management in education includes staff maintenance, staff relations, staff development, procurement of staff and job performance reward. The challenges of human resource management include poor working condition, problem of staffing, funding, incessant transfer of teacher among others. To address the identified challenges, the following recommendations were made. Education should be made attractive by creating conducive atmosphere for teachers. Thus, appropriate government attention is needed for education sector through improved function as education remains the basis for the progress of all other sectors of the society.*

Keywords: Human Resource Management, Educational System, Staff Maintenance

Introduction

Human resource management can be seen as the design of formal systems in an organization to ensure effective and efficient use of human talents to accomplish organizational goals. Griffin (1997), defined human resource management as the set of organizational activities directed at attracting, developing and maintaining an effective workforce. Human resource management concerns the procurement or recruitment, staffing, welfare, maintenance, training and retraining, placement, promotion, motivation relationship, compensation or rewards, transfer and discipline of staff that is teachers. It lies at the care of the efficiency of the organization. Human resource management is a basic function of management that determines the performance of staff in any organization. This simply implies that when staff in the education systems are adequately recruited, selected and supervised, inducted and adequately rewarded, and provided for, properly developed, appraised and promoted on the job, they will be committed to the job; remain dedicated and productive in the education systems. This can simply be put that it is the co-ordination of the activities and efforts of the workers in educational organization so that educational goals are achieved. Hence, human resource management in education is the process of motivating workers that is teachers and the students to maximize their performance in order to obtain maximum output starting from the day they are recruited. That means utilizing people to perform duties and functions in the colleges. Human resources are easily recognized as the most important resource out of the resources required for the production of goods and services. Human resources are the key to rapid socio-economic development and efficient service delivery. Without an adequate, skilled and well-motivated workforce operating within a sound human resource management program, development is not possible. Every educational system at every level depends heavily on the human resources for execution of its program in colleges. Teachers are the critical resources for effective implementation and realization of the educational policies and objectives at the practical level of classroom. A manager, whether in private or public sector, who underrates the critical role and underplays the importance of people or say students in colleges in goal achievement, can neither be effective nor efficient. It is the teacher who ultimately interprets and implements policy as represented in the school curriculum, which is designed to actualize educational goals. Maintaining and improving educational standards is only possible through teachers. Teachers therefore are the most indispensable entity in the school. They are the greatest aid to learning. The shortage or poor management of teachers reduces the extent to which the curriculum can be delivered effectively. It should be noted that the major premise of human resources management in education is that the end results of the educative process will be determined by the effectiveness of the teachers who facilitate learning for self-actualization and national development.

Human resource management in education essentially is concerned with three major issues namely.

- Assessing the need for staff say for teachers
- Satisfying the need for the staff and the pupils say students
- Maintaining and improving the staff services and educational sector.

Goals and Role of Human Resource Management in Education

The goals of human resource management in education are to develop the workers and to contribute to goal achievement. Human resource management has some specific roles to play. These are strategic and operational roles.

Strategic Role

Human resources are critical for effective educational functioning. Human resources were once relegated to second-class status, but its importance has grown dramatically in the last two decade. Again, its new importance stem from adequately recruited, selected and supervised, inducted and adequately rewarded, provided for, properly develop, appraised and education system. It also represents a significant investment of the educational efforts. If managed well, human resources can be a source of competitive strength for the education. Strategically, human resources must be viewed in the same context as the financial, technological and other resources that are managed in any organization.

Operational Role

According to, Mathis and Jackson (1997) operational activities are both tactical and administrative in nature. Griffin (1997) sees operational role from the legal perspective because some have regulated various aspects of employee-employer relations. Human resources management is therefore, interested in compliance with equal employment opportunities and observation of labor laws; examples; applicants must be oriented to the organizations, supervisors must be trained, safety problems must be resolved; wages and salaries must be administered. A wide range of activities typically associated with the day-to-day management of people as provided by laws and regulations must be performed efficiently. It is this collection of activities that has often been referred to as the personnel function, and the newer strategic focus of human resources management has not eliminated. In summary, it is difficult to produce one general interpretation of what human resource management means today.

Functions of Human Resources Management in Education

Human resource management in education is a set of practices and methods of integrating and maintaining the teaching staff in the school so that the school can achieve their purpose and as well as meet the goals for which they were established. It is the motivation and co-ordination of the activities and effort of the teachers in school in order to obtain maximum output from them and consequently achieve the goals of education optimally. The functions include the following:

- **Staff Maintenance:** This concern making the work environment conducive for workers, pertinent practices include; promotion and transfer, motivation, staff safety, security and health services. It is pertinent that educational establishments have sound policies in respect of staff transfer and promotion to ensure that justice and fairness prevail in dealing with staff. As work to be performed in the school is important, the mood of the man to perform the job is equally important. For maximum and productive goal attainment, the school head must ensure the comfort and happiness of the workers. That can be done through prompt payment of salary, and ensuring a safe and healthy working environment.
- **Staff Relations:** There must be a good communication network in the school to enable workers to be constantly informed of the progress being made in the school. Workers should be encouraged to participate in planning and decision making in the school. Workers should be encouraged by recognizing the staff as human beings with feelings, interest, needs and emotions and treating them as such with fairness and respect.
- **Staff Development:** This is the process of appraising staff performances and identifying their key skills and competence that need development or training to improve their skills for better performance. It involves providing development program and training courses that are suitable for the program. The success of educational organization hinges on

the strength and quality of the staff members. There is need to change through training and to improve and grow in competence. This can be done through in-service training, conference, workshop and seminars.

- **Job Performance Rewards:** This involves the design and administration of rewards for jobs performed. It is very important that management, ministry of education and its agencies take the issue of reward system very seriously. Staff performance would increase substantially if they are adequately compensated according to the quality and quantity of work done.

Challenges of Human Resource Management in Education

Human resource management has become notably complex in the sense that as human beings, they are not reliable for doing one thing over and over in exactly the same way. They can be expensive depending on their cadres, qualification and skills. Their productivity is highly dependent on the person's ability to instruct. The same content cannot be delivered every time. A number of factors have contributed in this complexity. They Include the Following:

- **Poor Working Condition:** It is not out of way if staff expects to be paid finance rewards commensurate with the services performed. The ideal thing is to have a systematic producer for establishing a sound reward system and structure. A good remuneration tends to reduce inequalities between staff earnings, raise their individual morale, motivate them to work for pay increase and promotions, reduces inter group friction and employee grievances. Teachers salaries are not paid along side with other civil servants and in some cases, teachers are owned many months of salary areas.
- **Problems of Staffing:** The problem of staffing is enormous. There are problems on the quality and quantity of staff recruited for the education of our citizens. The reason is from poor staff recruitment and selection process. Politicians and Godfathers have taken the upper hand. Some staff rarely stays in the remote areas where the management wants their services. They used to stay in the urban areas for self-convenience.
- **Current Call for the Use of ICT in Education:** As the 21st century world is undergoing rapid changes, there is urgency for few educational needs such as the call for use of ICT in education. Current call for ICT usage in education is worthy but, its implementation in the nation is in the toddling stage. ICT penetration and usage remains very low and so the need to train many teachers at all levels in ICT to equip them for reengineering the society through the skills ICT provides the most expensive means of rapid dissemination of information and imparting knowledge, decentralization of work, expansion of work force and with ICT, the teacher becomes a facilitator, supervisor and a guide for classroom instruction. However, compulsory acquisition of ICT skill by teachers should be given priority attention despite the fact that most teachers cannot buy the computer set or laptop because of poor salary. Other challenges of human resource management that have direct effect on the achievement of our predetermined educational objectives include:

1. High rate of students and staff indiscipline
2. Funding issues
3. Poor recruitment process
4. Little or no induction of human resources
5. Poor supervision/appraisal of staff
6. Poor personnel commitment to work
7. Incessant transfer of teachers

Recommendation

Considering the importance of education in human resource management, the following are recommended:

1. Education should be made attractive by creating conducive atmosphere for teachers.
2. More government attention is needed for the education sector through improved function as education remains the basis for the progress of all other sectors of society.
3. A united salary structure should be made for all categories of teachers within the education sector.
4. Standard of education in Nigeria should be up dated to meet the rapid social changes in our present Nigeria society.
5. Computer literacy in the spirit of globalization should be brought into the curriculum and the new and the old curricula made coherent for better productivity.

Conclusion

The paper concludes that education remains a veritable means of human resource management and nation building in Nigeria. Whatever needs to be done in this sector should be done in all sincerely and with urgency for education to fully achieve its predetermined educational objectives.

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HRM Practices and Innovation – An Empirical Systematic Review

Florence Thomas, Manish Awasthi, Sanyukta Khandare and Mahek Iram Qureshi

Abstract: *The relationship between human resource management practices (HRMP) and innovation has been described as a black box, where a lot still needs to be investigated. Thus, the aim of this paper is to investigate the nature of the link that exists between HRMP and innovation in both public and private organizations. To do so, theoretical underpinnings and existence of a mediating or a moderating mechanism is inspected. Based on an empirical systematic review of research conducted between 2010 and 2018, content analysis has been conducted for 31 peer-reviewed articles in the English language. Inspecting the nature of relations existed in the chosen articles are addressed relative to the nature of the human resource management systems (HRMS) used, practices encompassedandtheirdifferentutility. HRMShasbeenshowntobeassociatedwithproductinnovationyet more evidence is needed for supporting process innovation. The HRMS/HRMP and innovation relationship is inspected; important practices that would guide managers to induce innovation are highlighted. Usage of multiple HRMS and contingency in constructing such systems is indicated. Contribution to comprehend the black box and areas for future research has been offered.*

Keywords: Innovation, Systematic Review, HRM Practices, HRM Systems

Introduction

Human resource management practices (HRMP) have been gaining an increased attention especially in the areas like economics of the organization, strategic management and human resource management (HRM) (Laursen and Foss, 2003). Moreover, the past two decades were characterized by noticeable progress in researching human resource management systems (HRMS) (Wei and Lau, 2010). HRMS and innovation relationship in the firms is growing as many researchers inspected this area. (Vogusand Willbourne, 2003; Beugelsdijk, 2008; De Winneand Sels, 2010; Ma Prietoand Pilar Pérez-Santana, 2014; Chen et al., 2018).

This growing interest is because of the continuous search for having a competitive advantage in a highly turbulent environment (Jimenez-Jimenez and Sanz-Valle, 2008; Shipton *et al.*, 2005).

This study seeks to contribute for the comprehension of the HRM and innovation relationship. It has been identified as a black box by several researchers including (Beugelsdijk, 2008; Laursen and Foss, 2003; Messersmith and Guthrie, 2011). Thus, this study tries to inspect the way by which HRM and innovation are linked. Moreover, if there is a need for a mediating or moderating mechanism to understand such a relation.

Methodology of the Review

The 31 studies analyzed were published from January 2003 to December 2018 in 18 Journals (Table 1). The list is mainly based on high ranking journals with a proven history and impact in the HRM research. The database used includes the following: Academy of Management, Sage Journals, Wiley online library, Taylor and Francis online, Science Direct, Oxford Academic and Emerald insight.

Table 1: List of Journals and Ranking

Journal Title	*Article Count*	*(%)*	*Journal Ranking Grade (AJG, 2018)*
Human Resource Management Journals			
Human Resource Management	6	20	Grade 4
Human Resource Management Journal	2	6	Grade 4
The International Journal of Human Resource Management	6	20	Grade 3
International Journal of Manpower	2	9	Grade 2
Employee Relations	1	3	Grade 2
Personnel Review	1	3	Grade 2
General Management/Organization Studies/Innovation Journals			
Academy of Management Journal	1	3	Grade 4*
Journal of Management	2	6	Grade 4*
Journal of Management Studies	1	3	Grade 4
Journal of Business Research	1	3	Grade 3
Organization Studies	1	3	Grade 4
Human Relations	1	3	Grade 4
Journal of product Innovation Management	1	3	Grade 4
Creativity and Innovation Management	1	3	Grade 2
Psychology/Economics/International Business/Hospitality			
Journal of Organizational Behavior	1	3	Grade 4
Cambridge Journal of Economics	1	3	Grade 3
International Business Review	1	3	Grade 3
International Journal of Hospitality Management	1	3	Grade 3
Total	31		

Data Collection Method

The database on HRMP and innovation in the firms was built through the specific inclusion criteria. Figure1 resembles the selection process adopted; as a start, the AJG Academic journal guide for journal ranking was examined to select, which journals to include in the study. Second, the main concentration was on HRM and employment journals. Moreover, the secondary and supportive source of data was, namely, general management, organization studies, innovation, psychology, economics, international business and hospitality. Third, titles, abstracts and keywords are inspected within the selected journals using the following key terms: "HRMP;" innovation and firm.

Studies counted 3,118, however, those that were not listed in AJG (2018) academic guide for journal ranking was dropped. Moreover, books, reviews, case studies, introductions, editorials, proceedings and abstracts were also excluded; only empirical articles were taken into consideration. Studies that had zero citations, except those published in 2018 was dropped. Next, all articles published before 2010 and included in the study had at least 60

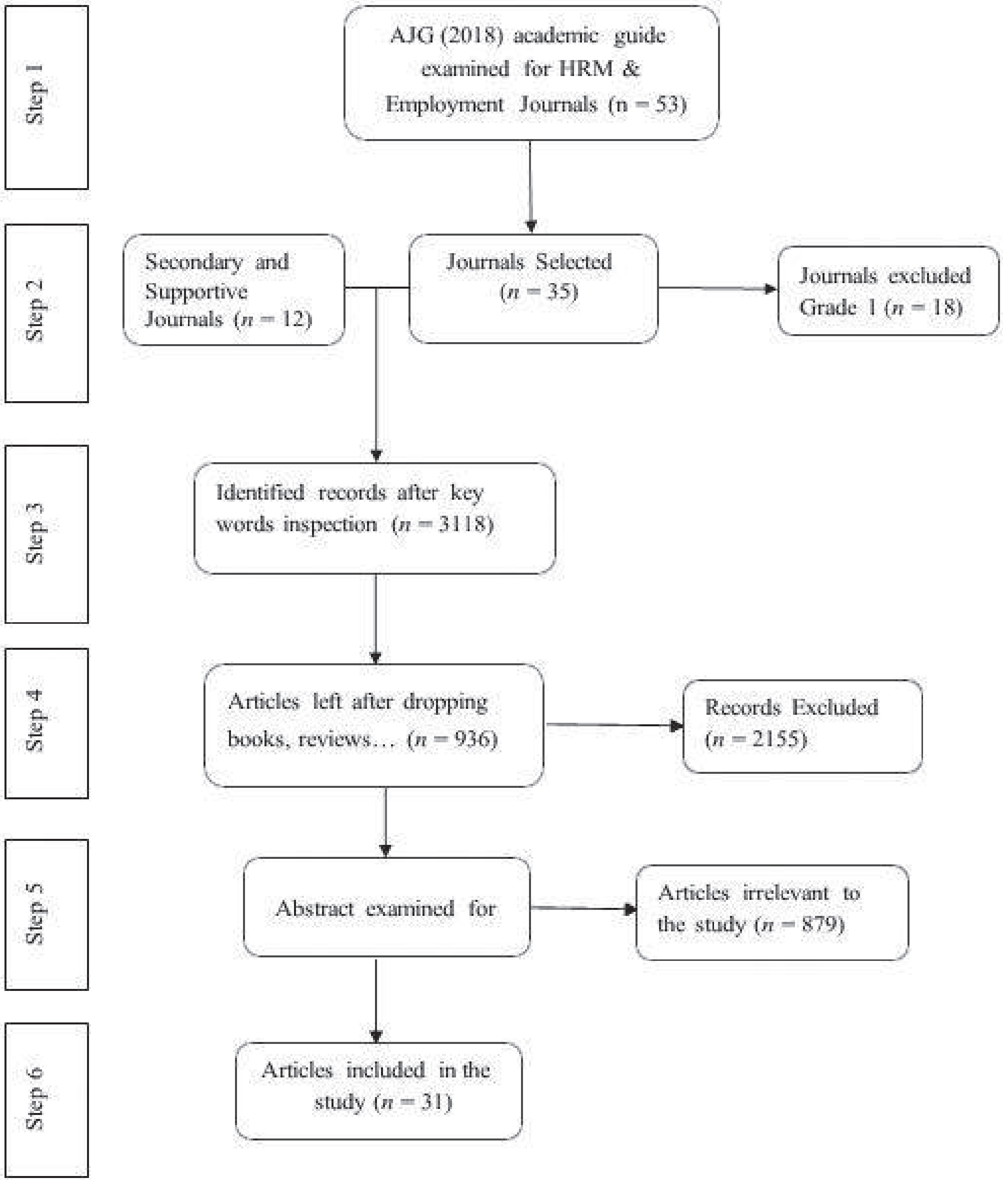

Figure 1: Chart of Articles Selection Method

citations. Also, research papers having the workplace and the organization as the unit of study was dropped, leaving us with 29 articles.

However, studies that used companies and firms interchangeably were adopted, which gave us an addition of 2 articles, leaving us with 31 articles.

Human resource management practices and innovation in firm research.

The HRMP and innovation relationship in firms is tested in a variety of contexts in this systematic review. This review declares that HRMP and innovation in firms are being empirically explored and has an international appeal as different countries are encompassed.

Distribution of Studies

Thus, the current study took the year 2003 as a starting point to inspect the previously mentioned relationship. The variance of interest in such a relationship is quite noticed since 2010 (Figure 1). The years 2010-2018 accounts for the most empirical output in the field of study ($n = 22$). Moreover, the main journals in the study are the following: *Human Resource Management* (6 articles), *The International Journal of Human Resource Management* (6articles), *International Journal of Manpower* (2 articles), *Human Resource Management Journal* (2 articles) *and Journal of Management* (2 articles). Two third of the articles were published in human resource management journals ($n = 20$).

Furthermore, the quality of the journals used was distributed accordingly.

Methodology

To analyze the methodology characteristics three aspects have been examined, namely, the industry, the unit of analysis and methods adopted.

Industry

The main industry that has been noticed in the chosen articles is the manufacturing sector as it is present in 11 articles.The information and communication technology, is present in 6 papers. The food and beverage, automotive and service industry is present in four research studies. The wholesale trade, computer software industry, electronics, chemical industry, construction and hotel industry was noticed to be covered in 3 articles. The catering, transportation, the financial service industry and textile industry is allocated in two papers. The health and personal service, retail trade, internet and added values services, biotechnology and pharmaceutics and metallurgy industry were inspected in one article each. What is noticed of what been mentioned above that the focus is on the manufacturing industry and there are still some industries to be covered such as oil, education and advertising industries. However, what is interesting that one of the articles excluded the agriculture sector. This may raise some questions and would constitute an opportunity for future research.

Methods Used

The empirical systematic literature review revealed some aspects about the methodological trends used. In total, 27 studies used questioners or surveys (interchangeably) for data collection, only two of the m were longitudinal, while the rest were cross-sectional. Moreover, two studies used a mixed approach of a questioner and an interview. Furthermore, the rest two articles have adopted an interview approach with a longitudinal nature, thus a total of four articles having a longitudinal approach.

Content Analysis

The content analysis of HRMP and innovation in the firms focused on the following aspects: HRMP (bundle/single); existence of a moderating or a mediating variable, namely, characteristics of HRMS; the definitions of innovation; outcomes of HRMP in an indication for innovation in all its forms.

Human Resource Management Systems or Human Resource Management Practices

Lado and Wilson (1994) defined an HRMS as "a set of distinct but interrelated activities, functions and processes that are directed at attracting, developing and maintaining or disposing of a firm's human resources." Thus, indicating for the complementary and interrelated nature of the practices formulating an HRMS that imposes a competitive advantage for the firm. Moreover, high-performance work systems (HPWS) in accordance with what have been mentioned earlier is defined as "a system of HRMP designed to enhance employees' skills, commitment and productivity in such a way that employees become a source of sustainable competitive advantage" (Pfeffer and Jeffrey, 1998).

In summary, papers that used HRMP as a bundle was (n = 26); in isolation (n = 4); a mixture of a bundle and isolation (n = 1). It is noticed that most researchers agree on the notion of the bundle, however, lack of agreement is noticed relative to the type of practices to integrate in the system. (Jimenez-Jemenez and Sanz-Valle, 2005).

Human Resource Management Practices in Isolation

Utilization of HRMP in isolation is quite noticed and adopted in recent research studies. The practices used can be categorized according to their purpose of usage. Lau and Ngo (2004) used three practices directed toward mindfulness; Jiang et al. (2012) adopted eight practices to evoke employee creativity; Stock et al. (2014) used four innovation-oriented practices; and Diaz-Fernandez et al. (2017) incorporated four practices aiming at enhancing employee abilities, motivation and opportunity to innovate.

Innovation – Considering the Definitions

Different definitions of innovation have been encountered, thus a trial has been conducted to set a certain trend for the definitions adopted. The definition by West and Far, used by Jiang et al. (2012), Shipton et al. (2005) and Shipton et al. (2006). It captures the deliberate behavior directed toward new (products, ideas and processes), that is new to the adopting unit and beneficial for the organization and society. Moreover, its usage has been noticed to be mainly for the technological products and processes.

Human Resource Management Systems

First, trying to find the best bundle of practices for product innovation in firms, adopted two systems, namely, the first composed of nine practices and the second composed of two; however, both having a learning objective. The sample was 913 Danish firms with at least 100 employees. Results indicated that the complementarities effect between practices enhances their impact on innovation, however, only seven of the first system had a positive significant impact. Moreover, Shipton et al. (2005) examined the British context by sampling 32 firms having at least 70 employees. The system adopted is learning-oriented composed of six practices. Results indicated a significant impact on product production and technology innovation, however, no impact on the process. This notion was supported by Jiménez-Jiménez and Sanz-Valle (2008), when exploring the Spanish context, with a sample of 173 firms having more than 50 employees.

In summary, different usage of HRMP systems shown a positive association with product innovation, however, little evidence is provided to support the emergence of process innovation. Moreover, innovation level varies among sectors as some are influenced by specific types of system of practices. Thus, according to the sector, careful selection of practices should be adopted. Furthermore, it was noticed that when implementing two different types of systems, the impact of both systems on innovation is diminished. This is explained according to ambidexterity as there should be a balance if more than one system is adopted.

Human Resource Management Practices in Isolation

Next, Vogus and Wellborne (2003) examined the USA by a sample of 184 firms having an average of 238 employees. HRMP was used in isolation; results indicated that innovation output is strongly increased by the practices. Moreover, Beugelsdijk (2008) examined the Dutch context with a sample of 988 firms having a minimum of 5 employees. Outcomes highlighted the importance of adopting practices that stress training and incentives to induce incremental innovation such as follows: training, performance-based pay. While, for radical innovation the adopted practices should induce autonomy.

Combination

Then, Shipton et al. (2006) inspected the UK context through 22 firms having an average of 236 employees. They adopted a set of practices that evoke exploratory learning; results indicated that induction, appraisal, training and teamwork had a significant impact on product innovation yet; appraisal had no impact on technical system innovation. Moreover, contingent reward had no impact on both types of innovation; however, when combined with other practices as a system its impact becomes obvious. In addition, the combined influence had a stronger impact on technical innovation.

In summary, various HRMP have been examined if being used would enhance innovation, surprisingly most studies revealed that single practices would evoke innovation. However, when combined with each other innovation will be hindered. Thus, contradicting what has been mentioned above relative to the impact of bundles of HRMP on innovation.

Mediators and Moderators

Finally, The system impact on innovative behavior is studied through middle managers innovative behavior; this relation is moderated by work-family conflict and work climate. The managers' innovative behavior successfully mediates the relationship between HCWS and firm innovative performance. However, the direct relationship was not significant, moreover work-family conflict had a negative impact on innovative behavior. Furthermore, the combined effect of HCWS with both moderate variables indicated a positive impact on innovative behavior.

In summary, the research is rich with trials to explain the relationship between HRMP and innovation through a mechanism. However, the mediating mechanism is more popular among research, thus, what would be beneficial is search for further moderators to explain the above-mentioned relationship. In what follows managerial implications for practice are presented.

Practical Implications

Important practical implications are uncovered for managers that need to acquire human resources skills and competencies, which would enhance the firm`s survival rate. First, it has been noticed that the existence of training in most of the HRMS is present and plays a vital role in inducing innovation. Lack of training might be reflected in the absence of innovation; however, presence of training would prevent employees from being square minded. Thus, managers are required to focus on human capital development and adopt practices that foster knowledge and enrich employees' skills. Fostering knowledge includes the process of acquiring and sharing information among employees. Sharing information can be motivated through a bonus system that reward combined effort rather than individual ones.

Future Research

As noticed in the review the theoretical underpinning of the HRMP, innovation relationship is quite noticed. However, there is still a space to examine more theories to explain this relationship, for example. Trait theory can be adopted as it explains the individual-level factors, which might impact HRMS positively or negatively (Tett and Burnett, 2003).

Conclusion

The 31 empirical articles reviewed suggest some improvement toward understanding the HRMP and innovation relationship in firms. The context diversity in which the studies have been conducted reveals that the HRMP and innovation relationship is a rich field yet a lot to be discovered. Practical implication are indicated, which would act as guidance for what of practices would induce innovation if implemented. However, as noticed there no specific system to apply as firms and cultural has to be dealt with according to contingency. Moreover, it suggests some additional theories to be used for inspecting the HRMP and innovation relationship.

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INNOVATION IN FINANCE

A Study on Health Insurance Service Sectors in India

V. Kaliyammal and P. Mohanasundaram

Abstract: *The government of India is discovering different social security schemes for developing healthcare and related sectors. The health insurance industry has developed amazingly due to liberalization of the economy and general awareness among the public. The General Insurance Corporation of India and the Insurance Regulatory and development Authority conduct an awareness campaign for all sections of society in order to raise awareness of health insurance and reduce the procrastination in buying health insurance. Health insurance can become an every other tool to finance health care. Health insurance in India has shown a vast transition due to the introduction of private health care finance, increased income, and health consciousness among the dissimilar classes of society, price liberalization, and a reduction in bureaucracy. In India, we have standalone health insurers as well as Government sponsored health insurance providers. Once the impact of health insurance increases in India, out of pocket payments will automatically come down.*

Keywords: Health Insurance, Liberalization, Bureaucracy

Introduction

An individual and a family generally have a peaceful life without having to worry about any unforeseen health issues. If a family has a shortage of savings and limited sources of income, needs such as the desire to own a house, a motor car, or any other instrument of social status or other consumer durables of console, can be overdue. Unforeseen medical obligations require financial commitments and lead to immediate cash flow problems and have an adverse impact on the savings of the family. Financial commitments on medical issues delay our long term financial goals. To overcome such situations, it will help in the maintenance of good health without the financial stability hindering it. Nowadays, health issues are complex, necessary to plan for individual and family planning.

Health insurance is a product of general insurance that covers the medical and surgical expenses of an insured, which could be an individual, family, or group of people. It reimburses medication and surgery incurred due to critical illness under the policy in any of the network hospital across the country.

Objectives of the Study

1. To study the concepts, benefits of health insurance.
2. To study an overview of health insurance in India.

Review of Literature

Harinder singh Gill and Pooja kansra (2014): A healthy workforce is a key to the survival and well-being of any economy. The researcher examined the growth and trends in health in India. Suggested health insurance can be a tool for obtaining cost-effective healthcare in India as out-of-pocket payments are the highest in the world. Once the penetration of health insurance increases in India, out-of-pocket payments will automatically come down.

Suman Devi and Vazir Singh Nehra (2015): The study on problems and new inventions in the health insurance sector, such as health insurance flexibility, RSBY hybrid products, and critical illness cover. The highlighted and probable solutions are disposed to problems associated with health insurance. Examples of Bajaj Allianz, Cholamandalam MS, and Star Health are given that have terminated Third Party Administrators (TPAs) and have picked out for direct settlement of claims. Nowadays, insurers have started visiting hospitals to meet patients for claims in the category of group insurance. If any fault policy renewal is stopped. There are pre-agreed rates for surgeries and treatments, which prevent differential charging of tariffs. The lack of awareness about health insurance policies and problems like high claim pay-out ratio in public sector insurers, unprofessionalism of TPAs, wrong selection of health insurance policies, lack of awareness about health insurance policies, and lack of development of health insurance in rural areas are highlighted.

Ramaiah Itumalla et al. (2016) various health insurance schemes are available in the market and provide benefits ranging from an individual to an entire family. The paper tries to give a health insurance scenario and some of the issues and challenges facing the health insurance sector in India. The study discussed the issues and challenges such as low level of consumer awareness, limited product and pricing innovation delays, and issues in claims processing and pricing in health insurance.

Binny and Meenu Gupta (2017) identify trends in the Indian health insurance sector's growth opportunities and challenges. The study opinion on health insurance is that it is a growing sector in India. New business models with innovative products have been introduced by companies. The need for a universal health insurance program had been identified to cover families below the poverty line. Health insurance companies can take advantage of this sector to expand their business, and medical tourism is also a growing business in India. The information sharing may help customers in their appraisal of prices, quality, and services provided by health insurance companies in this sector also advised.

Swathi and Anuradha (2017) an overview of the health insurance sector in India, the concept and benefits of which are present in India. The number of persons covered by various schemes, such as government sponsored, group insurance, and family insurance, individual policies is depicted. The cost of health insurance policies is covered by public, private, and specialized insurers. New health insurance schemes and welfare program for ordinary people are proposed. The IRDA is to promote competition in health insurers as well as access to telecom service providers. The public sector is also advised to conduct awareness campaigns to inform people about the benefits of having health insurance policies.

Satakshi Chatterjee et al. (2018) attempts to analyze the insurance models of healthcare in selected other countries as well. Health insurance is regard as an unsaturated market in India and the middle income group, i.e., the under attack population of this industry, will definitely create a boom in health insurance in years to come. The health insurance sector is necessary to be made universal, irrespective of the income level and backdrop of an individual or family.

Lakshmanna BC et al. (2019) the study was conducted on the operational efficiency of selected general insurance companies with regard to the pattern of insurance premium, claim settlement procedure, and overall performance of the companies. The percentage analysis of health insurance premiums collected by public and private sector shows growth from 13.55% to 24.29% during the years 2011 to 2013, which later on decrease to 13.42% in the year 2018. The moderate growth rate during the years 2010 to 2018 was 13.85%. In their study, it was observed that public sector general insurance providers required new and innovative products in form to contend with the operational efficiency of selected general insurance companies in India. The study was conduct on select general insurance companies regard the pattern of insurance premium, claim settlement events, and the estimation of the performance of the companies. A percentage analysis of the insurance premiums collected by both public and private sector insurance companies showed a significant growth from 13.55% to 24.29% during the years 2011 to 2013 which later decreased to 13.42% in the year 2018. Regular growth rate during the years 2010 to 2018 was 13.85%. After the study was conducted it was observed that public sector general insurance providers required new and innovative products in order to compete with their private fellow. It is suggested to formulate standard policies and benchmarks to be followed by public and private sector regulatory authority of IRDA.

Research Methodology

The study is descriptive in nature and is based on an analysis of secondary data available on the internet. The purpose of studying health insurance information has been collected (2014–19) in the years mainly through the reports of the Insurance Regularity and Development Authority (IRDA).

Health Insurance Concepts

Health insurance in India contributes narrowly to inpatient hospitalization services and outpatient services are never payable. Introduced many innovative products for private insurers like individual, family floaters, critical illness, senior citizens, women, top-up and super top-up, and specific disease policies. If an insured suffers from high medical expenses due to an accidental injury or a severe ailment, the expenses incur for cure purposes are borne by the insurance source.

Health Insurance Plans in India:

1. Hospitalization
2. Family floater health insurance plan
3. Pre-existing disease coverage plan
4. Senior citizen plan

5. Maternity health insurance plan
6. Hospital daily cash benefit plans
7. Critical illness plans
8. Pro active plans
9. Disease-specific special plans

Health Insurance Policy Advantages in India

1. **Hospitalization expenses:** They cover hospitalization charges, one of the most significant benefits of health insurance policies in India.
   (a) **Accidental hospitalization:** Accidents covered under health insurance plans are incurred while seeking treatment in the due course of hospitalization.
   (b) **Illness-related hospitalization:** The number of illness covered can be wide and varied, including Chikungunya, Dengue, etc., the insurance policies cover costs incur while looking for treatment in a hospital for any illness.
2. **Pre and post-hospitalization costs:** Pre and post -hospitalization costs for diagnostic tests as well as follow – up hospitalization costs can also be quite substantial. It is not always necessary that you be hospitalized to incur huge medical expenses. To cover all your expenses without the need to present any bill, opt for a lump sum payment post your hospitalization.
3. **Cost for day-care procedures:** Day-care procedures are covered for treatments without hospitalization such as nasal sinuses, cataract, chemosurgery, orthopedics etc. A few procedures to treat illness might not require you to be admitted to a hospital but can land you a sizeable bill, with available coverage for such day-care expenses for less than 24 hours due to development in the medical field.
4. **Cover your daily expenses with hospital cash benefit:** If you have a daily cash allowance from your health insurance policy, you can overcome this situation easily. In this situation, you may face a cash critical situation, making you hesitant to spend on your daily needs.
5. **Get increased sum insured as no claim bonus benefit:** Insurance providers expand the benefit of a no claim bonus in the form of an bonus sum insured amount at the same premium payment for the subsequent year.
6. **Avail a cover for seeking psychiatric treatment:** Insurance policies cover the cost of hospitalization to seek psychiatric treatment. OPD conference for such treatment is not covered under the insurance policy.
7. **Get maternity & infertility treatment benefit and newborn care cover:** The policy waiting period is of 2 years and covers up to 2 kids only. It can be planned for child if a person wants to reduce your financial liabilities.
8. Tax benefit: Under section 80D of the income tax Act 1961; one enjoys tax benefit on the premium paid towards a health insurance policy.

9. Avail alternative treatment benefits under Ayush cover: Digit insurance provides coverage for alternative treatment procedures like Ayurveda, Siddha, Unani & Homeopathy this is an add-on provided by digit insurance that covers the costs of hospitalization.

Result and Analysis of Health Insurance in India

Table 1: Classification of Schemes: Number of Persons Covered

Sector/Year	*2014-15*	*2015-16*	*2016-17*	*2017-18*	*2018-19*
Govt. sponsored schemes no. of persons	214366	273272	335015	359262	357117
Group insurance schemes no. of persons	48301	57039	70469	89448	72854
Family insurance schemes no. of persons	12022	15855	15972	21551	26526
Individual policies no.of persons	13343	12797	16000	11725	15538

Source: Handbook on Indian Insurance statistics – IRDA

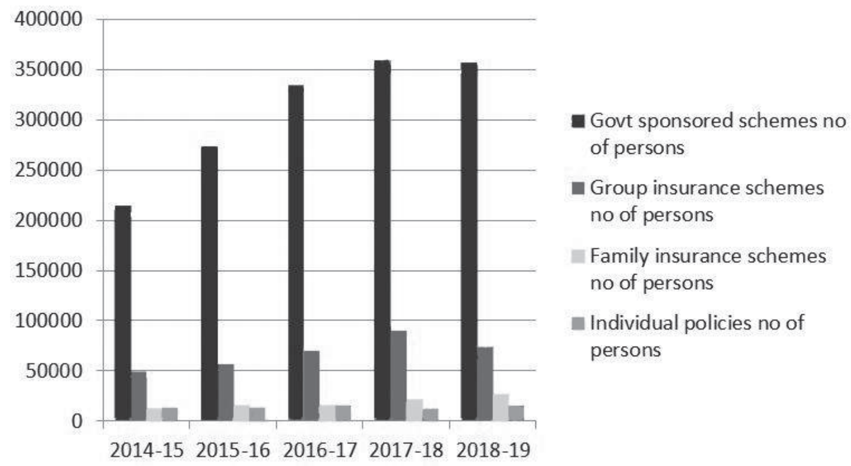

Figure 1: Classification of Schemes: No. of Persons Covered

According to the Indian health insurance statistical information presented by IRDA from the years 2014-15 to 2018-19, the number of persons covered under Government sponsored schemes has drastically increased compared to the other schemes of health insurance. The above analysis reflects the Initiative taken by the Government to provide health insurance to the people of the nation.

Table 2: Sector-wise Number of Policies

Sector-wise No. of Policies/Year	*2014-15*	*2015-16*	*2016-17*	*2017-18*	*2018-19*
Private companies no of policies	2569255	2615474	3018320	3722405	8235422
Public companies no of policies	5863454	6078615	6104537	6108656	5841675
Specialized insurers no of policies	2496496	3121842	4014571	4898695	6604469

Source: Handbook on Indian Insurance statistics (IRDA)

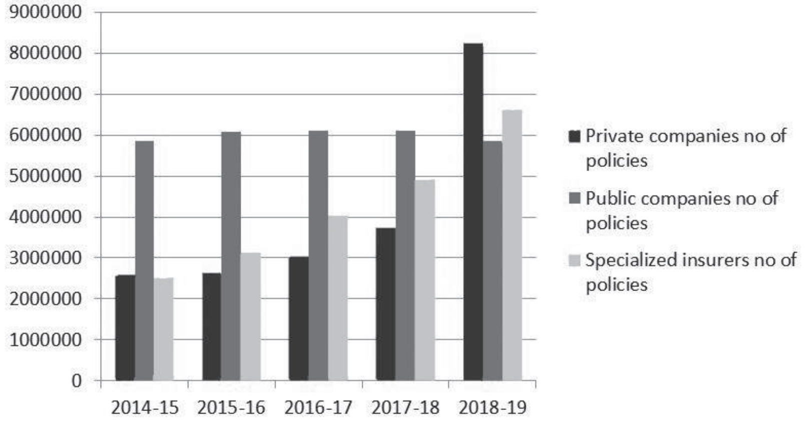

Figure 2: Sector-wise Number of Policies

In India, public companies, private companies, and specialized insurance companies offer health insurance services to the public. The above table exhibits the sector-wise number of policies full by individuals. The study apparently shows the number of policies taken by the private has increased from 2018-19, which implies the awareness of the public towards the necessity of health insurance. A comparatively greater number of policies are taken in private companies by their people compared to other sectors. It reflects the self-reliance of the people in public sector companies as compared to other sectors.

Table 3: Sector-wise Number of Persons Covered

Sector-wise No of Persons Covered/Year	*2014-15*	*2015-16*	*2016-17*	*2017-18*	*2018-19*
Private companies no of persons	63002	67938	75355	86761	116478
Public companies no of persons	211451	276563	347323	376307	320081
Specialized companies no of persons	13579	14461	14778	18918	35475

Source: Handbook on Indian Insurance statistics (IRDA)

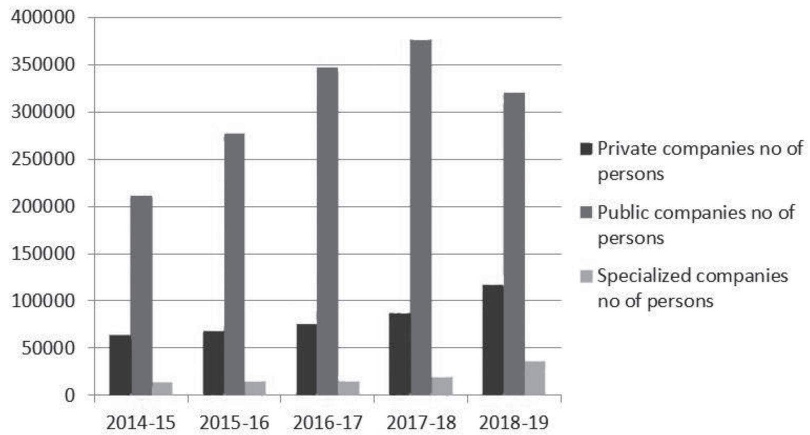

Figure 3: Sector-wise Number of Persons Covered

From the above analysis, from the years 2014-15 to 2018-19, the number of persons covered by public companies was higher as compared to private and specialized insurance companies, but eventually the number of people covered.

Suggestions

- The government should continue to conduct public awareness programs through media and television should play a huge role in spreading awareness in this regard.
- The government should always introduce new health insurance schemes, benefits and welfare programs for the public.
- Private companies should build the confidence of the public to increase the health insurance coverage like public companies.
- Specialized insurance companies also need to adopt different technique to increase their health insurance coverage.

Conclusion

The health insurance scheme members were not aware about the entire benefits and details of the scheme, which put importance on the need for create more awareness and knowledge saturation with suitable health communication methods. More cost-friendly schemes that will help reduce the premium paid, contributed majorly by the public sector, and innovative ways to reduce the existing out of pocket expenditure are the need of the hour. Developing policies that will be available, accessible, acceptable and affordable to all sections of the society is the way to go.

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Financial Derivatives Market in India: Scope of Increase in Financial Derivative Instruments and Underlying Assets in Indian Financial Market

Sushant Vichare

Abstract: *The Indian financial services sector has changed dramatically post LPG program. New instruments and financial reengineering have been introduced since then. But financial derivatives market is one area where the growth and innovation are slow. Financial derivatives are those that have linked financial instruments to indicators and commodities with a certain set of financial risks. Financial derivatives are used for several purposes, including risk management through hedging, arbitrate, and speculation. In India, the appearance and enlargement of the derivative markets are moderate. Currently, there are very restricted and limited commodities and financial assets traded in the Indian market when compared to the global derivatives market. With the advancement in technology, exponential enlargement in terms of volume and number of traded contracts, there is a wide scope of increase in the financial assets. Innovative financial derivative instruments can be introduced in the Indian market over a period of time. This paper primarily focuses on the derivative instruments which are available in the global markets such as Inverse Leverage, Leverage ETF, Swaptions, and Warrants. The present study examines the role of these instruments and their impact on the Indian financial market reforms when introduced in the Indian market.*

Keywords: Financial Derivatives Market, Financial Derivative Instruments, Indian Financial Market, Derivative Contract

Introduction

As the inceptive step towards the preface of derivatives trading in India, SEBI set up a 24-member committee under the Chairmanship of Dr. L.C. Gupta on November 18, 1996, to develop a regulatory and structuredframework for derivatives trading in India. On March 17, 1998, the committee submitted a report commending that derivatives be announced as "securities" so that the regulatory framework governing the trading of securities can also control the trading of derivatives. To recommend the measures around the risk factors involved in the derivatives market in India, SEBI had set up a group in June 1998 under the Chairmanship of Prof. J.R. Verma and they managed to submit their report in October 1998. The committee worked out the operational details of the margining system, methodology for charging initial margins, membership details, net-worth criterion, deposit requirements, and real-time monitoring of position requirements. Later in 1999, The Securities Contract Regulation Act (SCRA) was ameliorated to subsume "derivations" within the sphere of securities and a regulatory framework was established for governing derivatives trading in India. The year 2000 saw a major change in the derivatives market, like 30 years old notification was rescinded by the government, which had banned forward trading in securities. The exchange-traded derivatives started in India in June 2000, when SEBI permitted BSE and NSE to introduce the equity derivative segment. Initially, SEBI approved trading in index futures contracts based on Nifty and Sensex. Later trading in index options and trading in options on individual stocks started in July 2001. Approval on trading in futures contracts on individual stocks came in November 2001. In February 2013, the Metropolitan Stock Exchange of India Limited (MSEI) started trading in derivative products.

Statement of the Problem

There is tremendous growth for the financial derivatives market and its instruments in India. However, there have been reports of major losses associated with global financial markets and derivative products, which has led to a great deal of confusion and worry about these complex instruments. Though the growth of the derivatives market is slow in India, it surely has major benefits for hedgers inthe commodities market and institutional investors in global financial markets. This study is done to find the possible solutions and understand other global derivatives-related instruments that lower the risk factor involved while investing.

Scope ofthe Study

Financial markets are made by buying and selling numerous types of financial instruments including the stock market, bond market, forex market, and derivatives market. Financial derivatives arean integral part of financial markets. Based on the objective of the topic, the researcher has covered detailed information about the derivative instrumentsand has shared insights on other available derivative instruments, which are traded globally.

Research Methodology

The research held concerning this paper was an applied one, but not new. Rather, numerous pieces of previous academic research exist regarding the scope and role of derivatives markets in Indian financial markets. So the proposed research took the form of new research but on an existing research subject. The research methodology adopted for the study of the paper is secondary research data, which is widely available through various financial websites and other financial markets related books and thesis.

Basic Information of the Subject

Concept of Financial Derivatives

The derivatives originated in mathematics and refer to a variable that has been derived from another variable. A financial product's price which is determined by the value of another asset is called financial derivatives. Basically derivative is a financial security with a value that is dependent upon or from an underlying asset or group of assets. At present, the Indian stock markets do not have any risk hedged instruments that allow the investors to manage and minimize the risk. In many developed countries along with money market and capital market securities, a variety of other securities known as 'derivatives' are now available for investment and trading.

Definition of Financial Derivatives

Financial derivatives are financial instruments that are associated with a specific financial instrument or indicator or commodity, and through which peculiar financial risks can be traded in financial markets. The valuation of a financial derivative derives from the price of an underlying item, such as an asset or index. Such an asset can be any other product like a foreign currency, an interest rate, a share, an index, or a commodity. In derivative instruments, no principal amount is advanced to be repaid and no investment income accrues unlike in debt instruments.Financial derivatives are utilized for a number of purposes including hedging, risk management, arbitrage between markets, and speculation.

Different Types of Players in Derivatives Market

1. **Hedgers:** Hedgers are traders who use derivatives to reduce the risk that they face from potential movements in a market variable and they want to avoid exposure to adverse movements in the price of an asset. Majority of the participants in derivatives market belongs to this category.
2. **Speculators:** Speculators are traders who buy/sell the assets only to sell/buy them back profitably at a later point in time. They want to assume risk. They use derivatives to bet on the future direction of the price of an asset and take a position in order to make a quick profit. They can increase both the potential gains and potential losses by usage of derivatives in a speculative venture.
3. **Arbitrageurs:** Arbitrageurs are traders who simultaneously buy and sell the same (or different, but related) assets in an effort to profit from unrealistic price differentials. They attempts to make profits by locking in a riskless trading by simultaneously entering into transaction in two or more markets. They try to earn riskless profit from discrepancies between futures and spot prices and among different futures prices.

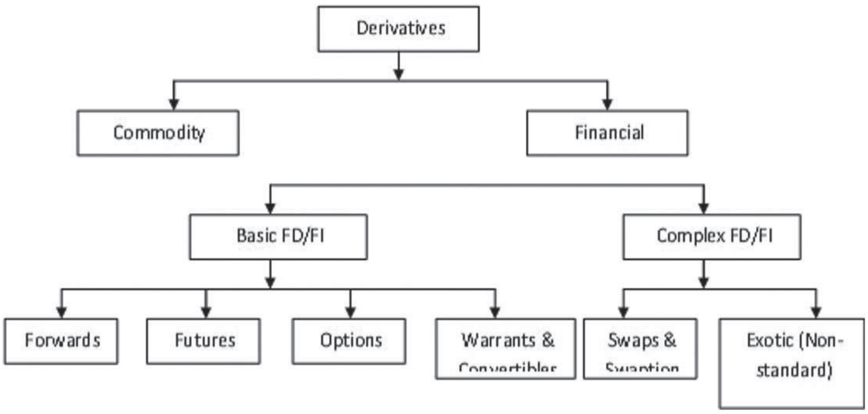

Figure 1: Classification of Derivatives

Type of Derivative Contract

1. **Forward Contract:** A forward contract is a customized contract between the buyer and the seller where settlement takes place on a specific date in future at a price agreed today. Where a minimum amount is paid by the buyer is also called margin. The contracts not traded on any exchange or counter so are called Over the Cover Trade (OTC).
2. **Future Contract:** Futures contract is an agreement between two parties to buy or sell a specified quantity of an asset at a specified price and at a specified time and place. Future contracts are normally traded on an exchange which sets the certain standardized norms for trading in futures contracts
3. **Option Contract:** Options are derivative contracts that give the right, but not the obligation to either buy or sell a specific underlying security for a specified price on or before a specific date. There two type in options – call options and put option.
4. **Swaps contract:** A swap is an agreement between two or more people orparties to exchange sets of cash flows over a period infuture

Findings and Analysis

In India, currently the Financial Derivatives Instruments traded are as under:

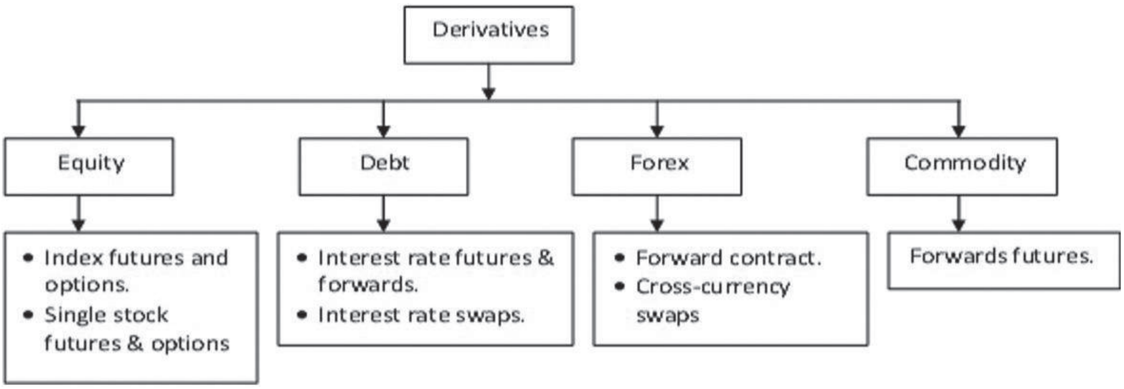

Figure 2: Derivatives Contracts Permitted for Trading in India

But other than this Financial Derivatives Instrument there are many other Instruments which are traded in India like.

Swaptions

A swaption, also known as a swap option, refers to an option to enter into an interest rate swap or some other type of swap. In exchange for an options premium, the buyer gains the right but not the obligation to enter into a specified swap agreement with the issuer on a specified future date.

Swaptions come in two main types – a payer swaption and a receiver swaption. In a payer swaption, the purchaser has the right but not the obligation to enter into a swap contract where they become the fixed-rate payer and the floating-rate receiver. A receiver swaption is the opposite i.e. the purchaser has the option to enter into a swap contract where they will receive the fixed rate and pay the floating rate. Swaptions are over-the-counter contracts and are not standardized, like equity options or futures contracts. Thus, the buyer and seller need to both agree to the price of the swaption, the time until expiration of the swaption.

'Swaption' deals are risk-focused, interest-rates derivative products introduced in India. Swaptions have begun to gain traction as a derivative instrument to help manage interest rate risks more effectively. While some banks have already started dealing in this instrument, others are setting up the infrastructure. The product should be a success with participation from both banks and end-users, such as corporates.

Warrant

A warrant gives the holder the right to purchase a company's stock at a specific price and a specific date. In other words, a warrant is a long-term option to buy a given stock at a fixed price. Such a type of warrant is called a call warrant, which gives the right to buy the security. A put warrant gives an investor the right to sell the security. A stock warrant is issued directly by the company involved. It means that when an investor exercises a stock warrant, the shares that fulfil the obligation are not received from another investor but directly from the company. As of now there is no trade of the warrant as financial Instrument in India so far if at all introduced in the market the is a great scope of trade volume in this segment as we have seen in the other financial derivative products

Limitation

The Indian financial market has undergone paradigm changes during last two decades. Though the Indian capital market size is wider around Rs.20,000,000 Cr. p.a. both in NSE and BSE even after 12 years, from introduction of derivatives, market participants especially small–retail individual investors are not familiar with the concept of derivatives. Still they have misconceptions about derivatives. They believe in the myths of derivatives instead of realities. Indeed, they feared derivatives due to lack of knowledge about them and their use.

Also the there is a greater scope in commodities market as well. There are roughly **30** different commodities traded on Indian exchanges. Three primary commodity exchanges are currently operational in India – the Multi Commodity Exchange (MCX), National Commodity and Derivatives Exchange (NCDEX), and Indian Commodity Exchange (ICEX).

Non-exchange-traded commodities include: fresh flowers, melons, lemons, tomatoes, grapes, eggs, flesh, meat, fish, potatoes, asphalt, arsenic, borax, gypsum, asbestos, cement, carbon dioxide, rare earth metals, magnesium, manganese, silicon, rhodium, etc. In fact, most commodities are not traded in exchanges.

Future Scope

Innovation of derivatives have redefined and revolutionised the landscape of financial industry across the world and derivatives have earned a well-deserved and extremely significant place among all the financial products. Derivatives are risk management tools that help in effective management of risk by various stakeholders. Derivatives provide an opportunity to transfer risk, from the one who wish to avoid it; to one, who wish to accept it. India's experience with the launch of equity derivatives market has been extremely encouraging and successful. The derivatives turnover on the NSE has surpassed the equity market turnover. Significantly, its growth in the recent years has surpassed the growth of its counterpart globally. There is a great scope of introducing new financial derivative instruments and more and commodities and Equity shares in the Indian financial market.

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Dynamically Continuous Innovations in Financial Services – A Case of AU Small Finance Bank (Badlaav Hamse Hai)

VISHAL VINAYAKRAO PATIL, KOMAL PRADIP MURUMKAR AND VAISHNAVI JAGDISH SAHU

Abstract: *Change is inevitable indeed! Changes must not be seen as threats but have to be treated as opportunities. This is possiblethrough innovative approach, vision, functioning at individual as well as organisational level. Financial services have witnessed dynamic ups and downs, varied customer references, entry of novel technology, etc. Specifically because of the impact of globalisation, the private players have been investing huge in research and development to come up with innovation backed offerings to get competitive advantage.A good number of banks have customised their processes, procured software, taken the aid of search engine optimisation, and have taken initiative for online banking. The privacy and safety issues are being handled with priority. Every bank is having to its credit at least a single innovation- continuous, dynamically continuous or discontinuous. AU Small Finance Bank is also a part of such innovations. They have gone far beyond the normal way and their out of box indulgencehas lead to make small innovations their USP (Unique Selling Proposition).*

Banking plays an important role in the development of any Nation. In ancient time it was found that banking has certain challenges for surviving. Peoples are not known the benefits of banking, and majorly peoples they invest their money in Physical assets like Land, Building and Gold. That's why the banking sector found it difficult to secure its position in to the financial market. In a decade we found that banking sector secure it place in the development of Industries and well as the Nation. Banking provides a lot of facilities to the individual customers as well as to the Industries. In India lots of Nationalised banks, Private Banks and Co-operative are working here, it has its own functions and areas. Investors found a suitable bank for them for investment and to put their savings into it. Lots of banks provide variety of services to their customers. As customer's point of view they want a variety of services as their convenience, but majorly the banks are not providing such kind of services to them. That's why there must be required some innovation into the banking services. AU Small Finance Bank provides variety of unique types of services to the customers. AU stands for: Inclusiveness, Progress for all, Simplicity and Action and urgency and these are the pillars on which AU Small Finance Banks serves.

Introduction

Present era is focusing on innovation and each sector they want create or provide unique product or services to their customers. Now days due to innovation customer's demands are change. They want a quality of product and services within a minimum cost. Majorly companies doing expenses on R&D because they know the fact that, due to technological changes customers demand must be change. Likewise in Banking sectors there must be required certain kind of changes. Some of the banks they are providing variety of services to their customers. Major of the banks they are providing traditional products and services to their customers. Lots of banks they are providing traditional products to their customers but AU Small Finance Bank trying to provide unique services to their customers. AU Small Finance Bank was started by Mr. Sanjay Agarwal, it effectively worked on funding economic growth, especially for the under-served and un-served low & middle-class individuals. The mission of this bank is Making every customer feel supreme while being served, Aspiring that no Indian is deprived of banking and Bias for action, dynamism, detail orientation and product-process innovation.

Innovations – More Details

The concept of innovations may sound different through eyes of organizations. That's why these perspectives have categorized innovations into open innovations, closed innovations, incremental innovations, sustaining innovations, architectural innovations, rapid innovations, rapid innovations etc.One such classification is based on the customer personality traits and on other hand, the target market.

This tends to be the most acceptable and trustworthy classification considering the decisiveness in the target market is – dynamically continuous, continuous and discontinuous innovations. Discontinuous innovationsare in fact inventions or discoveries that are life changing, occur for the first time. These are the objects reflecting the highest kind of risk taking, biggest awareness, the most resources to be possessed, best possibilities of experimentation and customers to be innovators or opinion leaders. Continuous innovations are comparatively milder, with a fine breakthrough than but not as influencing as the discontinuous ones. Thus the attributes allied with customers mentioned before are somewhat milder. The third and last type of innovations is dynamically continuous innovations. These are the smallest possible constructive and cost effective changes in the previously existing products, services, brands or offerings. These match the best with financial services organizations, specifically, banks. If communicated in a creative manner, the marketers/bankers may succeed in grabbing more market share, prolonging PLC (Product Life Cycle) phase and generating a long- term brand image.

Litterateur Review

Merton (1992) in his research gave a new term to innovations done in banking sector i.e. "Financial innovations" and highlighted key advantages of these innovations which are related to low cost of capital, reduce financial risks, improved financial intermediation, and leading to customer welfare enhancement. He also focused on how innovation helps in improving main functioning ofbanking system, i.e. to facilitate the distribution and consumption of economic resources in an uncertain environment in his research.

Avasthi & Sharma (2000-01) have emphasized technological advancement that has lead to change the face of banking business in their study. The researcher also told about

Technology, specially regarding the delivery channels of banks in retail banking sector. He also explored the various challenges that banking industry is facing in its initial phase.

B. Janki (2002) This research brought into light how technology is affecting the employee's productivity. The research also highlights the desperate need of technological innovation in India particularly in public sector banks in order to improve their operating efficiency and customer services. Therefore technology is being thought of more in area of customer services, developing new products, strengthening risk management etc. the study concludes that technology innovation is the only tool to achieve the goals of sustainable development of an economy.

Rishi and Saxena (2004) Innovation in Indian Banking Sector Volume 3, Issue 2, July-December 2020 (3) has also given his contribution by doing research on Technological innovations. Study acknowledged that technological innovations in the banking sector in industrialized countries have been shown to increase productivity of banking industry around the world.

Mittal, R.K. & Dhingra, S (2007) studied the role of technology in banking sector. They analyzed investment scenario in technology by Indian banks but this study explored the various aspects which were prevailing in banking sector before the introduction of Information Technology Act and also conved all problems were faced by banks in Indian banks when technology diffusion was very low.

Padhy, K.C. (2007) - This research illustrated impact of technology development in the banking system and also highlighted the future of Indian banking sector. His research also put light on the core competencies that today banks are facing and also stated various factors that provide comparative advantages to one bank over other. In a nutshell, study reviews that the banking industries themselves adopted various innovative schemes for furtherance of their business and to attract and retain more and more customers.

Hua G. (2009) researched mainly the online banking recognition in China by conducting an experiment to investigate user's perception towards online banking, extent of the ease experienced by customers and security while doing online financial transaction on bank website.

Drucker (1985), Innovation can be described as the means by which either new wealth producing resources are created or existing resources are endowed with enhanced potential for creating wealth.

Goosen (2002), at the organizational-level, asserted that innovation has been shown to be positively related to individual firm performance.

Sullivan (2009); KPMG & Innovaro (2007); Capgemini (2008) reflected that one key industry where there are calls for greater levels of innovation is the retail banking sector.

According to, Accenture (2008), the retail banking sector is currently struggling as it comes under greater competitive pressures from a number of sources. Customers are becoming more demanding.

Onufrey & Moskowitz, Genesys (2008) opined that Banking services are gradually being seen as commodities.

Deloitte (2008), nonbanking organizations are increasingly entering the marketplace to compete for customers.

According to, KPMG & Innovaro (2007); Mckeon & Kandybin (2006) combing these trends, there appears to be a strong impetus for greater levels of innovation to enable individual banks to differentiate themselves in an increasingly competitive marketplace. Yet retail banks are behind other industries in terms of managing the process of innovation.

KPMG and Innovaro (2007), also put forth that from the body of research that has been conducted on innovation in the retail banking sector, some significant findings have emerged. For instance, it can be pointed out that innovation in this sector tends to be both incremental and short-term in nature.

Roberts and Amit (2003) said that a longitudinal study conducted on the Australian retail banking sector offers further insights. According to this study, between 1981 and 1995, the vast majority of innovations in the Australian sector were imported from banking industries in other countries.

Objective of Study

- To study different innovative products offered by AU Small Finance Bank.
- To identify difference between traditional services and services offered by AU Small Finance Bank.
- To study the advantages and disadvantages of AU Small Finance Bank.

Research Methodology

The study is done in order to make an estimation of the current position of the AU Small Finance Bank. This entire research is based on secondary data based on the information available on AU Small Finance Bank's website, some of the research papers and articles and TV advertisements.

Journey of AU Small Finance Bank

Mr. Sanjay Agarwal a Chartered Account established this bank in the year 1996 at Jaipur as AU Financial, a non-deposit taking Non-Banking Finance Company (NBFC). It provides various services to under-served and un-served low & middle-class individuals. It has also provides variety of services to the customers largely in Vehicle Loan, Business Loan and Housing Loan segments. In 2015, when RBI came out with the Small Finance Bank licensing guidelines, this bank received a license. Through this AU Financials converted into AU Small Finance Bank in April 2017. These days, this bank is providing unique services to their customers with special features. As retail focused bank constantly innovating to make banking simple for its customers, AU Bank is now moving towards being a digitally led Bank with pan India presence. AU stands for Inclusiveness, Progress for all, Simplicity, Action and Urgency.

Products and Services Offered by AU Small Finance Bank

(a) Premium Banking (b) Saving Account (c) Term Deposit (d) Debit Card
(e) Credit Card (f) Vehicle Loan (g) Gold Loan (h) Personal Loan
(i) Home loan (j) Bank Lockers

Comparison with Traditional Services with Services Offered by AU Small Saving Bank

(a) If a person has taken a loan from bank in that case he has to pay interest monthly. If he has not paid that interest in stipulated time then he has to pay an additional amount as penalty. But in case of savings account it is credited quarterly in the account of the holder. AU Small Finance Bank provides a monthly interest on saving account.

(b) For any information or to avail any kind of services we have to approach the bank. It takes a lot of time and expenses. Sometimes, we face problems of system failure and crowd in that bank. Employees have to take a half day or full day casual leave from the office to visit the Bank. This is troublesome for the employees. Same is the scenario for business people as well. But AU Small Finance Bank provides a Video Call facility to their customers. Due to this customer saves time as well as expenses.

(c) If a customer has an account in a particular bank, in that case he has to do every transaction through that particular bank. If he optioned some services through another bank then he has to pay additional charges. But AU Small Finance Bank provides all types of facilitates without demanding additional charges to its customers. Customers can avail any kind of services without paying additional charge from any branch of AU Small Finance Bank.

(d) When a customer wants to deposit its saving in bank, in that case he has to fill one deposit slip of particular amount. Some of the people found it difficult to fill this deposit slip. Further, if any mistake is found, he has to fill it again. But AU Small Finance Bank gives a computerised deposit slip to its customers. Likewise, this service is also applicable for withdrawal of the amount. In both the cases we receive a slip from the bank.

Advantages and Disadvantages of AU Small Finance Bank

Advantages

1. This bank provides online account opening facility to its customer without approaching bank.
2. App provided by the bank is better than the other bank and easy to handle.
3. Zero Balance account opening facility is provided to the customers.
4. Provide proper customer services to the customers than the other banks.
5. Provide various offers to its customer for example, Zomato, Swiggy, etc.

Disadvantages

1. If customers open Zero Balance online account in this bank, in that case, they will not be getting any debit card. They get a chance for only online transactions by this account.

2. If customers open offline saving account from the bank, they have to deposit Rs 2000 as a minimum balance amount. Only offline account holders receive debit card facility.
3. This bank has limited number of branches.
4. Due to limited branches, these banks provide limited ATM facility to its customers. As only Five transactions are free on debit card, it is difficult to withdraw amount from other ATMs. Customers have to pay additional charges.

Conclusions

They say, Kaizen and innovations differ as the prior is a gradual mechanism whereas the later is a radical entity. The wise question is "How can they go hand in hand?" Considering the characteristics, nature and scope of financial services and banking, if the aspects mentioned in this paper can be implemented together and if every dynamically continuous financial innovation is treated as Kaizen, the organisations may reach the height of customer satisfaction. This is very much possible by bringing the entire innovation endeavour to the grass root level and through itspercolation via five cornerstones of Kaizen – discipline, quality, teamwork, high morale and thirst towards improvement, whatever small it may be. One of the figures of speech in English language is alliteration. It conveys repetition of sounds, alphabets, words or terms. "Small" innovations, "Small" improvement, "AU "Small"Finance Bank- This "Small" alliteration is perhaps indicating towards carrying on the same mindset with zeal and add colours to organisational culture as well. This promises the journey of offerings from the generic level to augmented, rather potential level. This is the beauty of relying on innovations.

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Financial Performance of Axis Bank for the Period of 2017–2020 – A Review

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Abstract: *Banking Sector plays an imperative role in economic development of a Country. The banking system of India is featured by a large network of bank branches, serving many kinds of financial services of the people. In today's financial world, financial performance is mundane amongst the perspective of various stakeholders, be it in the management, lenders, owners and investors' perspective. The knowledge of financial performance helps in predicting, comparing and evaluating the earning ability of the company. It also helps in economic and investment decisions. Any company provides financial information through financial statements and reports. A bank's financial performance can be assessed by analyzing the data provided in its quarterly and annual reports. The present study is conducted upon the financial performance of Axis Bank for the period from 2017-2020. The study found that Axis Bank is performing well and financially sound in terms of Net profit. The objective of this study is to analyze the Financial Position and Performance of the Axis Bank in India based on their financial characteristics. The present study is conducted to analyze the consistency of the profitability of the Axis bank. The study was based on secondary data from records, reports and profile of the organization.*

The present study has thrown major concentration on ratio analysis, from the 3 years balance sheet and profit and loss a/c. An objective of the study includes the profitability, cost of goods sold, other experience of company & overall financial performance of the company.

Keywords: Axis Bank, Financial Performance, Profitability, Ratio, Soundness, etc.

Introduction

Financial Performance

According to Erich L. Kohlar, "The performance is a general term applied to a part or to all the conducts of activities of an organization over a period of time; often with reference to past or projected cost efficiency, management responsibility or accountability or the like.

Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate Revenues. The term is also used as a general measure of a firm's overall financial health for a given period. Financial performance is a complete evaluation of a company's overall standing in categories such as assets, liabilities, equity, expenses, revenue, and overall profitability. It is measured through various business-related formulas that allow users to calculate exact details regarding a company's potential effectiveness. Analysts and investors use financial performance to compare similar firms across the same industry or to compare industries or sectors in aggregate. Understanding financial Performance is essential for every organization because most of the organization's crucial decisions depend on the financials. Understanding financial performance is necessary because they help in the decision-making process of the company.

Axis Bank Limited, formerly known as UTI Bank (1993–2007), is an Indian banking and financial services company headquartered in Mumbai, Maharashtra. Axis Bank is the third largest private sector bank in India. The Bank offers the entire spectrum of financial services to customer segments covering Large and Mid-Corporate, MSME, Agriculture and Retail Businesses. The bank was founded in December 1993 as UTI Bank, opening its registered office in Ahmedabad. On 30 July 2007, UTI Bank changed its name to Axis Bank. Axis Bank has the largest ATM network among private banks in India

Areas of Financial Performance Analysis

Financial analysts often assess firm's production and productivity performance, profitability performance, liquidity performance, working capital performance, fixed assets performance, fund flow performance and social performance.

For internal users, financial performance is examined to determine their respective companies' well-being and standing among other benchmarks. For external users, financial performance is analyzed to dictate potential investment opportunities and to determine if a company is worth their while. Calculations can be made on certain financial indicators that establish overall performance, a financial statement analysis must occur.

- **Balance Sheet:** The balance sheet is a snapshot of the financial balances of an organization. It provides an overview of how well the company manages its assets and liabilities. Analysts can find information about long-term vs. short-term debt on the balance sheet. They can also find information about what kind of assets the company owns and what percentage of assets are financed with liabilities vs. stockholders' equity.
- **Income Statement:** The income statement provides a summary of operations for the entire year. The income statement starts with sales or revenues and ends with net income. Also referred to as the profit and loss statement, the income statement provides the gross profit margin, the cost of goods sold, operating profit margin, and net profit margin. It also provides an overview of the number of shares outstanding, as well as a comparison against performance the prior year.
- **Cash Flow Statement:** The cash flow statement is a combination of both the income statement and the balance sheet. For some analysts, the cash flow statement is the most important financial statement because it provides reconciliation between net income and cash flow. This is where analysts see how much the company spent on stock repurchases, dividends, and capital expenditures. It also provides the source and uses of cash flow from operations, investing, and financing.

Types of Financial Performance Analysis:

Financial performance analysis can be classified into different categories on the basis of material used and modes operandi as under:

Material Used

On the basis of material used financial performance can be analyzed in following two ways:

1. **External analysis:** This analysis is undertaken by the outsiders of the business namely investors, credit agencies, government agencies, and other creditors who have no access to the internal records of the company. They mainly use published financial statements for the analysis and as it serves limited purposes.
2. **Internal analysis:** This analysis is undertaken by the persons, namely executives and employees of the organization or by the officers appointed by government or court who have access to the books of account and other information related to the business.

Modus Operandi

On the basis of modus operandi, financial performance can be analyzed in the following two ways:

- **Horizontal Analysis:** In this type of analysis financial statements for a number of years are reviewed and analyzed. The current year's figures are compared with the standard or base year and changes are shown usually in the form of percentage. This analysis helps the management to have an insight into levels and areas of strength and weaknesses. This analysis is also called Dynamic Analysis as it based on data from various years.
- **Vertical Analysis:** In this type of Analysis study is made of quantitative relationship of the various items of financial statements on a particular date. This analysis is useful in comparing the performance of several companies in the same group, or divisions or departments in the same company. This analysis is not much helpful in proper analysis of firm's financial position because it depends on the data for one period. This analysis is also called Static Analysis as it based on data from one date or for one accounting period.

Techniques/Tools of Financial Performance Analysis

An analysis of financial performance can be possible through the use of one or more tools / techniques of financial analysis:

Accounting Techniques

It is also known as financial techniques. Various accounting techniques such as Comparative Financial Analysis, Common-size Financial Analysis, Trend Analysis, Fund Flow Analysis, Cash Flow Analysis, CVP Analysis, Ratio Analysis, Value Added Analysis etc. may be used for the purpose of financial analysis. In this Study, ratio analysis technique has been used.

Statistical Techniques

Every analysis does involve the use of various statistical techniques, some of the important statistical techniques which are suitable for the financial analysis. Correlation and Regression Analysis, Analysis of Time Series, Index Number, t-test, F-test, Chi-Square (X2) test, Diagrams & Graphs.

Mathematical Techniques

Financial analysis also involves the use of certain mathematical tools such as Program Evaluation and Review Techniques (PERT), Critical Path Method (CPM) and Linear Programming etc. However, they are not useful for the present study.

When calculating financial performance, there are seven critical ratios that are extensively used in the business world to assist and evaluate a company's overall performance.

1. **Gross Profit Margin:** The gross profit margin is a ratio that measures the remaining amount of revenue that is left after deducting the cost of sales.

   The ratio is useful because it indicates as a percentage the portion of each sales dollar that can be applied to cover a company's operating expenses.
2. **Working Capital:** The working capital measurement is used to determine an organization's liquid net assets available to fund day-to-day operations.

   Determining liquidity in a business is important because it indicates whether a company owns resources that can quickly be converted to cash if needed.
3. **Current Ratio:** The current ratio is a liquidity ratio that helps a business to determine if it owns enough current assets to cover or pay for its current liabilities.
4. **Inventory Turnover Ratio:** The inventory turnover ratio is an efficiency ratio that is used to measure the number of times a company sells its average inventory in a fiscal year.

   The ratio is beneficial because it allows the organization to easily determine if their inventory is in demand, obsolete, or if they are carrying too much.
5. **Leverage:** Leverage is an equity multiplier that is calculated by a business to illustrate how much debt is actually being used to buy assets.

   The leverage multiplier remains at one if all assets are financed by equity, but it begins to increase as more and more debt is used to purchase assets.
6. **Return on Assets:** Return on assets, as the name suggests, helps an organization determine how well its assets are being employed to become more profitable.

   If the assets are not being used effectively, the company's return on assets sum will be low.
7. **Return on Equity:** Similar to return on assets, the return on equity is a profitability ratio that is used to analyze the equity effectiveness, which, in turn, earns profits for investors. A higher return on equity suggests that investors are earning at a much more efficient rate, which is more profitable to the business as a whole.

Significance of Financial Performance Analysis

The need and importance of financial performance analysis rise from the viewpoint of different parties, which are actively interested in the affairs of the banks. These parties are as follows:

1. **Management:** According to Erich A. Helfert, "Managers are responsible for efficiency, current and long-term profit from operations and effective development of capital and other resources in the process financial performance analysis may help the management in evaluating the effectiveness of its own plan and policies, determine the advisability of adopting new policies and procedures and document to owners as a result of their managerial efforts by doing financial analysis.
2. **Employees and Trade Unions:** Employees of the banks are interested in the profit and the financial position of a bank. The employee measures the efficiency of the bank with the satisfactory profit margin and adequate cash flow. The employees can compare the past performance and the present performance of bank by performance analysis which is useful to decide salary standard is enough or not for them. Even trade unions of banks use performance analysis of bank for determining increase in wages and facilities of employees.
3. **Investors:** In case of banking industry, the investors can know profitability, productivity and overall efficiency of the bank by analyzing financial performance. An investor can decide whether or not to invest in banking industry. Shareholders of banking company are interested to know how much dividend should be paid by bank.
4. **Depositors:** The depositors, wanted business with the bank, generally appraise the performance of a bank before depositing the money. The depositors are interested in the rate of interest offered by banks, cash flow and liquidity of the banks, facilities available against deposits. They can know these each aspect by referring financial performance analysis of bank.
5. **Government:** The government is interested in studying the performance of banking industry as a whole. By studying performance of banks, the government can assess the growth of industries and economy. Moreover, the government can take decision about tax structure and incentives for banking industry.
6. **Society:** In the society, there are various agencies like media, stock exchanges, economist, tax consultants and authorities, awakened citizens who are interested in the performance of banks. Their interest in the performance of banks becomes the interest of the society. The society at large also expects to know about the social performance such as environmental obligations, employment avenues and social welfare etc.

Data Analysis, Findings, Interpretations

1. The current ratio has shown in a fluctuating trend from 2017 to 2020, i.e. (1.73, 1.92, 1.81 and 2.03) which indicates a continuous increase in both current assets and current liabilities.
2. The quick ratio is also in a fluctuating trend throughout the period 2017 to 2020 resulting as. (17.10, 20.02, 17.84 and 17.60) The bank's present liquidity position is satisfactory.
3. The net profit ratio is increased in the year 2017 and 2019 is at 3679 and 4677, and in the year 2018 and 2020 it decreased to 276 and 1627.

4. The operating profit ratio is in fluctuation manner. It has increased in the current year as compared with the previous year from, i.e. 23438.
5. The return on equity is increased in the year 2017 and 2019 is at 7.22 and 8.09, and in the year 2018 and 2020 it decreases, i.e. 0.53 and 2.34.
6. The return on assets is increased in the year 2017 and 2019 is at 0.65 and 0.63, and in the year 2018 and 2020 it decreases, i.e. 0.04 and 0.20.
7. The fixed asset turnover is too high, i.e. 0.08, when compared to remaining years. So, it shows that firm is likely operating over capacity and needs to either increase its asset base (plant, property, equipment) to support its sales or reduce its capacity.
8. The debt-to-equity ratio is increased, i.e. 10.5 (in the year of 2019), when compared with remaining years.
9. The borrowings have shown in a fluctuating trend from 2017 to 2020, i.e. (105031. 142016, 152776 and 147954) of which indicates a continuous fluctuate in borrowings.
10. The capital adequacy ratio is increased in the year 2018 and 2020 is at 16.57 and 17.53, and in the year 2017 and 2019 it decreases, i.e. 14.95 and 15.84.
11. The net interest income of the bank is in positive cash flow in the year 2017 to 2020, when compared to previous years.

Suggestions

- From the study, it is found that there is lack of periodic review & analysis which is leading to inefficient utilization of resources & it leads to loss when it is compared to previous years apart from current year. So, the firm should conduct quarterly analysis. Hence the problems can be amended in time.
- Liquidity refers to the ability of the concern to meet its current obligation as and when these become due. The bank should improve its liquidity position.
- After the analysis of Financial Statements, the bank status is better, because the Net working capital of the bank is doubled from the last year’s position.
- The bank profits are huge in the current year; it is better to declare the dividend to shareholders.
- The bank is utilizing the fixed assets, which majorly help to the growth of the organization. The bank should maintain that perfectly.
- The bank fixed deposits are raised from the inception, it gives the other income i.e., Interest on fixed deposits.
- Bank needs to have stringent credit policy, to reduce the funds required for working capital.
- The bank must do efficient utilization of shareholders fund to improve its ROI and
- The bank can go for some debt borrowing to increase E.P.S. for shareholders.

Conclusion

The bank's overall position is good indeed! Particularly the current year's position is well due to rise in the profit level from the last year's position. It is better for the organization to diversify the funds to different sectors in the present market scenario.

As India is hopeful of competing with other established shipbuilding nations, the multinationals are likely to find plentiful opportunity in India, given the compliance requirements imposed by effects of international legislation on seating systems. Also, other segments are showing promising opportunities to grow. With these many opportunities at hand along with the potential player who would be able to make use of the situation well, researcher would rather start looking at a career in Axis. So, from this, researchers conclude that there is a better opportunity for investors to invest in this bank.

Ratio analysis of financial statement shows that bank's current ratio is better than the quick ratio and fixed/worth ratio. It means bank has invested more in current assets than the fixed assets and liquid assets. The cash flow statement shows that net increase in cash generated from operating and financing activities is much more than the previous year but cash generated from investing activities is negative in both years. Therefore, analysis of cash flow statement shows that cash inflow is more than the cash outflow in AXIS Bank. Thus, the ratio analysis and trend analysis and analysis of cash flow statement show that AXIS Bank's financial position is good. Bank's profitability is increasing but not at high rate. Bank's liquidity position is fair but not good because bank invests more in current assets than the liquid assets. As we all know that AXIS Bank is on the first position among the entire private sector banks of India in all areas but it should pay attention to its profitability and liquidity.

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Innovation in Financial Services

Meghna C. Khatri

Abstract: *Finance is always considered as 'the brain of the economy'. After the implementation of LPG policy and economic reforms, there has been a major shift from the traditional services to financial services. Today, financial services have gained considerable importance in the economy. It includes the legal and regulatory framework managing money, provides banking, insurance, credit cards, debit cards, stock brokerages, investment funds and many others. Financial sector is in the stage of rapid transformation. There were many reforms in this sector in last few decades. Development of financial sector in developing countries like India is an indivisible part of the development strategy to stimulate the economic growth of the country. This research paper focusses on the innovation in the financial services in recent days and its impact in the developing economy.*

Keywords: Finance, Financial Services, Growth

Introduction

There has been tremendous development in the field of financial services. Recently, because of the covid-pandemic, where the people are not allowed to move out of their homes, most of the activities need to be performed staying at home. Work-from-home is a new culture started making all activities with the help of internet. Even the financial transactions can also be performed online. This led to innovation in the financial sector also.

Financial services innovation is the process of creating new financial products and services. Innovation in information technology has helped to transform the financial services industry from traditional to innovative financial solutions. It has reflected in the innovations in the method and system of how we perform financial transactions, use of digital currency, mobile and online banking deposit and withdraw money, changing how we save, borrow, invest, and make receipts and payments. These innovations include improved technology, risk management, credit generation, and many other. It may also be through developments in new financial instruments, technology, credit/debit cards and payment systems.

FinTech companies, help businesses to conduct online payments. These innovations have increased the number of financial services providers available to consumers, borrowers, and businesses resulting in increased competition. the number of customers increases mostly due to ease in access of services and less procedural requirements.

Research Methodology

This paper is an attempt to analyze the innovations in the financial sector particularly related to mobile banking and internet banking. All the financial facilities can be available on a click. There is no need to visit any office and wait in long queues to perform any financial transaction. Also, the transactions have become easy and the processes also become simple. Most of the data collected for the preparation is from the secondary sources.

Objectives

In recent days, particularly post-covid has led to tremendous increase in the use of innovative technology use in each and every field. This is also seen in the sector of financial services. Most of the services are provided online. We do not need to visit any bank or financial institution to perform any financial transaction. Thus, the researcher proposes to focus on the recent innovations in the financial services sector.

It clearly seems that most of the people are using the innovative financial products and services. Thus, it is important to analyze that that whether these has made a positive impact on the developing economy like India. Thus, the research paper focuses the two basic points as follows:

1. To focus on the innovation in the financial services.
2. To analyze the impact of financial innovation in the developing economy.

Hypothesis

1. There have been tremendous innovations going on in the financial services.
2. Most of the innovations in the financial sector has benefited the customers and helped to develop the economy.

Limitations

The study is purely based on the secondary data. Results may vary in the rural areas where people are still using traditional banking services. Reach of information technology also affects the results of innovations in the services provided.

Impact of Innovation in Financial Services

India has a diversified financial sector which is undergoing rapid expansion, both in terms of strong growth of existing financial services firms and new entities entering the market. Financial sector in India is predominantly a banking sector with commercial banks accounting for more than 64% of the total assets held by the financial system. 1The financial services comprise of services provided by banks, financial institutions, non-banking financial companies, insurance companies, pension funds, mutual funds and many other smaller financial institutions. The upgraded provisions in banking sector has allowed new institutions to be created. The technological changes have categorized the financial transactions. Let us describe it in the form of a figure.

The effect of innovation is very dramatic. The bank to customer relationship has changed. Maximum number of the banks and financial institutions use internet to achieve growth and development, offering a wide range of online financial services.[1]

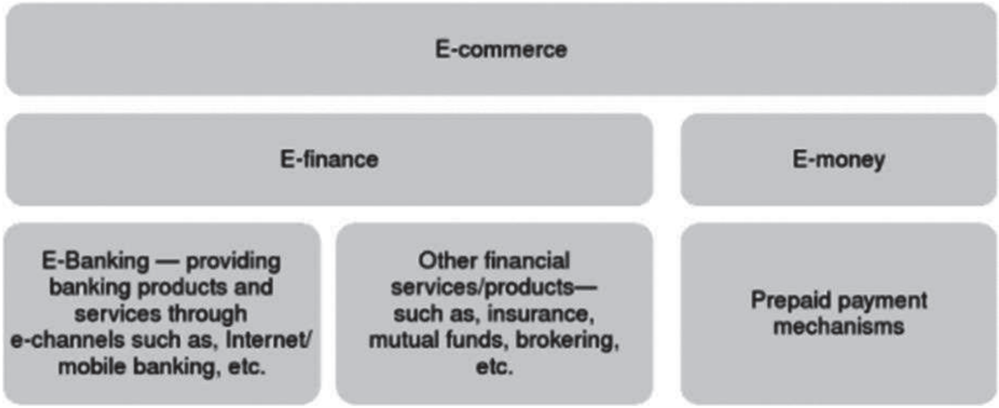

Figure 1: Categorizing Financial Transactions through Technology[1]

Recent innovations in the field of banking are related to mobile banking and online banking technology which is being widely used all over the country.

Mobile banking is considered to be the catalyst in the area of innovations for financial services. Major affecting innovations have been made for customers in the sector of mobile banking. Today, many banks offer applications with options to transfer money to a anyone, deposit checks, pay for merchandise, or find an ATM instantly, etc. Still, a secure connection, password security and confidentiality, and many other issues are very much important and should be taken care of before logging into a mobile banking application in order to avoid stealing off the personal information. In the book, "Innovation in Financial Services: A Dual Ambiguity"[2]; some of the latest thoughts in the growing field of financial services innovation are studied. It is generally seen that financial services represent a large economic sector at a global scale. The role of information technology contributes into shaping innovations in financial services. Changes in banking and accounting practices, increased complexities, lengthy procedures and processes have challenged the existence of small and medium-sized firms. Furthermore, the impact that innovation, on households, firms and societies, has largely been ignored.

Innovation, when concerned with the marketing of financial services, is essential in implementation of innovative ideas, as a form of enhanced association in order to result in growth for the company and differentiate itself from its competitors. Considering innovation, financial services has come a long way and has been considered as conservative. The natural tendency of financial organizations to adopt a risk-adverse attitude, combined to the common belief that most financial innovations are mere imitations of existing products, have indeed contributed to the reputation of innovation slow.[2]

If we want to get the maximum benefit out of financial innovations, it should be properly designed, justifiably managed and correctly executed. Financial innovation serves the interests of individual customers and households thus positively affecting the functioning of society as a whole. Innovations do not necessarily have to be developed in one institution but can be either jointly developed in the context of strategic alliances, cooperation agreements, joint ventures or can represent only acceptances of externally developed innovations. More specifically, the definition describes "changes in the offerings of banks, insurance companies, investment funds and other financial service firms, as well as modifications to internal structures and processes, managerial practices, new ways of interacting with customers and distribution channels"[5]

The importance of information technology in financial services is undisputable. Technological change has encouraged innovations and productivity increases across sectors and industries. Even measuring their effects remains a challenge. Similar to other industries, technological innovation has contributed to redesigning financial sector, in terms of new products and services, new ways of operating and delivering many of services. High frequency trading requiring complex and sophisticated hardware and software combinations, mobile banking and electronic payments relying on extensive infrastructure, and devices which show the drastic changes in the industry.

In customer preferences; there is a shift from a mere intermediation business to fee producing; capital requirements and capital adequacy; the introduction of new market players who offers competitive products and services, such as loans, credit facilities; branchless banks and the progressive disappearance of physical branches, and the shift towards a "do it yourself" model for basic transactions such as payments. All these changes, ranging from technological change to regulatory frameworks, have encouraged innovations, in various forms and extents within financial firms.[3]

Technology is a unique tool which is used to satisfy customer needs and it needs to be translated into customer values. In financial services, developing a better understanding of e-finance innovation services, through the design of a dedicated ontology taking into consideration the peculiarities of one leading emerging economy is necessary. However, several factors can prevent the realization of innovation. These can be the desire of the shareholders to achieve a quick short-term profit, the movement of the financial sector from product-centric to a customer-service provider, the extreme level of high-tech technology that goes beyond the capacity of the banks and issues related to risk-taking. As this kind of innovation may bring competitive advantage for first movers, and considering that it is incremental in nature, it may appear less risky in nature. The innovation process in financial services is addressed from different perspectives by different experts. Following it, Martovoy[4] discusses the advantages and disadvantages of adopting innovation practices for new service development in relation of a small, open service economy where financial services contribute to about 30% of GDP.[4]

The Figure 2 gives a clear idea of the impact of innovations in financial services in the economy.

Besides innumerable innovations financial services still suffer from manual processes, which indicate that there is possibility for innovation in this industry. Similarly, the hesitancy of banks to grant loans to firms holding few tangible assets, as the case of high technology

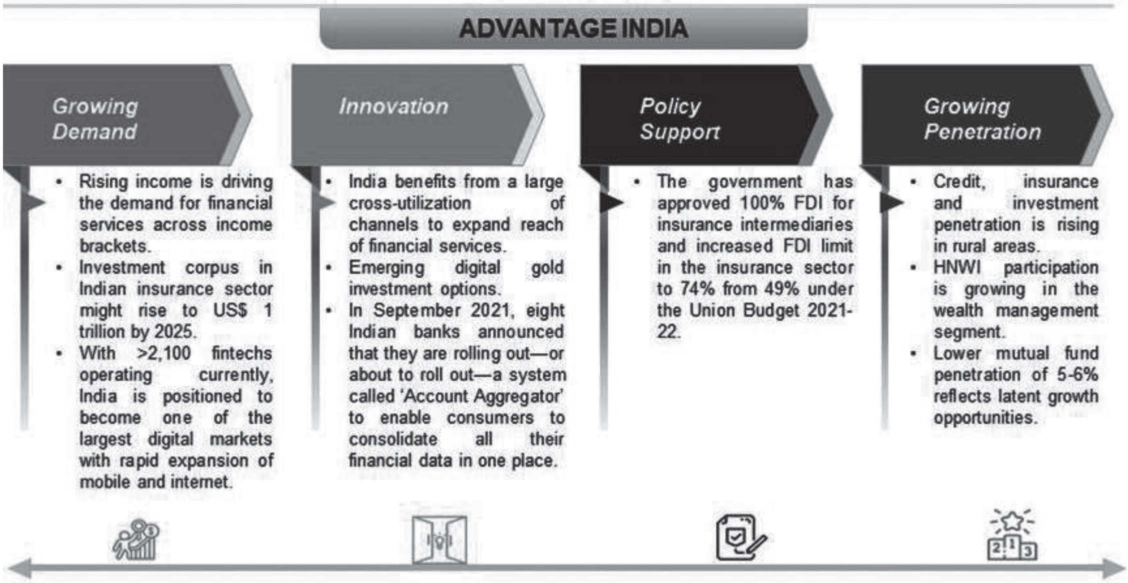

Figure 2: Financial Services in India[4]

startups and potentially high growth firms, is a major factor which should be concerned for economic development, growth and competitiveness. Financial illiteracy in rural areas and reluctance of a considerable percentage of people towards innovative financial solutions, using mobile banking or online banking still needs attention of the financial institutions and technological experts. This will help them to increase the reach of innovative financial services ultimately benefiting the society and the economy.

Conclusions

Financial innovation emerges from the challenges faced in the worldwide financial system. It is perceived within the new rules of "a slow-moving, selective and with a heavy dash of nationalism and regionalism" globalization. Within such a turbulent, unstable and constantly changing financial conditions the need for adopting non-predictive strategies becomes imperative. Financial innovation is bound to play an integrated role towards the determination of the kind of capitalism that will drive the globalized economy in the outcome of the debt and subprime crises.

Innovation in financial services has a critical role to play so as to sustain the operations of the other economic sectors. It helps in the development of other sectors in the economy. Recently, innovation in financial services has attracted increasing attention of the researchers and criticism.

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Emotional Intelligence and it's Impact on Effective Leadership in Insurance Sector in Western Vidarbha

Sarah Tahseen Ahmed and S.G. Chapke

Abstract: *Emotional Intelligence is an emerging topic in the field of leadership roles. It is most frequently used in management to evaluate the performance of employees in leadership discipline; it also helps in developing effective leadership skills. This is a little empirical research paper which explores the impact of effective leadership in Private Insurance companies in western Vidarbha region. Study was conducted through random sampling technique for private company employees. All the dimensions of Self Awareness, Self-Management, Social Awareness & Relationship management indicates a significant and positive result. The study also indicates that the relationship between efficient leadership and Emotional Intelligence significant and positive.*

Keywords: Leadership, Performance, Communication, Motivation, Emotional Intelligence

Introduction

The Concept of Emotional Intelligence mostly applied in is that of leadership. Countless theories are produced that outlines the characteristics of most efficient leader. However, according to Daniel Goleman, there are six types of leaders, described in this book " Working With Emotional Intelligence"(1998) .The six types of leadership styles mentioned by Daniel Goleman are 1) The affiliative Leader. 2) The Democratic Leader. 3) The Commanding Leader. 4) The Pacesetting Leader. 5) The Authoritative leader. 6) The Coaching Leader.

1. The Affiliative Leaders are concerned about the harmony amongst the team members when there is a negative ambiance. The leader tries to resolve conflict within the team by attempting to make them collaborate.
2. The Democratic Leaders are those who appreciate the contribution and participation of every team member in decision making.
3. The Commanding Leaders are those who expect that employees should not question about the task given to them.
4. The Pacesetting leaders are concerned with result, they expect high- quality performance from their team members.
5. The Authoritative Leaders is continually concerned with energizing the team positively, to achieve the required organizational goal.
6. The Coaching Leaders are concerned about the development of team. They identify the strengths and weaknesses of their team members and encourage them to improve their skills.

Daniel Goleman has also mentions that, leaders high in emotional intelligence are key to organizational success and leaders must have the capacity and ability to sense and understand the employee's emotions and feeling at work place. He must intervene in the problem. He must manage his own emotions to gain trust of employees, and to understand and manage the political and social conventions within the organization. "The Emotionally Intelligent workplace" (2001) by Daniel Goleman.

Since the leader has to deal with different emotions of the employees, they must have the ability to understand the emotions of their team members and also know how to deal with different emotions positively.

Concept of Emotional Intelligence

If your emotional abilities aren't in your hand, if you don't have self-awareness, if you are not able to manage your distressing emotions, if you can't have empathy and have effective relationships, then no matter how smart you are, you are not going to get very far – Daniel Goleman. Emotional intelligence is the ability to manage understand manage own emotions and relieve stress, communicate effectively. It helps you build strong and successful relationship within the organization and amongst the team members. Emotional intelligence also leads you fulfill you professional and personal goals. Emotional intelligence defined by, Peter Salovey and John Mayer as "The ability to monitor one's own and other people's emotions, to discriminate between different emotions and to label them appropriately, and to use emotional information to guide thinking and behavior."Investigations of John D Mayer and Peter Salovey stated Emotional intelligence as "the capacity to see precisely, assess and express feeling, the capacity to get to and additionally produce sentiments when they encourage thought, the capacity to get feeling and passionate information, and the capacity to control feelings to advance passionate and scholarly development" Also Mayer, Salovey and Caryso (2004) gave the meaning of Emotional intelligence as the "limit to reason about feelings to improve thinking. It incorporates the capacity to precisely see feeling, to get to furthermore, create feelings in order to help thought, to get feelings and enthusiastic information and to brilliantly control feelings in order to advance passionate and scholarly development".

The aspect which is wrongly considered so far is that, the so-called IQ, is said to be the only factor for personal success. The ability to think differently, to adapt to the environment, surprisingly does not explain much about a person's success in career or personal life. Many scholars define at IQ just accounts to 25% of a person's success and other 75%accounts to EQ. Studies at Harvard revealed that the score attained by the students in entrance examination had a null correlation with their career success. Researchers have given theories that determine that emotional intelligence is not a genetic factor, it can be improved and learned. EQ can be developed and enhanced. Emotional intelligence is not an innate talent but it is a learned capability that needs to be developed to achieve optimum performance.

Literature Review

Why Emotional Intelligence is Needed for Effective Leadership?

There was a gradual shift that drew attention of scholars from assessing social intelligence to identify the purpose of interpersonal skills and role of adaptability. According to Mayer and Salovey (1997) "Emotional intelligence involve the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought ; the ability to understand motions and emotional knowledge ; and the ability to regulate emotions to promote emotional and intellectual growth" (p.10). There are several theories that clarify and the situation The model defined by (Mayer &Salovey,(1997), which states that the ability to perceive , understand, manage and use emotions to facilitate thinking, measured by and ability-based measure.

Statement of Problem

Insurance sector is one of rising sectors in India. And it is also considered to be a tough and a tactful job considering employees. As is it one of the most pressured job and it also plays vital role in Indian economy, professional leadership is the need of hour. Here is this study we are referring to Maharashtra State and the region of Western Vidarbha. This region has is considered as a rising region for private insurance companies. As government organizations like LIC is a dominant here. Due to this situation leaders of Private organizations have to be more effective and result oriented for gaining optimum target. In such a competitive environment, leadership with little emotional intelligence has a little chance to survive. However, a very little research is being done on relationship between Emotional Intelligence and leadership in Insurance sector, especially in Western Vidarbha.

Emotional Intelligence and Effectiveness in Leadership

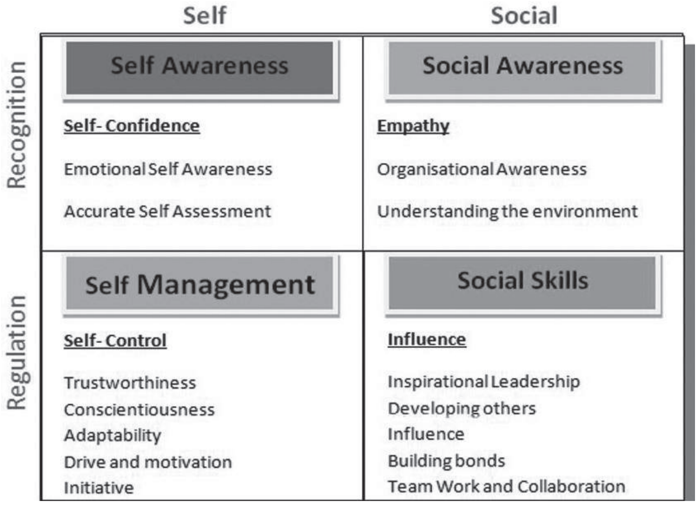
Demonstrated in recent studies, that leaders who outperform their peers are not only technically skilled, but more importantly they also have mastered certain aspect of Emotional Intelligence. Goleman (1998) states some components of Emotional Intelligence at work, those are, Self-Awareness, Self-Management, empathy/social awareness, Motivation, Relationship Management. Evidences show that abilities constituting now is known as Emotional Intelligence that plays a key role in determining success at work place and in one's personal life. The study using BarOn EQ-i (Emotional Quotient Inventory) an assessment is used to define the link between elements of emotional intelligence & specific behavior.

Changing Demands that Leaders have to Meet

- Democratic style of leadership is the need of the hour. Leaders, these days need to involve team mates in decision making process.
- Leaders must be very patient, he must understand the situation and must according to that.

- He must act as a motivator and always help and guide his team to their effective performance, and allow them space to grow in their carrier. He must act as coach and mentor to develop their potential.
- Though the decision is autonomous and freedom is given to employees, but leader has to take full responsibility of every employee's performance and also take full responsibility of anything gone wrong.
- Though leaders consult and involve, but often they are criticized and not having proper communication, vision and purpose.

Using Emotional Intelligence for Developing Leadership



Self-Awareness

You always feel and know your emotions and actions if you are self-aware. Being in a leadership position, self-awareness helps identify strengths and weaknesses.

Ways to Improve Self-Awareness

If there is a sudden rush of anger or any other strong feeling, one must cool down and examine. It not always necessary to react being calm and compose is self-awareness.

Self-Management

Self- control indicates controlling self emotions, being trustworthy, ready to adapt changing circumstances, motivate your team mates for better results, making them ambitious and to the desire to improve and achieve excellence.

Ways to Improve Self-Management

Self-motivated leaders are always better performers, and it would be more beneficial if they motivate other employees also. A good leader never holds others accountable for mistakes.

So it is better to start facing the consequences, and admit your mistakes and move towards improving them.

Social Awareness

Empathy is the most important aspect, it helps understand others emotions, understand others perspective and respect that perspective, and to show concerns towards others. Create good environment in the organization and be friendly with other subordinates.

Ways to Improve Social Awareness

Everyone likes their own point of view, but a good leader is the one who listens to others point of view also. Always listen what others have to say, for this it is important to be a good listener. Your body language reflects you thought so it is very important to have a good and pleasant body language. A good leader must always care for the feeling of his subordinates or team mates. Always address them with good gesture and always make them comfortable by understanding their situation.

Social Skills

Also known as relationship management, leaders who are good in social skills are good in communication, open to listen others queries, always there to resolve conflicts, good at team building and collaborate with other team mates for better results tend to build a strong bond with others.

Ways to Improve Social Skills

It is the most important task of a leader to learn the skills of conflict resolutions. A good leader is always ready to resolve conflicts. A good leader must be a good communicator; he must be an active listener. Learn to praise others for their efforts; this inspires the team to be loyal towards you.

Research Objectives

1. To understand the concept of Emotional intelligence
2. To identify relationship between emotional intelligence and efficient leadership.

Hypothesis

H_{01}: There is significant impact of emotional intelligence of effective leadership.

Research Methodology

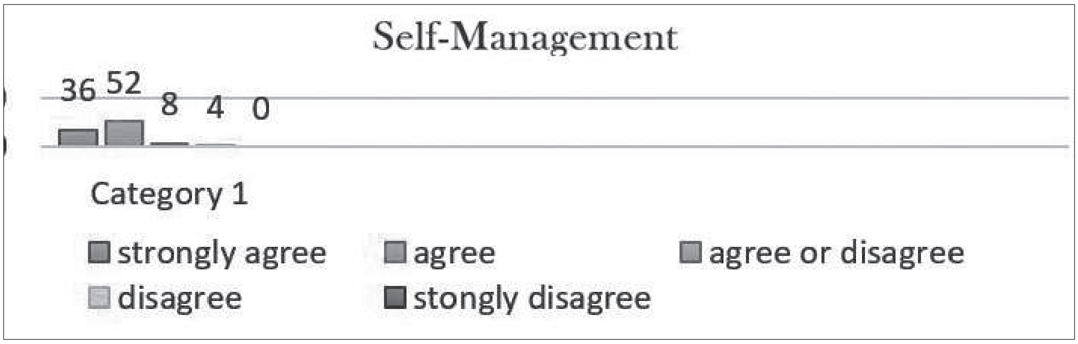
Leadership is about how effectively one manages his team, providing them correct guidance for better outcome. Effective leader is the one who responds properly, communicates with employees, help them handle stress and anxiety, good guidance to team mates for achieving organizations goal in an innovative way. Good leaders must emphatically address the team for high quality to build trust in leaders. In this study following variables are measured. For this study, questionnaire is sent to 100 respondents of private Life Insurance Companies. Purposefully we have selected 5 companies, so employees of HDFC Life Insurance, SBI Life Insurance, ICICI Prudential, Max Life Insurance& Kotak Life Insurance, were selected as respondents

All above companies have offices in western Vidarbha, that are easily accessible, & we have collected response from those who have positively responded to our questionnaire & that is why is it purposefully taken from different employees considered 65 as male and 35 as females employees. Questions are generally framed seeking responses on 5-point Likert scale as, Strongly Agree, Somewhat Agree, Neither Agree nor Disagree, Somewhat Disagree, Strongly Agree. The main aim is this is to identify relationship between emotional intelligence and efficient leadership.

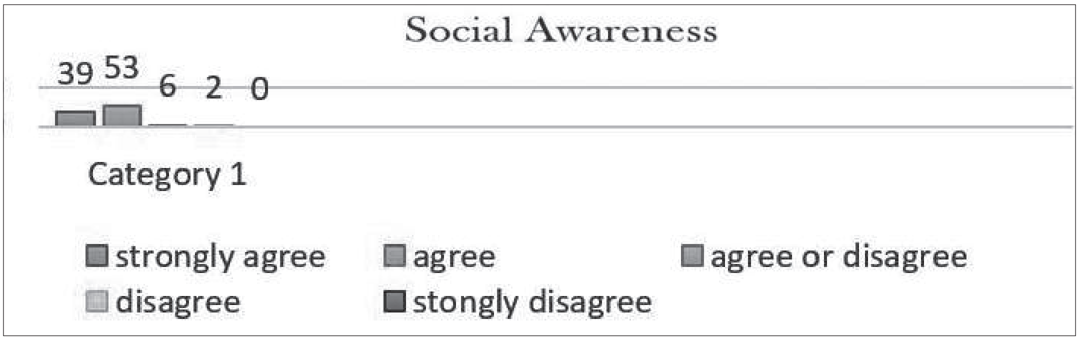
Analysis

- **Self-Awareness:** Emotional self-knowledge, self-confidence are factors needed for effective leadership. The diagram illustrates that there is a positive Skewness. This shows self awareness is a vital factor for effective leadership, as it shows 42% & 40% of respondents strongly agreed and agreed respectively.This shows the impact of self-awareness on leadership effectiveness.

- **Self-Management:** Self-control, transparency, adaptability, stress management are factors needed for Effective leadership. It reflects there is a positive skewness as it shows that 26% & 52% of respondents strongly agreed and agreed respectively, this shows the impact of self management on effective leadership.



- **Social Awareness:** Empathy, social responsibility are the factors considered for study of effective leadership, which reflects a positive skewness showing 39% and 53% of respondents strongly agreed and agreed, this shows that there is impact of social awareness on effective leadership.



- **Relationship Management:** Performance, training, conflict management, team work &collaboration are the factors undertaken for study and they show a positive skewness as 28% & 54% of respondents strongly agreed and agreed. This shows that there is impact of relationship management on effective leadership.

Conclusions

The study indicates that emotional intelligence is the most important factor for every organization. Most of the organizations prefer to have employees who are emotionally intelligent. There are many studies that reflect the need of emotional intelligence in leadership roles. Our study indicated that all the factors are needed for effective leadership in Life insurance companies. Study indicates that self-control and self-awareness is important for effective leadership. This study indicates that stress management is important, it improves the performance of leaders, they have to relieve stress to get better performance and to achieve organizational goals, for better productivity of employees and persons in leadership role emotional intelligence always play an important role. Adaptability to change is also important for employees to get better results. We believe that emotional intelligence plays is very important in leadership roles. It helps the leader to judge the employee and his performance, it helps him train and guide the employee for better performance. Emotional intelligence helps the leaders to build strong relationship with the team. It provides sense of balanced relationship, strong interpersonal skills, good communication skills, logical and creative thinking. Especially in an industry like Life Insurance which is considered as one of the toughest industry to work, where the employees are under stress of target completion, effective leadership is the need of hour. Only effective leaders, who provide stressful environment, good relation, conflict management, proper guidance, adaptability, empathy can sustain and gain better performance and achieve desired goals.

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INNOVATION IN MARKETING

Petroleum Swap: An Innovative Approach to Enhance Petroleum Customer Service Level (CSL)

L.B. Deshmukh and Kapil S. Talreja

Abstract: *The petroleum industry carries a huge significance in the Indian economy. Supply chain management in the petroleum industry contains various challenges, specifically in the logistics area, that are not present in most other industries. These logistical challenges have a major influence on the cost of oil derivatives and customer satisfaction level (CSL). Companies in the petroleum industry have become increasingly reliant on the services of third-party logistics companies to manage their supply chains. Companies in the petroleum industry took the outsourcing idea a step further to collaborate with competitors and found shared solutions to their supply chain challenges. This form of collaboration is referred to as a systematic cooperative reciprocal barter, or swaps. The objective of this paper is to shed some light on the downstream supply chain challenges and opportunities in the Indian petroleum industry and swap practices that should have been employed by petroleum industry's giants around the nation. The paper analyses the benefits of Swapping practices which have long been ignored in the operations management literature. This paper is based on the petrol pump survey that is being conducted in the state of Maharashtra.*

Keywords: Petroleum Industry, Supply Chain, Swap, CSL

Indian Petroleum Industry – An Overview

The Indian Petroleum industry is one of the oldest in the world, with oil being struck at Makum near Margherita in Assam in 1867 nine years after Col. Drake's discovery in Titusville. The industry has come a long way since then. For nearly fifty years after independence, the oil sector in India has seen the growth of giant national oil companies in a sheltered environment. A process of transition of the sector has begun since the mid nineties, from a state of complete protection to the phase of open competition. The move was inevitable if India had to attract funds and technology from abroad into our petroleum sector. The sector in recent years has been characterized by rising consumption of oil products, declining crude production and low reserve accretion.

The years since independence have, however, seen the rapid growth of the upstream and downstream oil sectors. There has been optimal use of resources for exploration activities and increasing refining capacity as well as the creation of a vast marketing infrastructure and a pool of highly trained and skilled manpower. Indigenous crude production has risen to 35 million tonnes per year, an addition of fourteen refineries, an installed capacity of 69 million tonnes per year and a network of 5000 km of pipelines. But with the consumption of hydrocarbons said to increase manifold in the coming decades (155mmtpa by the end of the

10th plan) the liberalization, deregulation and reforms in the petroleum sector is essential for the health and overall growth of our economy.

The petroleum industry traditionally had prices decided by the Government of India. Effective from August 1, 2004, the Government put in a revised methodology allowing oil companies limited freedom to revise the prices of motor spirit and High Speed Diesel (HSD). The NELP (New Exploration and Licensing Policy) has been put into place and more and more international operators are considering investing in India.

The total investment estimated in the petroleum sector from 1995 till 2010, is expected to be ₹4,32,000 cr. (US$120 bn.), out of which ₹2,58,000 cr. (US$80 bn.), are for the upstream sector alone. The Petroleum, Oil and Lubricants (POL), product consumption is slated to touch 155 Million Metric Tonnes (MMT) by 2006-2007 and 200 MMT by the year 2010 (HPCLs perspective plan: Vision 2020).

Petrochemical industry in India employs around 40,000 people directly and around 4, 00,000 indirectly. This sector caters to a whole host of industries like oil, gas, plastics, agro chemicals, pharmaceuticals, clothing, housing, transportation, communication, healthcare, etc. diversified nature of customers demanding well thought out strategy for enhancing customer satisfaction level.

Supply Chain Management – A Literature Review

The Supply Chain Council defines a supply chain as a "collection of activities a company uses to plan, source, make and deliver a product or service". Supply chain management aims at managing the activities in the supply chain to improve profitability for the organization. Supply chain management as a new business paradigm was motivated by the interest in integrating procurement, manufacturing and distribution activities-integration made possible by advances in IT (Shapiro, 2004). SCM is more than a simple tool to evaluate and optimize a supply chain; it is a complex, structured business relationship model. It takes into consideration all aspects of the events required to produce the company's product in the most efficient and cost effective manner possible (Quiett, 2002). According to Mohanty and Deshmukh, (2005), another very comprehensive definition of supply chain management is that it is a loop:

- It starts with customer and ends with customer.
- Through the loop flow all materials, finished goods, information and transactions.
- It requires looking at business as one continuous, seamless process.

This process absorbs distinct functions such as forecasting, purchasing, manufacturing, distribution, sales and marketing into a continuous business transaction.

Petroleum Downstream Supply Chain Management

The supply chain of the petroleum industry is extremely complex compared to other industries. It is divided into two different, yet closely related, major segments: the upstream and downstream supply chains.

The upstream supply chain involves the acquisition of crude oil, which is the specialty of the oil companies. The upstream process includes the exploration, forecasting, production, and logistics management of delivering crude oil from remotely located oil wells to refineries.

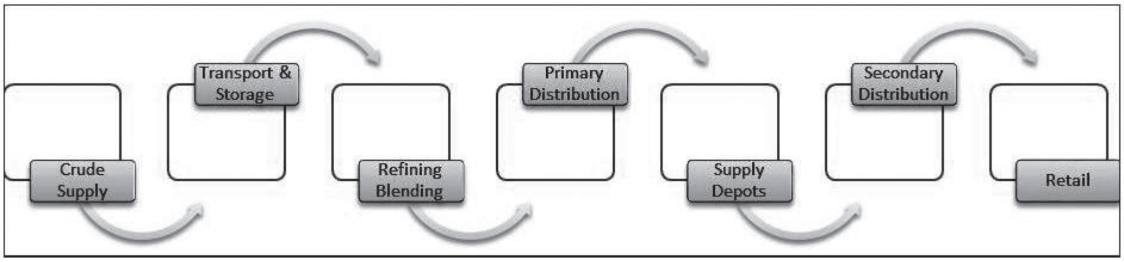

Figure 1: The Whole Petroleum Supply Chain

Problem Formulation

The petroleum downstream supply chain ever finds it difficult to reduce the cost of transportation from refinery to the petrol pumps. The petroleum customer service level is the desired output of all supply chains, as it is there in downstream petroleum supply as well. Uncertain demand pattern, Refinery capacity, inadequate transportation facility, supply depots storage capacity & so on are the constraints for not achieving the desired customer satisfaction level. The swapping practices seem to be the one shot solution to the above constrained downstream supply chain model. Hence the authors of this paper find an opportunity to discuss the Pluses of SWAP (often called as Hospitality or Sharing) with respect to the public sector giants of petroleum industry in the state of Maharashtra.

The Swap Practice

In a commodity-type industry such as oil and petrochemicals, the source of the commodity is often of no interest to the final customer as long as the commodity adheres to its required specifications and the delivery of that commodity is made by the promised due date. Therefore, competing oil and petrochemical companies form supply chain alliances when delivering commodities to customers in order to reduce transportation and inventory costs and improve customer service. In return, cost savings for transportation in the overall supply chain are shared among participating companies. This form of collaboration is referred to as shipment swapping. This kind of collaboration with competitors creates a shared solution to common supply chain obstacles and is predicted to be the "Next Big Thing" (Morton, 2003).

The swapping technique is currently applied by oil and petrochemical companies around the world in all of its different forms: asset swapping, business swapping, and shipment swapping. However, because of the absence of any general analytical discussion of swap practices in the literature, the author has conducted the survey of petrol pumps in the state of Maharashtra to find out the benefits that can be sought by using this SWAP practices.

The present research paper attempts to study and verify that the systematic cooperative barter system of downstream supply chain management i.e. SWAP has a positive bearing on cost reduction that saves company's millions of dollars. It further attempts to ascertain that the SWAP practice improves the customer services by petroleum industry.

Methodology of Research

The Indian petroleum industry consists of seventeen public sector oil refineries and two private sector oil refineries in different parts of ten States of the country. The companies under private sector units of the industry, both by their numbers and also by their years of operation, remain the dominant players in Indian petroleum industry. Rightly therefore the investigator proposes to include within the scope of the study public sector players of the Indian petroleum industry.

From amongst the ten Indian States where petroleum refineries are located, The State of Maharashtra alone accounts for largest share of installed capacity (excluding private sector refineries in Gujarat) and also its refinery crude throughput. It is for this reason that the Authors have done the study to be confined within the territory of Maharashtra so that its findings can be validly generalized for the country as a whole.

There are only two petroleum giants **BPCL** (Bharat Petroleum Corporation Limited) and **HPCL** (Hindustan Petroleum Corporation Limited) which have their refineries located at Mumbai in the State of Maharashtra. Obviously therefore the author is left with no choice than to study only these two petroleum giants of India from amongst the four major Indian petroleum companies including IOC (Indian Oil Corporation) and GAIL (Gas Authority of India Ltd) besides HPCL and BPCL.

Physical flow of a product as highly inflammable as that of petroleum industry through the entire length and breadth of the country encompassing all geographical and topographical limitations to end no. of users for equally end no. of uses is a gigantic task aptly taken care of by an emerging field of management science called as Supply Chain Management. However petroleum product pricing being considered as a black hole of subsidies is an issue of hot debate amongst economists and oil companies. The supply chain management in this industry remains to be more concurrent and vibrant with its impact on petroleum pricing and petroleum subsidy as well.

There are numbers of products of petroleum industry. However of these products three namely HSD, LDO and Lubes are widely distributed and consumed in India as these flow through different distribution channels. Hence for the purpose of present study only these three products have been included within the scope for its data collection and analysis.

There are, as of today, more than 2000 retail outlets in the State of Maharashtra for HPCL and BPCL companies which are the highest no. of retail outlets of BPCL in any of the Indian States. The present study is based on data collected from 100 respondents i.e. retail outlets as shown in the following Table 1. The convenience sampling method shall be resorted to for drawing sample of retail outlets (i.e. Petrol Pumps). It would also give due consideration to retail outlets from different terrains of the State in the proposed sample.

Table 1: Showing Analysis of Select Petrol Pump Respondents

Petrol Pumps under study									
Clusters	*Buldhana*		*Akola*		*Amravati*		*Washim*		*Total No. of Petrol Pumps*
Category Respondents	*Company Owned*	*Privately Owned*	*Company Owned*	*Privately Owned*	*Company Owned*	*Privately Owned*	*Company Owned*	*Privately Owned*	
HPCL	02	10	02	07	02	06	02	07	38
BPCL	01	05	02	06	02	06	01	05	28
Others	02	09	00	11	02	04	01	05	34
Total No. of Pumps	05	24	04	24	06	16	04	17	100
Subtotal (by Cluster)	29		28		22		21		100

The above table indicates that the majority of the petrol pumps are owned by the individual parties i.e. privately owned in the state of Maharashtra. Four clusters were identified namely Buldhana, Akola, Amravati & Washim. The distribution of respondents (Petrol pumps) with respect to dealership of select oil companies is shown in the above table. It indicates that the HPCL petrol pumps were 38% and BPCL and Others are 28% & 34% respectively. All the other companies like IOCL, Reliance, Essar, and IBP are taken in to others category. The only HPCL & BPCL together constitute the majority of Petroleum retail outlets in Maharashtra. It is been identified that one of the variables that is availability of petrol pumps by dealership and the Public Sector Oil Companies are having a cutthroat competition across the state.

Analytical Perspective of Downstream Petroleum Supply Chains in the State of Maharashtra

As discussed earlier the survey was conducted across the state of Maharashtra, 100 respondents were sampled out by convenience method. This section contains the details of the petrol pumps, their awareness of Swapping practices and the benefits sought as a function of these hospitality.

Here the authors came across the availability of select petroleum products at the respondent Petrol-pumps. The following graph shows the availability of the products. The graph indicates that mostly retailed product at petrol pumps are HSD & Lubes. Where some of the products like MS Motor spirit (Petrol) is also available at these retail outlets.

The availability of HSD & Lubes is almost cent percent i.e. almost all the petrol pumps deal with these products. In any other category, the most available product found out to be MS (Motor Spirit/Petrol).

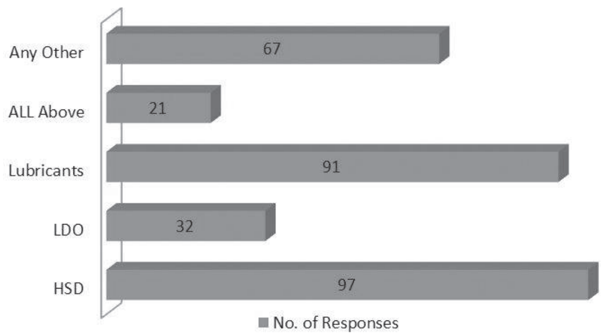

Chart 1: Showing Product Availability at the Petrol Pumps

Further moving towards the SWAP practices in select products for the respondents, the average distance of the Supply depots from the individual petrol pump was found to be 82 kms approximately. There is a high density of petrol pumps through out the state of Maharashtra.

Table 2: Opinions of the Select Petrol Pumps on the Bearing of Supply Depots Distance on Their Individual Profitability

Opinion about Profitability as a Function of Distance from Supply Depots													
Clusters:	*Buldhana*			*Akola*			*Amravati*			*Washim*			*Total*
Category of Respondents	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	
Positive	7	3	6	5	5	6	5	6	3	4	5	4	59
Negative	4	3	4	3	3	5	3	1	2	5	1	1	35
Neutral	1	0	1	1	0	0	0	1	1	0	0	1	6
Total	29			28			22			21			100

In the highly dense State of Maharashtra, the petrol pump respondents have a opinion that the cost of petroleum products is the function of the distance of individual pump from the supply depots. The entire cluster shows the homogeneity in their opinions.

The Table 2 indicates that majority of respondents were having an opinion that there is variability of prices as per the distance of the pump from its supply depots. As the prices are varying so will be the profitability (cost parameters of POL products) at these pumps.

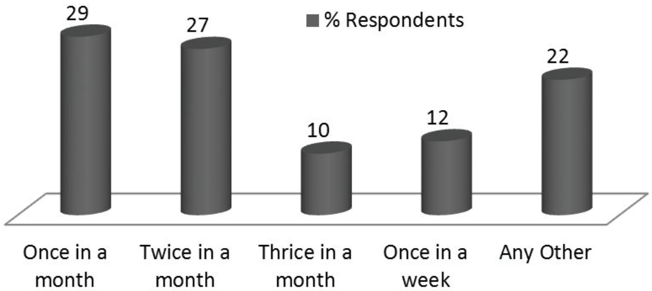

Chart 2: Frequency of Procurement Orders at the Petrol Pumps

In petroleum logistics, the frequency of procurement orders is also important factor in analyzing the downstream supply chains. Majority of petrol pumps have a flexible schedule of ordering. The following chart shows the frequency of orders.

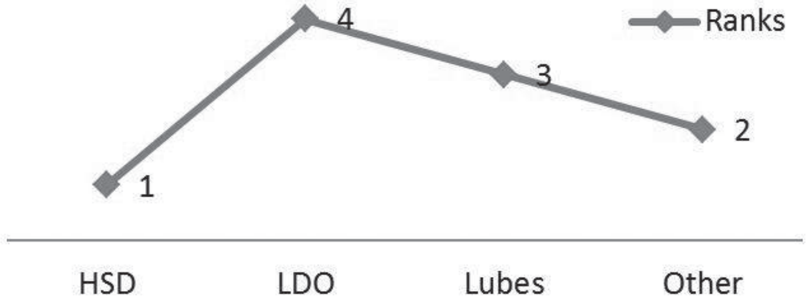

Chart 3: Mobility of Select POL Products

It can be notified from the chart 2 that about once or twice in a month is the frequency that most of the pumps follow. But it all depends on the dynamics of petroleum demand at individual locations.

Author has taken the select products (i.e. HSD, LDO and Lubes) for the purpose of analyzing the effects of SWAP practices. The chart 3 shows the average mobility of these products at the retail outlets in the state of Maharashtra. High Speed Diesel (HSD) is the highly mobile at the petroleum outlets. Where as Light Diesel Oil (SDO) is least mobile at these retail outlets.

The petroleum industry is also featured with pipelines as a mode of transportation with roadways and railways. Here purely railways are not used for the purpose of transportation of supplies at the pumps but the common or popular way of transporting is found to be Roadways. It is also notified that the significant amounts of products are also moved by roadways and railways.

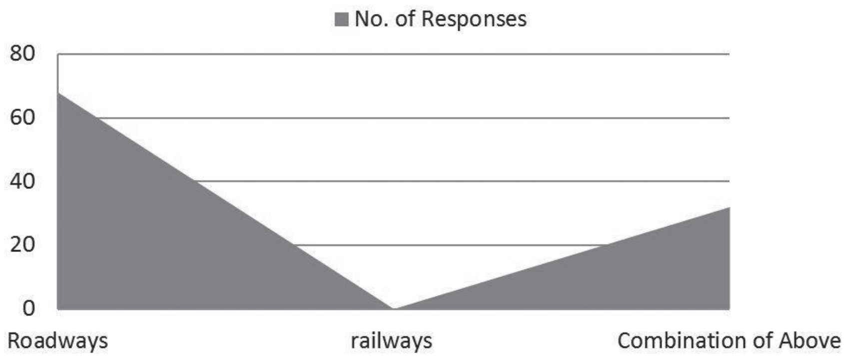

Chart 4: The Modes of Transportation of POL Products

Generally the company is responsible to deliver the petroleum products at individual petrol pumps at the pre decided time. The petrol pump respondents were analyzed as per the category of vehicle used for procurement purpose. The Table 3 shows their responses.

Table 3: Categories of Vehicles Used for Procurement Purpose

Clusters:	*Buldhana*			*Akola*			*Amravati*			*Washim*			*Percentage*
Category of Respondents	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	
Your own vehicle	1	1	3	0	0	2	0	0	2	1	0	1	11%
Your rented vehicle	0	0	1	0	0	1	0	0	1	0	0	1	04%
Company vehicle	4	1	2	3	1	0	1	2	1	2	2	1	20%
Company paid (3PL) vehicle	6	4	4	6	6	7	5	5	2	6	3	2	56%
Others	1	0	1	0	1	1	2	1	0	0	1	1	09%
Sub-total	12	6	11	9	8	11	8	8	6	9	6	6	100

The interpretation of this data reveals that Third party Logisticians are playing a major role in the Transportation of Petroleum products from supply depots to the individual petrol pumps.

Here 56% of the Pumps receive the products by company paid 3PL Logisticians. But the others also use their own vehicles or rented vehicles fro this purpose.

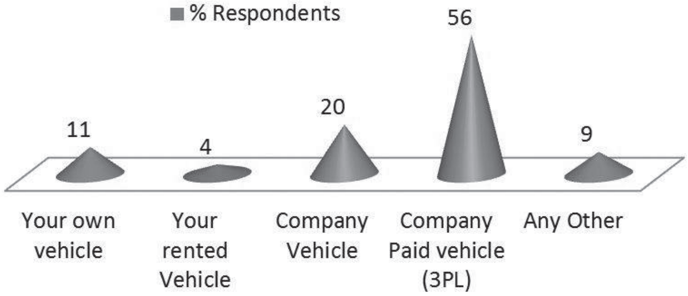

Chart 5: Category of Vehicle Used for Procurement Purpose

The most popular way of transporting the POL products from supply Depots to individual pumps is by the Third party Logisticians. As stated earlier, company is responsible for making the product available at the retail outlets at right time; the obvious cost of such transportation is bared by the petroleum company.

In most of the cases the company bears the cost of transportation, but few respondents are exception.

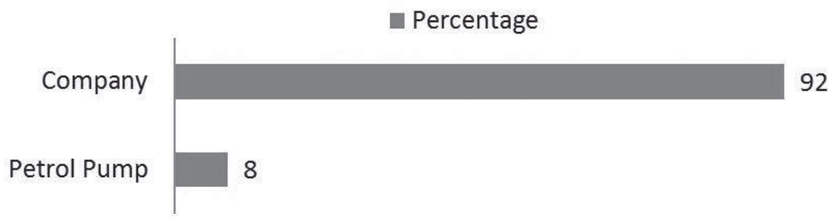

Chart 6: The Procurement Charges Bearing Parties

The petroleum companies always SWAPS (shares) the resources with the competing companies (i.e. Systematic Cooperative Reciprocal Barter System/Hospitality). This hospitality is done at two levels one at refinery level & other at supply depots level. In the survey of petrol pump the authors found out the awareness of swap practices amongst the petrol pump respondents.

Table 4: Awareness of SWAP Practices

Clusters	*Buldhana*						*Akola*						*Amravati*						*Washim*						*Total*
Category (Ownership)	*Company Owned*			*Privately Owned*			*Company Owned*			*Privately Owned*			*Company Owned*			*Privately Owned*			*Company Owned*			*Privately Owned*			*All Respon-dents (% Aware-ness)*
Category (Dealership)	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	*HPCL*	*BPCL*	*Others*	
Aware	2	1	2	0	0	0	2	2	0	0	0	0	2	2	1	1	0	0	2	1	0	0	0	0	18%
Unaware	0	0	0	10	5	9	0	0	0	7	6	11	0	0	1	5	6	4	0	0	1	7	5	5	82%
Subtotal by Cluster	29						28						22						21						100

The majority of the petrol pump respondents are still unaware of the hospitality arrangements the percentage awareness of SWAP is about 18% in the state of Maharashtra. Mostly the petrol pumps owned by oil companies have the greater awareness of the swapping practices.

As the awareness about SWAP found to be low, still the paper reveals that about 19% reduction in the cost of distribution can be exhibited through SWAP practices. Most of the remotely placed respondents showed the positive baring of SWAP on the distribution cost of POL products. Availability of POL products supplies at desired time is enhanced by 22% as a result of SWAP practices. The most obvious research about reduction of lead times as a function of swapping concludes that SWAP practices reduce the lead Times by 28%. All different parameters that were researched reveals that petroleum Customer service level (PCSL) is or can be improved by 25%. & most common benefit of SWAP reveals that the strategic resources of these oil companies can be optimally used with Oil companies and all marketing intermediaries & customers as beneficiaries.

Conclusions

Petroleum customer service level (PCSL) is a function of reduction in the distribution cost, availability, reduction of lead time, oil company's asset utilization etc. Systematic cooperative reciprocal barter system, i.e. SWAPS has a positive bearing on the petroleum customer service level. Though the Awareness of such Hospitality is only 18% in the highly dense State of Maharashtra, all the identified clusters showed the positive bearings. This awareness is high in the Company owned retail outlets. Despite the great challenges in the petroleum industry's supply chain, opportunities for improvements and cost savings do exist along the supply chain. One major area for improvement and cost savings lies in the logistics function.

All the cost associated with supplies of POL products to these Petrol pumps are paid by the respective Oil companies. Companies in the petroleum industry have become increasingly reliant on the services of third-party logistics companies to manage their supply chains. A next step to this 3PL Model of Petroleum Downstream Supply Chain is SWAP (Hospitality/Sharing) amongst the competing Oil Companies which provides many other benefits those are beyond the scope of this paper.

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Innovative Marketing in Business

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Abstract: *Innovations in marketing are related to the revolutionary changes and updates in the world of business. Today, innovations and marketing are the care functions in any business concern. Innovative marketing focuses on the customer and market oriented products, services and processes as per needs. These changes have made the marketers to think beyond the four 'P's of marketing. Innovative marketing is aimed of better addressing customer needs, opening up new markets or newly positioning a firm's product on market in order to increase the first's sales. This paper attempts to snap the overview some of the strategies in marketing innovations with reference to social networks and viral marketing, paid media marketing, Internet marketing, e-mail marketing, Direct selling, POP marketing, conversational marketing, earned media etc. Thus, this paper proposes the innovative dimensions of marketing in present business scenario.*

Keywords: Innovations, Internet Marketing, E-mail Marketing, Viral Marketing, POP Marketing

Introduction

Innovation marketing is the pairing of our two favorite terms: innovation and marketing. According to renowned management expert, Peter Drucker, innovation and marketing are the core functions to any business. This is because innovation can only be successful with marketing, just like marketing needs innovation for product success.

Breaking it down, innovation is the process of translating an idea of an invention into a product or service that creates value or for which customers will pay, whereas, marketing is the process where producers communicate the features and benefits of their products and services to the consumer (Lead Innovation). These are two key ingredients for product success!

The reason innovation marketing is so effective for emerging technology businesses is its strong focus on customers to generate actionable insights. By listening carefully to feedback and taking note of what is happening in the industry, the product lifespan can be optimized through a tailored marketing strategy. A customer-centric approach is bound to have the greatest market adoption, especially when taking into consideration the complexity of technology products and services.

Innovation marketing revolves around the best way to communicate the benefits of the product/service to others. This needs to take place both within the business itself, as well as externally to the wider market.

1. **Internal marketing:** The company's own staff must believe in the new product or service before it can launch into the wider market.

2. **External marketing:** Communicating the benefits of the product or service to the wider market through product positioning, pricing, communication and advertising, sales channels and more.

Marketing and Innovation – The Inseparable Couple

Peter Drucker already said "Business has only two functions – marketing and innovation". He considered marketing and innovation to be the important basis for the company's success. This is reason enough to take a deeper look at the purpose and role of marketing from an innovation perspective. Marketing includes tasks to increase sales. The focus is on customer and market orientation; all products, services and processes are to be aligned with the needs of customers and users.

Marketing has a very comprehensive role. These include the famous 4P, market research and strategic task.

- Market research comprises the identification of customer needs, on the one hand current and future market needs, and on the other hand the exploration of possible market potentials.
- Marketing also plays a strategic role. Based on the corporate strategy, marketing plans are drawn up. In many cases, marketing also plays a leading role in the development of strategies, as they are able to identify strategically important markets on the basis of market information, for example.
- 4P is the marketing mix for marketing products. Four levers are available for this purpose: product design, pricing policy, communication and the type of distribution and sales.

As the listing of marketing tasks shows, there are many overlaps between marketing and innovation management. For example, analyzing trends, researching customer needs and defining product policy in the marketing mix with product development and product design are also tasks that can be found in the function of innovation management.

Marketing innovations are aimed at better addressing customer needs, opening up new markets, or newly positioning a firm's product on the market, with the objective of increasing the firm's sales. The distinguishing feature of a marketing innovation compared to other changes in a firm's marketing instruments is the implementation of a marketing method not previously used by the firm. It must be part of a new marketing concept or strategy that represents a significant departure from the firm's existing marketing methods. The new marketing method can either be developed by the innovating firm or adopted from other firms or organizations. New marketing methods can be implemented for both new and existing products.

A marketing innovation is the implementation of a new marketing method (marketing idea or strategy) that differs significantly from the previous marketing method used by the enterprise and that has not been previously used by the enterprise. A requirement for a marketing innovation is that it involves significant changes in the product design or packaging, product placement, product promotion or pricing. Seasonal, regular and other routine changes in marketing methods are not considered marketing innovations. Below are some Marketing Strategies:

Social Networks and Viral Marketing

Social media marketing focuses on providing users with content they find valuable and want to share across their social networks, resulting in increased visibility and traffic. Social media shares of content, videos, and images also influence Search Engine Optimization (SEO) efforts in that they often increase relevancy in search results within social media networks like Facebook, Twitter, YouTube, and Instagram and search engines like Google and Yahoo.61% of companies use social to increase conversions, and 50% use it to gain customer or market insights.

Paid Media Advertising

Paid media is a tool that companies use to grow their website traffic through paid advertising. One of the most popular methods is pay-per-click (PPC) links. Essentially, a company buys or "sponsors" a link that appears as an ad in search engine results when keywords related to their product or service are searched (this process is commonly known as search engine marketing, or SEM). Every time the ad is clicked, the company pays the search engine (or other third party host site) a small fee for the visitor—a literal "pay per click". As customers approach their purchase decision, 65% will click on a paid advertisement.

Internet Marketing

Internet marketing, or online marketing, combines web and email to advertise and drive e-commerce sales. Social media platforms may also be included to leverage brand presence and promote products and services. In total, these efforts are typically used in conjunction with traditional advertising formats like radio, television, and print.

There's also a lot to be said about online reviews and opinions. Word-of-mouth advertising is unpaid, organic, and oh-so-powerful because those people who have nice things to say about your product or service generally have nothing to gain from it other than sharing good news. A recommendation from a friend, colleague, or family member has built-in credibility and can spur dozens of leads who anticipate positive experiences with your brand. Global e-commerce is anticipated to reach $3,056.3 billion at a CAGR of 14% through 2023, with the spike largely attributed to contactless buying behaviors resulting from the global pandemic (COVID-19).

Email Marketing

Email marketing is a highly effective way to nurture and convert leads. However, it's not a game of chance, as to whether your message winds up in spam filters. Instead, email marketing is an automated process that targets specific prospects and customers with the goal of influencing their purchasing decisions. Email marketing success is measured by open rates and click-through rates, so strategy comes into play, particularly when it's used as a component of a larger internet marketing initiative. The average expected email marketing ROI is $42 for every $1 spent.

Direct Selling

Direct selling accomplishes exactly what the name suggests—marketing and selling products directly to consumers. In this model, sales agents build face-to-face relationships with individuals by demonstrating and selling products away from retail setting, usually in an individual's home (e.g., Amway, Avon, Herbal Life, and Mary Kay).The direct selling market is currently valued at $63 billion dollars.

Point-of-Purchase Marketing (or POP Marketing)

Point-of-Purchase marketing (or POP marketing) sells to a captive audience—those shoppers already in-store and ready to purchase. Product displays, on-package coupons, shelf talkers that tout product benefits, and other attention-getting "sizzle" often sway buying decisions at the shelf by making an offer simply too good—and too visible—to pass up. In the U.S., annual impulse purchases total $17.78 billion, while Canadians dole out about half that much—$8.8 billion per year.

Co-branding, Affinity and Cause Marketing

Co-branding is a marketing methodology in which at least two brands join together to promote and sell a single product or service. The brands lend their collective credibility to increase the perception of the product or service's value, so consumers are more likely to purchase and willing to pay more at retail. Secondarily, co-branding may dissuade private label manufacturers from copying the product or service. Similarly, affinity marketing is a partnership between a company (supplier) and an organization that gathers persons sharing the same interests—for instance, a coffee shop that sells goods from a local bakery.

There is no shortage of co-branding partnerships, but several more recent examples demonstrate particularly good natural brand alignment including the adventurous GoPro and Red Bull, luxurious BMW and Louis Vuitton, and fashion-forward Alexander Wang and H&M.

Likewise, cause marketing leverages and enhances brand reputation. Cause marketing is a cooperative effort between a for-profit business and a non-profit organization to mutually promote and benefit from social and other charitable causes. 'Cause' marketing is not to be confused with corporate giving, which is tied to specific tax-deductible donations made by an organization. 'Cause' marketing relationships are "feel goods" and assure your customers you share their desire to make the world a better place. Customers interpret co-branding as a value endorsement from a brand they already trust, creating a potentially lucrative halo effect.

Conversational Marketing

Conversational marketing is just that—a conversation. Real-time interaction via a Chatbot or live chat gets the right information in front of prospects and customers at the right time. This allows them to get questions answered immediately. Personalized, relevant engagement vastly improves the user experience. For B2C businesses, conversational marketing is especially effective because it scales your customer service and typically cuts the time buyers stay in the sales funnel. Conversions happen quicker because relationships are established quicker.

Storytelling

Brand storytelling uses a familiar communication format to engage consumers at an emotional level. Rather than just spew facts and figures, storytelling allows you to weave a memorable tale of who your company is, what you do, how you solve problems, what you value, and how you engage and contribute to your community and the public in general.

Earned Media (or "Free Media")

Earned media (or "free media") is publicity that is created through efforts other than paid advertising. It can take a variety of forms—a social media testimonial, word-of-mouth, a television or radio mention, a newspaper article or editorial—but one thing is constant: earned media is unsolicited and can only be gained organically. It cannot be bought or owned like traditional advertising. 92% of customers say they trust earned media.

The Purpose of Innovative Marketing

The primary role of innovation in marketing is to explore new markets which will ultimately lead to an increase in sales and profitability of your business.

At the front-end of the innovation process, innovation marketing contributes to the identification of the future and new market opportunities and research into customer needs. During the product development process, innovation marketing has the task of assuring the continuous involvement of customers and users in the process.

At the back end, innovative marketing is responsible for ensuring a successful introduction of the new product and service to the intended target audience, which is also anchored to the product's overall life-cycle.

With businesses moving away from the conventional way of doing business, innovation marketing therefore should be present in all phases of marketing funnel to ensure that customer and market orientation aligns with the advancement of technology, which often leads to the application of new marketing approaches.

Brands that Succeed in Bringing Innovation and Marketing Together

In this highly competitive digital age, innovative marketing is definitely an exciting approach to increase brand awareness and visibility in such a way that have a positive impact on consumer's mind while trying to optimize the marketing budgets.

Here are some of the companies that have successfully employed it.

IKEA

When talking about innovative marketing, IKEA focuses on enhancing the overall customer experience. From launching augmented reality integrated app to provide their customers with elevated shopping experience, providing simple yet aesthetically pleasing DIY products that customers can easily assemble on their own, to introducing a platform to directly help their customers to sell their second-hand furniture online, IKEA successfully integrates innovation into their brand culture and executes it on a level of detail that is ahead of their competitors.

Netflix

Netflix is the perfect example to show what data can do to you as part of your innovative marketing initiatives. One of the crucial factors that attributes to Netflix's success today is the implementation of data and analytics of consumer viewing behavior and demand.

Netflix meticulously analyzed and collected intensive data about Hollywood entertainment to help them design their content and production endeavors, as well as formulate the appropriate marketing strategy to directly market their products and satisfy their target customer's needs.

Expedia

We all agree that c marketing is one of the most important elements in the marketing process and Expedia successfully showed you how to integrate innovation into it!

The company introduces interactive map to entice their audience on various topics, from mythical creatures, the world of movies, even otherworldly destinations. Users can simply navigate icons on the map to learn information, such as "*how to get there*" or "*where to stay*".

Conclusios

Every business concern tries to attract to the customers to their business. This purpose helps to improve the marketing ideas. Every innovative ideas comes into exist and becomes Innovative Marketing. Marketing innovations are aimed at better addressing customer needs, opening up new markets, or newly positioning a firm's product on the market, with the objective of increasing the firm's sales.

As Peter Drucker said "Business has only two functions – marketing and innovation", he considered marketing and innovation to be the important basis for the company's success. This is reason enough to take a deeper look at the purpose and role of marketing from an innovation perspective.

If we see Social Network Marketing, 61% of companies use social to increase conversions, and 50% use it to gain customer or market insights. In paid media advertisement every time the ad is clicked, the company pays the search engine. Out of total netizens (people frequently using internet), 65% clicked on paid advertisement. 92% of customers said they trust earned media. Through this we find that Innovative Marketing becomes the market boom. Through that many business achieve their goals.

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Opportunities and Challenges of Agro Processing Industry in Indian Context

Mahavir Neminath Sadavarte

Abstract: *We know that India is one of the largest working populations in the world. It is important that now peoples' incomes are rising. Today our population is becoming the biggest consumer of processed foods in the country and all over the world. In the present condition increase in urban working culture and lifestyles, there is less time for cooking. So, they prefer ready –to eat product and so agro processing industry is having too much opportunity to increase agro based or agro processing industry. Much of the workforce is engaged in this sector so, low productivity agriculture and allied sector. Therefore, we want to increase agro based or agro processing industry for absorption of workforce and increase productivity and income of rural people. Indian agriculture or agro processing products are exported in more than 100 countries and it has again scope for it. India is over populated country and is based on agriculture sector. We can get foreign exchange through export of agro based or agro processing products. Foreign exchange is useful to import capitalistic good and technology which is useful to manufacture and develop agriculture and domestic industry. Basically agro processing industry uses agriculture and allied sector crop as a raw material and establish with low capital and simple technology. It means use of local resource and demand for farm crop increase. Demand for our agro products is from more than 100 countries. So, India should focus on this industry because it has opportunity in the world.*

Keyword: Agriculture Products, Agro Processing Products, Opportunities, Foreign Exchange, Development

Introduction

Agriculture is a very important and essential part of everyone's life. So, it is one of the widely used as a successful business idea. The Agriculture is most underrated Sector in India. Most people do not actually know about the potential of this business. Well, here in this research paper, Researcher will share with you the information regarding the Agro-Based Industries in India. Researcher will try to cover every topic in this article that is related to this. Agriculture sector is backbone of Indian economy but it has low productivity and less potential to provide employment opportunity. Therefore, we have to increase agro-based, food processing business and industry. Food processing is an important activity related to the agricultural sector and is dominated by predominantly small and medium-scale firms which operate in the informal sector of India. Indeed, the agro-processing sector may be classified into two groups.

Objectives of Study

The following main objectives are present study:

1. To study the Indian Agriculture Sector.
2. To study the meaning and definition of agro processing Industry.
3. To study the types of agro processing Industry.
4. To study the Opportunities and challenges of agro processing Industry.
5. To give suggestions and recommendations.

Research Methodology

Researcher has used basically secondary data for present study. Secondary data is collected from various published books on 'Opportunities and Challenges of Agro Processing Industry in Indian Context', research articles and websites. Descriptive method is used for analysis of research study.

Meaning and Definition of Agro Based or Agro Processing Industry

Agro-based process is varying from simple preservation operations such as drying products in the sun to more complex, capital-intensive processes. Agro-processing industries are typically comprised of upstream and downstream industries. Upstream industries refer to the initial processing of agricultural products, for example, rice and flour milling, leather tanning, dairy, cotton ginning, fish canning, among others. Downstream industries are involved in more complex processing of intermediate products made from agricultural products and include the making of bread, biscuits, textiles, paper, clothing, footwear, etc.

Researcher wants to focus on definition of agro base or agro processing industry: Agriculture based Industry means those basic Industries that use Plant-Based or Animal-based agricultural products as their raw material.

Agro processing could be defined as set of techno economic activities carried out for conservation and handling of agricultural produces and to make it usable as food, feed, fiber, fuel or industrial raw material. Agro processing industry is a subset of manufacturing that processes raw materials and intermediate products derived from the agricultural sector. Agro processing thus means transforming products that originate from farming.

Need of Agro Processing Industry

Today India is moving from a position of scarcity to surplus in terms of food production. The opportunities for increasing food processing levels are innumerable. India's food processing sector, in recent years, has been known for its high-growth and high profit, thus, increasing its contribution to the world food trade every year. It is a significant progress after independence of country; therefore, we have to increase agro base or agro processing industry. For these reasons we must know the types of agro based or agro processing industry.

Types of Agro-based Industries in India

There are many types of agro based products or agro processing or related to the Agriculture industry. Below is given the name of the business that is called as Agriculture Based Products or agro processing Industries:

• Dairy Industries	• Silk textiles
• Tea Industry	• Synthetic fibers
• Vegetable Oils	• Jute textile industries
• Dal Mil	• Sugar Industries
• Coffee Industry	• Vegetable Oil Industries
• Cotton textiles	• Food Processing Industry
• Woolen textiles	• Leather Goods Industry

These Industries are running widely in the country. India is the country where the majority part of the population is dependent on agriculture and allied activities. Agriculture based industries make life better especially in the rural areas. The textile area is the biggest agriculture based Industries in organized Sector. Industries are in high demand nowadays because our majority of the population depends upon farming and Agriculture.

After the knowing types of agriculture related industry we have studied states of agro based or agro processing industry.

States of Agro Processing

On the basis of the latest Annual Survey of Industries conducted during the year 2016-17, food processing accounted for**:**

- Total number of factories is 15.95% out of 100% of the country.
- Provides employment to 11.36% of the workforce
- 14.09% production out of the total production of country.
- 16.78% of the operational factories
- India is the world's second largest producer of fruits & vegetables in the world after China but hardly 2% of the produce is processed.
- More than 75% of the industry is in unorganized sector.
- This sector is expected to generate 9 million jobs by 2024.
- India's food processing sector is one of the largest in the world and its output is expected to reach US$ 535 billion by 2025-26.

Opportunities of Agro Processing Industry

Some important points discussed below in the point of view of Opportunities of Agro Processing Industry.

1. **Changing Consumer's Pattern:** The Food Processing Industry in India has come a long way since the green revolution in the 1960s. The industry has transformed keeping pace

with the dramatic changes in needs of consumer and lifestyle of Indian context. Now husband and wife, both are working. So they have less time for cooking so, they use pre-cooked ready to eat meals and other agro processing products. Today the industry is able to cater to both urban market and rural markets also. The Food Processing Industry today serves urban markets which consume highly processed food categories such as ready to eat and frozen foods as well as meets the needs of rural consumption providing quality basic food grains. There have been different factors which have boosting the industry.

2. **Increasing Demand for Agro Product:** The Indian agro based product market is fast evolving and has seen some major changes in terms of changing consumption patterns due to urbanization in India. There are changes in the male and female composition of the workforce, and growing consumption rates. It is estimate that the growing consumption of food reaches up to $ 1.2 Trillion by 2025-26, owing to these factors.

   India not only has the benefits of a huge domestic market but also with abundant raw material, is a large sourcing hub for agriculture sector products. The increase in the size of the food processing market can be attributed to changing consumption patterns due to urbanization of India, changes in the gender composition of workforce, and growing consumption rates. Additionally, more than two-thirds of India's populations are young with growing incomes which also create a large market for food products and finally food processing products.

3. **Opportunity for Export and Foreign Exchange:** In the present condition, exports of India's agricultural goods and processed foods to more than 100 countries of the world with major exports to the during the year 2018-19, India's exports of agricultural and processed food products totaled $ 38.49 Bn. It is significant figure.

   It is also important that today, India's total agricultural export basket is a little over 2% of the world agricultural trade. Additionally, agricultural exports contribute about 2% to India's Gross Domestic Product (GDP).

   India‘s share of high value and value-added agricultural produce within the export basket stands at less than 15%. We have too much scope to increase our export and so we have to focus on agro based and agro processing industry.

   Export is a significant source of foreign exchange. For example, Indian Basmati rice is in great demand in Middle Eastern countries. Further, Tea, Coffee are other instances.

4. **Opportunities in Agricultural Machinery:** Now India is the biggest manufacturer in agriculture and basically tractors in the world. Manually operated tools, animal-operated machines, and mechanical or electrical – operated machinery are some examples which are slowly increasing in demand. Innovation and technology in the Indian agricultural machinery industry can take the industry to greater heights, keeping pricing in mind.

   In the present condition, Indian farmers are more buying agricultural machinery due to availability of credit from banking and non-banking institutions. The government of India and different state governments are providing financial assistance and subsidies to these farmers to help them purchase the resources needed for agriculture.

5. **Employment Generation:** Agro processing industry provides direct and indirect employment opportunities to rural as well as urban youth, because it acts as a bridge between Agriculture and Manufacturing. Agriculture based industry is a labor intensive industry will provide localized employment opportunities and thus will reduce the push factor in source regions of migration. Agriculture based business would not need huge capital amount. The initial investment is very less as compared to the other businesses.
6. **Reduce Food Wastage:** United Nation estimates that 40% of production is wasted. Similarly, NITI Aayog estimated annual post-harvest losses of close to ₹90,000 cr. With greater thrust on proper sorting and grading close to the farm gate, and diverting extra produce to Food Processing Industry. This wastage will be reduced, leading to better price realization for farmers. In this way, wastage of agriculture production will reduce and price will increase and finally farmer's income will increase also.
7. **Increased Food Durability:** Agriculture products preserve the nutritive quality of food and prolong the shelf life by preventing them through agro processing units. Basically, life of agricultural products is very less but its life will increase by processing. Wastage of crop will be reduced and durability will be increased by processing and so income will also increase. Consumers can take benefits of agriculture crop for long period with the help of processing industry. In this way, it will be beneficial for farmers, businessmen and consumers also.
8. **Lack of Consumer Awareness:** One of the major problems is that lack of Consumer awareness about an improved nutritional situation in the country. Consumers currently lack awareness of several nutritional and food safety and quality aspects. Government should increase awareness of consumers for the use of agro processing products.
9. **Increase Farmer's Income:** There is a limit for agriculture crop but we establish and increase agro based and agro processing industry and through this increase, some parameters like durability, test, quality of product can be enhanced. It is resulted in increase in demand for agro based products and finally increased demand for agriculture products. With the rise in demand for agro-products there will be commensurate rise in the price paid to the farmer, thereby increasing the income of farmer and allied activities.

Problems and Challenges of Agro-processing Industry

Researcher also focuses on problems and challenges of agro processing industry discussed below:

- **More Use of Fertilizers, Pesticides and Chemicals:** More use of fertilizers, pesticides and other chemicals has raised concerns about the quality of food it is bad for human beings. We have to take care of these issues.
- **Low Value-Added in Processing:** There is majority fragmentation of food processing capacity, with a large unorganized sector in India and widespread use of primitive processing. This resulted in lower value-addition at the processing stage, especially from a nutritional point of view.

We have improved it which is useful to society and for the development health and finally industry.

- **Problems of Control Quality and Safety:** The sheer number of players, especially in the large unorganized sector, involved in the food value-chain, makes implementation of quality and safety norms difficult. It results in agriculture based or processing products' quality and safety getting defected. It is also bad for consumers and finally will impact on industry. We should improve these facilities which are good for consumer and useful to industry.
- **Lack of Consumer Awareness:** Lack of Consumer Awareness is also one of the major problems. It hampers improved nutritional situation in the country. Consumers currently lack awareness of several nutritional and food safety and quality aspects. Government should increase awareness of consumer for the use of agro processing products.
- **Lack of Modern Technology:** India has lack of modern technology and storage facilities. So the cost and price of agro-processing products are high. Price of product is high so its impact on demand of product and industry. It also causes problems in export. For increased export, we have to increase quality of product at very reasonable price. If we accept modern technology then it will be maintained automatically.

Conclusion

Basically, India is agriculture economy and more than 65% population resides in rural area. Near about 85% depends on agriculture and allied sector. Therefore agriculture sector is very significant in our country. 65% of total population of our country creates overload on agriculture so agro based and agro processing industries are necessary for absorption of workforce and for increase income of rural people. Agro processing industries use agriculture crop and allied sector as a raw material. In this way durability, test, usefulness and quality tend to increase and its results. Indian and world population do not use pre-cooked ready meals as a food and other processing food. Consumption of ready foods has been increasing. There are several reasons behind this such as- working couples, changed life-style, increased income of people etc. Therefore day to day demand for agro processing will increase continuously.

Increase in the demand for agro processing means increase in demand for agriculture crop. India has significant contribution in world export of agriculture and agro processing products. India is getting foreign exchange through export of agriculture based product and it is useful to import capitalistic goods and technology which is useful to development of country. Demand for agriculture products exists from more than 100 countries. It means we have too many opportunities to increase agro based or agro processing products.

Suggestions

Government of India and different state governments should focus on increasing agro based or agro processing industry. Government should provide basic and fundamental facilities to farmers and entrepreneurs to start there industry in this sector. Indian farmers should use modern technology for cultivation of farm and Entrepreneurs should use modern technology for their products for the result of increase productivity and quality also.

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Identification and Assessment of Risks Involved in Construction Projects in Western Vidarbha from the Perspective of Civil Contractors

Bilal T. Husain and Shriprabhu G. Chapke

Abstract: *This research focuses on the study of different risks which occur in road construction projects. Further it tries to identify the significance of those risks and its impact on the project from the perspective of civil contractors in Western Vidarbha. The research deals only with specific risks concerning the civil contractors as they form the baseline of the construction projects.*

Keywords: Risk Management, Risk Awareness, Risk Identification, Risk Assessment, Risk Response, Civil Contractors

Introduction

Civil construction projects occupy major portion of financial budget in India. In India the most preferred method of undertaking civil construction projects is by allotment through tender process. At the base level of this tender process most of the work is being done by civil contractors hence the study of risks and their assessment is very crucial.

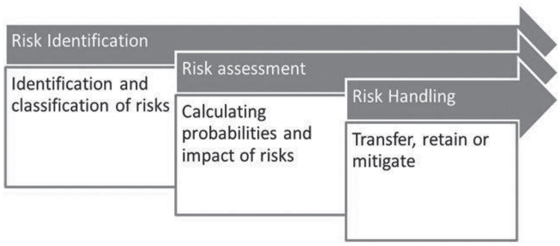

Figure 1: Risk Management Steps

Figure 1 shows steps in risk management process in construction projeects as recommended by PMI 2013[4]

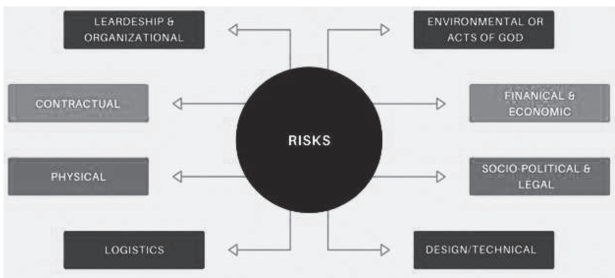

Figure 2: Types of Risks in Construction Projects

Figure 2 represents different types of risk faced by civil contractors in a construction project with reference to the broad categories of risks as stated in above figure a pilot study was done to identify critical risks in road construction projects faced by civil contractors and the following risks were identified to be crucial for the research:

- Time overrun on part of subcontracting parties
- Delay in schedule
- Irregular Client interference in Design
- Execution risk owing to local factors
- Irregular Client interference in Scope other than Design
- Improper communication with stakeholders
- Inefficient Labors
- Strikes
- Noncooperation between structural and Design workers
- Restricted availability of site
- Unsuitable climatic conditions
- Variations in the cost of procurement
- Govt. officials Red tapes
- Unavailability of Govt. officials causing delay
- Payment delay from investors
- Payment delay from Govt.
- Improper cash management
- On-site safety measures
- Legal regulations
- Budget overrun

The research assumes risk handling process model as follows:

The risk originating in the construction projects would be either a.ignored or b. mitigated or c. transferred to other party.

Literature Review

Iqbal S, Choudhry R.M., Holschemacher K, Ali A and Tamošaitienė J studied "Risk management process in construction projects" and the objective of their paper was to understand awareness level regarding risk management practices[1]. They concluded the method of risk management is sparingly applied because of fewer know-how and awareness among the people. Wang S.Q., Dulaimi M.F. and Aguria studied "Risk management framework for construction projects in developing countries" and developed an essential tool to assess the level of risk associated with the highway project under study in the bidding phase in order to take preventive actions [2]. This research highlighted the importance of having proper assessment of risk other focusing on the inefficiency of bidding process. Liu J, Zhao X and Yan P studied- "Risk paths in international construction projects: Case study from Chinese contractors" and found that risk management has to be followed by the all firms to maintain the decorum of construction site and organization [3]. The current literature clearly highlights the importance of identification of critical factors due to which cost and time overrun happens in a given construction projects. These factors have a dependency on geographical factors. Hence in this research the focus is on identification of various types of risks particular to road construction projects in Western Vidarbha and studying the significant of those risks by assessing them from civil contractor's perspective. As derived from literature review the risk management framework of risk identification, assessment and handling would be used for the purpose of risk management.

Research novelty: Instead of focusing on broader construction risks, this research deals only with specific risks concerning the civil contractors as they form the baseline of the construction projects.

Research Objectives

1. To study different risks faced by civil contractors in construction projects
2. To study impact of different types of risks faced by civil contractors in construction projects
3. To identify significant ranks for different types of risks faced by civil contractors in road construction projects in Western Vidarbha.

Research Methodology

Population and Sample

The population for the research includes registered civil contractors in Western VIdarbha. Government sites such as www.mahapwd.com and www.cpwd.com have been used to obtain the list of civil contractors. Estimated population hence obtained from these sources is of the range 5000-6000 civil contractors. Using Kregcie and Morgan sample size table the sample size required for the given populated is set at 360[5].

Data and Sources of Data

Secondary data regarding identification of risks in construction projects, number of registered civil contractors have been collected from journals, books and official web resources. Primary data including awareness level of risks and risk management practices were collected by submitting questionnaires to civil contractors. Opinion of employees of Public Works Department was also considered to reaffirm the conclusions with the results obtained.

Method of Sampling and Theoretical Framework

The research is conducted using probability sampling where 400 random civil contractors were sent a questionnaire and 360 have been used as the sample. The design of the research can be understood in two parts – Firstly identification of risks was conducted and in the second part results from the same study were applied to understand the perspective of civil contractors in Western Vidarbha.

Statistical Tool and Techniques Used

Identification of risks was studied using descriptive statistics. The significance level was established by ranking the risks based on probability of occurrence and impact of risks.

Result and Discussion

Improper cash management has been identified as the prime risk and this is followed by the risks concerning unavailability of Government officials. Budget overrun and execution risks due to local factors are also significant risks identified in the research. With significance rank of 5 variations in the cost of procurement is another identified risk.

Table 1: Probability of Risk Occurrence

Risks Particular	*Average Probability*
Time overrun on part of subcontracting parties	0.3
Delay in schedule	0.5
Irregular Client interference in Design	0.25
Execution risk owing to local factors	0.65
Irregular Client interference in Scope other than Design	0.3
Improper communication with stakeholders	0.3
Inefficient Labours	0.35
Strikes	0.1
Noncooperation between structural and Design workers	0.2
Restricted availability of site	0.35
Unsuitable climatic conditions	0.3
Variations in the cost of procurement	0.45
Govt. officials Red tapes	0.65
Unavailability of Govt officials causing delay	0.65
Payment delay from investors	0.5
Payment delay from Govt	0.35
Improper cash management	0.8
On-site safety measures	0.3
Legal regulations	0.35
Budget overrun	0.5

Table 1 shows the average likelihood of occurrence of a particular risk by civil contractors in a road construction projects.

Table 2: Impact of Risks

Risks Particular	*Avg. Impact (out of 10)*
Time overrun on part of subcontracting parties	7
Delay in schedule	5
Irregular Client interference in Design	4

Risks Particular	*Avg. Impact (out of 10)*
Execution risk owing to local factors	6
Irregular Client interference in Scope other than Design	7
Improper communication with stakeholders	7
Inefficient Labours	4
Strikes	4
Noncooperation between structural and Design workers	5
Restricted availability of site	7
Unsuitable climatic conditions	6
Variations in the cost of procurement	8
Govt. officials Red tapes	5
Unavailability of Govt officials causing delay	7
Payment delay from investors	7
Payment delay from Govt	8
Improper cash management	9
On-site safety measures	7
Legal regulations	7
Budget overrun	8

Table 2 shows the average impact of a particular risk faced by civil contractors in a road construction project. The impact has been calculated based on increase cost of the project and delay in project duration.

Table 3: Significance of Risks

Risks Particular	*Significance*
Time overrun on part of subcontracting parties	2.1
Delay in schedule	2.5
Irregular Client interference in Design	1
Execution risk owing to local factors	3.9
Irregular Client interference in Scope other than Design	2.1
Improper communication with stakeholders	2.1
Inefficient Labours	1.4
Strikes	0.4
Noncooperation between structural and Design workers	1
Restricted availability of site	2.45
Unsuitable climatic conditions	1.8
Variations in the cost of procurement	3.6
Govt. officials Red tapes	3.25
Unavailability of Govt officials causing delay	4.55
Payment delay from investors	3.5
Payment delay from Govt	2.8

Risks Particular	*Significance*
Improper cash management	7.2
On-site safety measures	2.1
Legal regulations	2.45
Budget overrun	4

Table 3 shows the significance scores or criticality scores of different risks identified in a road construction project. The significance has been calculated as multiple of probability of occurrence of a risk and its impact in case of its occurrence.

Table 4: Ranking of Risks

Risks Particular	*Rank*
Time overrun on part of subcontracting parties	12
Delay in schedule	9
Irregular Client interference in Design	18
Execution risk owing to local factors	4
Irregular Client interference in Scope other than Design	12
Improper communication with stakeholders	12
Inefficient Labours	17
Strikes	20
Noncooperation between structural and Design workers	18
Restricted availability of site	10
Unsuitable climatic conditions	16
Variations in the cost of procurement	5
Govt. officials Red tapes	7
Unavailability of Govt officials causing delay	2
Payment delay from investors	6
Payment delay from Govt	8
Improper cash management	1
On-site safety measures	12
Legal regulations	10
Budget overrun	3

Table 4 ranks different risks based on their significance scores. The risks have been ranked by considering the most significant identified risk as rank1 and so on.

Conclusion

The most significant risks faced by civil contractors was identified systematically. The study suggested that the contractors have insufficient theoretical front exposure for proper risk handling. Hence it can be concluded that training of civil contractors concerning theoretical and practical aspects so that they could handle risks faced in construction projects in a better way is important. The conclusion of this research could be used in understanding appropriate training requirements for the civil contractors so as to manage the construction risks.

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Biography of Authors

Prof. Bilal T. Husain is an Assistant Professor in the Department of Business Administration and Research in Shri Sant Gajanan Maharaj College of Engineering, Shegaon for 1 year and has over 2 years of industry experience and 2 years of experience in teaching MBA Students. His expertise lies in the area of finance and is also fluent in the subjects like research methodology and strategic management. Catering his research interests he is investigating the unexplored areas of risk management in the field of Business Management and pursuing doctoral research in the same. After getting graduated as B.Tech. in electronics and telecommunication from GCOEA, Amravati he completed his Masters in Management Studies in finance from N. L. Dalmia Institute of Management Studies and Research, Mumbai. Since then he has worked as Assistant Manager at National Stock Exchange and as Quant-Trader for USDINR Market Making at Option Analysis, Mumbai. Later he started to pursue his interests in the field of academics by joining as a faculty and T and P officer at DMIMS, Nagpur before finally getting appointed as Asst. Professor in the Department of Business Administration and Research at S.S.G.M.CE, Shegaon. As a faculty at S.S.G.M.C.E, he has published 2 research papers in the management field, and has attended international conferences such as "Industry 4.0 & Key Drivers of Sustainable Global Business Practices (ICSGBP)" at Prestige Institute of Management & Research, Gwalior, and "Advancement in science, technology & Management" at S.B. Jain Institute of Technology, Management & Research, Nagpur. As a research supervisor and guide, he has guided 10 post-graduate MBA students in completing their dissertation work. He can be reached at email id.: bilalhusain.bth@gmail.com and Mob. 7774816702

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RURAL DEVELOPMENT AND ENTREPRENEURSHIP

Evolution of Various Schemes by the Government of India for the Welfare of Rural Farmers: With Special Reference to Pradhan Mantri Fasal Bima Yojana (PMFBY) – Crop Insurance

Ankita Parikh and Ajay Trivedi

Abstract: *The Indian agriculture sector is the prime source of adding monetary value to GDP of the country, and it mainly depends on vagaries of monsoon and climate change. This in turn leads to risk in terms of cultivation of different crops on operational grounds. The only provision to safeguard the farmer's income and interest is to eliminate the production risk in the agriculture sector by educating the rural farmers for the various crop insurance schemes available at their disposal. In order to protect farmers from the risks in agriculture sector, the government in the past had introduced many schemes such as NAISP, WBCIS, MNAIS, CPIS etc., but due to lack of correct information there coverage seemed to be very limited to the farmers. And to fill the gap and overcome this situation Prime Minister Shri Narendra Modi launched PMFBY scheme in the year 2016 which has proved to be a unique crop insurance scheme for farmers and this is the new innovation in rural India.*

Keywords: Rural Farmers, Government of India, Crop Insurance, PMFBY

"Pradhan Mantri Fasal Bima Yojana is continuously playing an important role in protecting the economic interests of the hardworking farmers by reducing the risk associated with weather uncertainties. Crores of farmers are availing the benefits of this farmer-friendly insurance scheme today."

– Prime Minister Narendra Modi

Introduction

India is the land of agriculture where farmers are the soul of farming, This sector is playing dynamic role in the economic development of India. It is coined as the most powerful source of generating income for the farmers' fraternity. In order to protect farmers against the loss of payment, high insurance premiums, crop failures and many discrepancies crop insurance was being implemented in 1972 to safe guard farmers' interest. But due to lack of awareness and education of the farmers somehow, they failed to grab the benefits of various crop insurance schemes. To provide the best available solution to the farmers the Union Government at once merged all the schemes such as NAISP, WBCIS, MNAIS, CPIS, etc., and introduced the flagship scheme PMFBY on 13th January 2016by eliminating various risks and uncertainties and by this way stabilizing the farmers' income.(Punia, Kundu and Mehla, 2021)

The whole and sole intension of this research paper is to understand the importance of various schemes, to understandevolution of different schemes and to provide the best available solution offered by the government of India for the benefit of the rural farmers.

Review of the Literature

The following studies/works had been reviewed in the given texts which are really significant for this study.

- Dr. Masani Srinivasulu (2015) in her paper titled "Agriculture Crop Insurance Policiesin India – A Studyon Pradhan Manthri Fasal Bima Yojana (PMFBY) in Telangana State'the new crop insurance scheme PMFBY can be proved to be the best option in comparison of the various other crop insurance schemes. Reason being there was no upper limit cap on the subsidies provided by the Government. This in turn will help the farmers to safeguard their interest and help them to increase their farm income.
- Dr. Pradeepika (2017) during her research on 'Insights into the New Crop Insurance Scheme in Haryana State' strongly believed that inspite of many strategies and various issues regarding the implementation of PMFBY in Haryana, there is an urge or say strong need to spread the awareness of importance of the crop insurance and educate the rural farmers of Haryana state so that they can be equally benefited by this new crop insurance scheme, i.e. PMFBY.
- Bhaskar Gujji and Ashwini Darekar (2018) in their paper 'Prime Minister's Fasal Bima Yojana (PMFBY): A Case of Its Implementation in Datia District of Madhya Pradesh' the researchers had actually collected the responses from collectors, extension workers and farmers which revealed that Datia district became the very first district of India which provided and implemented mid-season benefits to the local farmers through the medium of PMFBY crop insurance scheme.
- Dr. Anoop Kumar Singh and Abhishek Singh (2019) in their paper 'Pradhan Mantri Fasal Bima Yojna (PMFBY): A Bunch of Benefits 'have tried to emphasize on the conceptual framework of this scheme and theytried to put more emphasize on the importance of PMFBY scheme for the sustainable livelihood of the farmers by identifying the core benefits and helping them for their betterment.
- Vikas Kumar (2020) in his research paper 'Performance Analysis of National Agricultural Insurance Scheme (NAIS) and Pradhan Mantri Fasal Bima Yojna (PMFBY)' found that PMFBY performance was far way better than the NAIS in terms of insurance to the farmers, area coverage and the claim settlement. He also researched that by making the farmers aware of the importance of PMFBY scheme and the timely claim settlement process this can be further improved.
- Meenu Punia, Praveen Kumar Nimbrayan and K.K. Yadav (2021) during their research on 'Problems, Prospects and Policy Recommendations of Crop Insurance Schemes 'conducted the study in six districts of Haryana wherein they found that there was a delay in the claim settlement and also due to lack of knowledge the farmers could not

avail the benefits of this facility. And also feedback from the farmers on the timely basis is an equally essential factor to make this scheme more successful.

- Sneha Kumari, P. Raghuram, V.G. Venkatesh and Yangyan Shi (2021) while conducting their research on 'Future perspectives on progressive farming with adoption of virtual reality technology for sustainable quality in agriculture' observed that, the virtual reality has a great impact on sustainable agricultural production on qualitative grounds. They tried to focus on the effective and betterprospective and perspectives in farming by adopting virtual reality view point.

Aims and Objectives of the Study

The whole and sole aim of this research is to spread awareness amongst the farmers' fraternity that by availing the crop insurance for their crops they can safeguard their interest along with their earnings for their sustainable livelihood.

The following are the objectives of the study:

1. To study the growth and development of Pradhan Mantri Fasal Bima Yojana.
2. To examine the important features of Pradhan Mantri Fasal Bima Yojana and
3. To suggest best possible action plan and remedies in order to make this scheme more effective for the welfare of the rural farmers.

Significance of the Study

The present study is more or less significant to those rural farmers who due to some or other reasons are not aware about the existence of insurance schemes for protecting their crops. This in turn will definitely be helpful to marginal and small farmers to protect their crops in times of natural calamities by getting their crops insured under the various crop insurance schemes.

The Scope of Study

In this present study looking into the current scenario, a study is made to analyse the level of awareness and the level of satisfaction of the farmers towards the various crop insurance schemes available at the Government's disposal.

Materials And Methods

The secondary data such as journals, Annual reports of Ministry of agricultureand various Government websites were used to draw the inference regarding the implementation and modifications of the schemes. The study was purely descriptive in nature.

Revamping of PMFBY to PMFBY 2.0

History of the Crop Insurance in India

Though agriculture being the prime source of income which contributes more towards the GDP of the nation, still the Indian farmers are usually exposed to the monsoon vagaries and climate change effect which can adversely affect the agricultural production on one hand and farm income on the other hand.Looking into the situation the Government of India in past had made certain provisions in such a way that farmers would be the ultimate beneficiaries.The Government of India introduced many innovative crop insurance schemes for the farmers to make them understand the need and importance of these schemes for their sustainable livelihood.But from farmers' point of view as the premiums charged were way to high, no proper information was been imparted to them at the given point of time, no proper guidance regarding the claim settlement was been given, exploitation was done by the money lenders. These real time problems faced by the farmers were the actually root causes which restricted them to grab the opportunity at that given point of time. In order to make the farmers self-sufficient the Government of India tried to educate farmers but it was found that due to lack of knowledge and lack of awareness farmers could not grab the given opportunities and could not avail the best benefits available at their disposal. (Gulati, Terway and Hussain, 2018)

The following is the brief about evolution of various crop insurance schemes in India:

Evolution of Different Schemes in India

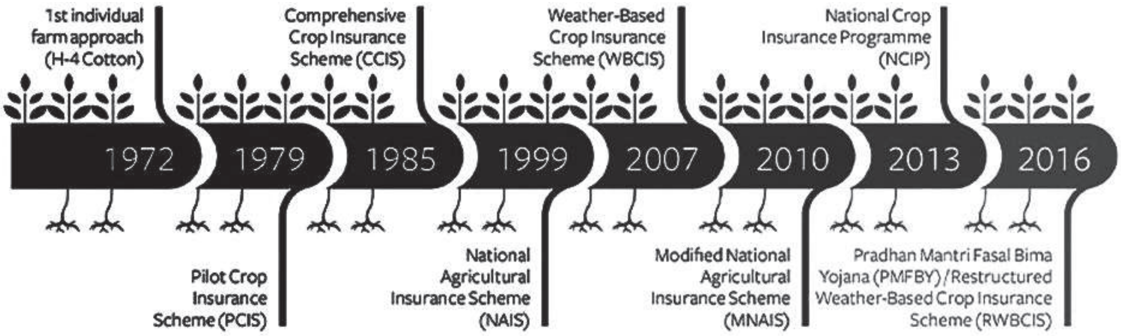

Exhibit 1: Various Crop Insurance Schemes

Since the inception ofInsurance Scheme in 1972 during Post-Independence Era, the Government of India introduced few schemes which it thought that it would bring fortune to the farmers for their sustainable and respectful living. But as matter of fact these schemes faced many crucial challenges since the time of inception. (Kaur, Raj, Singh and Chattu, 2021)

The following are the different crop insurance schemes:

1. **1st Individual Farm approach(H-4 Cotton) introduced in 1972:** For the very first time in the history of Indian agriculture the General Insurance Corporation Company came up with H-4 Cotton insurance scheme for farmers' benefit. But due to very high premium rates charged to the farmers which led to many discrepancies at the farmers' disposal, this scheme could not be implemented successfully. So, the Government of India came up with another scheme in the year 1979.

2. **Pilot Crop Insurance Scheme (PCIS) introduced in 1979:** Proudly known as "The Father of Crop insurance in India', Professor. V.M. Dandekar intimated a mere alternative to "Homogenous Area approach" which proved to be fruitful for sustainability of crop insurance in India in the mid of seventies, based on which the General Insurance corporation company came up with "Pilot Crop Insurance Scheme in 1979 and it was active only till 1985. But again, due to high premiums and other discrepancies faced by the farmers this scheme could not contribute much. So, the Government of India again came up with other scheme in the year 1985.
3. **Comprehensive Crop Insurance Scheme (CCIS) introduced in 1985:** Due to the major drawbacks of PCIS later on this scheme was replaced by CCIS scheme in 1985 and it lasted till 1999. The major problem encountered was that due to lack of coverage area, uniform rates of premium for all the farmers and delay in the payments of premiums this scheme could not do much. So, to overcome this situation the Government came up with NAIS in 1999.
4. **National Agricultural Insurance Scheme (NAIS) introduced in 1999:** In the year 1999 the CCIS was being replaced by the NAIS which covered not only farmers but all the losses which occurred due to crop failure and the natural calamities. But likewise, the previous schemes here also premium charged was way too high so this scheme could not contribute more towards the welfare of the farmers. So, to provide a better solution Government came up with WBCIS in 2007.
5. **Weather Based Crop Insurance Scheme (WBCIS) introduced in 2007:** A weather-basedindex was being included to cover the losses and damages to the crops under the WBCIS. Reason being due to the uncertainty of the Indian weather the farmers could not avail the most of the benefits of this scheme. And also, the claim settlement ratio was way too low which in turn could not do much for the farmers who were the actual beneficiaries.So, some new modification was the need of that time and MNAIS came into existence in the year 2010.
6. **Modified National Agricultural Insurance Scheme (MNAIS) introduced in 2010:** The MNAIS was being replaced by NAIS by the Government of India. Under this scheme the participation of the farmers was made compulsory which in a way was acceptable by the farmers' fraternity. The whole and sole objective of this scheme was to ensure the farmers by providing them financial support in the times of natural calamities or say crop failure. But somehow this too could not be worked out so again in the year 2013 NCIP was introduced.
7. **National Crop Insurance Program (NCIP) introduced in 2013:** In order to provide the financial support against the losses occurred due to crop failure NCIP was introduced by merging MNAIS, WBCIS and CPIS in 2013 by the UPA Government. But this merger could not contribute more to the stability of the farmers' income. So, in 2016 the Government came up with RWBCIS along with PMFBY to serve the farmers in a best way.

8. **Restructured Weather Based Crop Insurance Scheme (RWBCIS) introduced in 2016:** The WBCIS was actually been renamed by RWBCIS in order to give support to the farmers against the losses which occurred due to natural calamities. RWBCIS was monitored by Ministry of Agriculture and Farmers' Welfare. Along with RWCIS one more crop insurance scheme named PMFBY was introduced in 2016 which became the stepping stone for the farmers' destiny.
9. **Pradhan Mantri Fasal Bima Yojana (PMFBY) introduced in 2016:** PMFBY being the flagship scheme in history of Indian agricultural sector it proved to be a milestone achievement for India. Reason being through PMFBY the farmers got a new slogan,i.e., "one premium, one season". This scheme actually replaced all the previous schemes and came up with the most concrete solution for the benefits of the farmers.

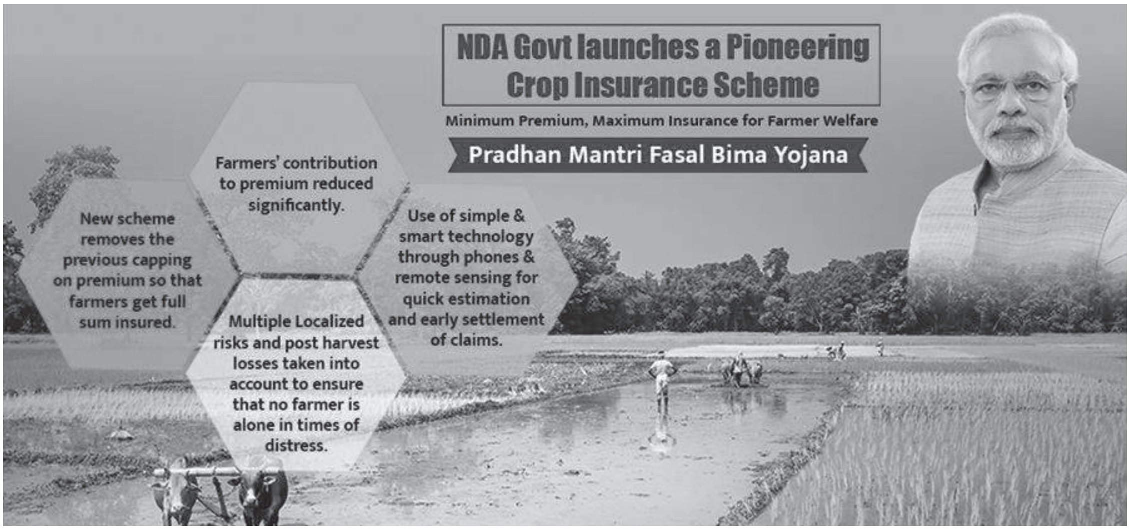

Exhibit 2: Pradhan Mantri Fasal Bima Yojana

But, in spite of putting all the diehard efforts from the Central Government and the State Government for educating the farmers all efforts were in vain. Many awareness programmes were run for the farmers for making them aware about the importance of crop insurance, need for stabilizing their farm income and getting a respectful livelihood. But still due to unawareness and lack of knowledge of the farmers there aroused a need to come up with some concrete solution or say permanent solution for solving the financial problems. So the Central Government took a historic decision in good benefit of farmers to revamp the existing PMFBY to PMFBY 2.0.

What is Changing: Revamping of PMFBY to PMFBY 2.0

Since the inception of Pradhan Mantri Fasal Bima Yojana in the year 2016, approximately more than million farmers have been benefited by availing the benefits of this scheme. The whole and sole intention of PMFBY scheme was to make the farmers aware about importance of insurance on one hand and increasing their productivity and farm income on the other hand. But even after putting so much efforts still Central Government felt that something is lacking somewhere. So, the Central Government took an initiative to introduce some changes in the existing PMFBY and took decision of revamping PMFBY to PMFBY 2.0.(Pradhan Mantri Fasal Bima Yojana to Be Revamped – Facts about PMFBY for UPSC, 2022)

Why PMFBY being Revamped?

In order to make the farmers fraternity more self-sufficient so that they will be able to manage various risks arising out of natural calamities, climate change, and crop failure etc., problems.Also, to stabilize farmers' farm income along with the satisfaction of appropriate and faster claim settlements this decision was taken. As such PMFBY has already completed successful five years but still due to some unavoidable circumstances and discrepancies at the farmers' disposal the Central Government took this historic decision to revamp PMFBY to PMFBY 2.0

Need for Revamping

The following are the points for why there aroused a need for revamping PMFBY to PMFBY 2.0:

1. **Up till now non voluntary:** PMFBY was voluntary for only the loanee farmers however for it was made compulsory for those farmers who actually availed loans from various banks for the crop insurance.
2. **No upper limit of central subsidy:** As there was no such upper limit capped for availing the central subsidy the farmers really didn't show much interest to grab or say avail maximum benefits out of this scheme.
3. **Huge pendency:** It was been noticed that due to the huge pendency ratio for the claim settlement to various insurance companies this had directly affected the claim payment process in time. And in turn this caused delay in making payments to the farmers who are the ultimate beneficiaries. (Revamping of Pradhan Mantri Fasal Bima Yojana, 2022)

PMFBY to PMFBY 2.0

1. **Completely voluntary:** The enrolment of this revised scheme is made completely voluntary for both loanee and non-loanee farmers from 2020 Kharif.
2. **Limit to central subsidy:** The premium rates for the unirrigated crops and areas is decided at 30% and for irrigated crops and areas is decided at 25% by the Central Government.
3. **More flexibility to states:** On the surety grounds the government has given some relaxation and flexibility to the states and the union territories to implement the PMFBY scheme in order to avoid any crop losses, crop failure and other discrepancies caused due to natural calamities.

4. Penalising the pendency: Under this revised scheme a provision is being made that any state cannot release their respective shares before 31st March for the Kharif season and 30th September for Rabi.
5. Investing in IEC activities: Now the insurance companies have to spend some amount on information, education and communication activities in order to ensure that there should be a uniform message shared across the nation. And thus, they should try to remove the gaps in spreading the correct information.

Findings of the Study

- In spite of the fact that even after successful completion of PMFBY after 5 years, still Central Government faced many issues in making and implementing the PMFBY more effective. So Central Government decided to make few remarkable changes in the existing PMFBY and it was revamped as PMFBY 2.0.
- The researcher has tried to focus on the problems faced by the farmers who had availed this scheme and tried to come up with the most concrete solutions at the farmers' disposal. But as a matter of fact, even due to lack of knowledge and unawareness of farmers also it's quite possible that there are some gaps in the execution of the PMFBY so there aroused a need for the revamped scheme.

Suggestions and Future Scope

In order to make sure that the farmers who are the end beneficiaries of this scheme should be imparted with proper education and knowledge regarding the importance of the revamped PMFBY 2.0 scheme. This new revised scheme can be proved to be a boon to the farmers for stabilizing their farm incomes. By using the latest technologies and farm equipment's farmers can do the farming not only easily but in a more advanced manner and this can lead to the satisfactory outcome in form of sustainable and increased farm incomes.

Conclusions

The whole and sole intension of the Government of India is to maintain the transparency and to timely release the settlement of the claims for the farmers for their sustainable livelihood. This will not only give financial support to the farmers but it will help the Indian farmers to be more self-sufficient and independent. By adopting the latest farming technologies, the farmers can learn new advanced ways of farming by making maximum use of the digital technologies like using Drones for doing farming.Thus, from this research study it is concluded that the revamping of PMFBY to PMFBY 2.0 was the need of the hour and it is proved to be the most effective and beneficial step taken by the Government of India in the good benefit of farmers only. Now this is the real innovation on rural grounds.

Competing Interests

Authors have declared that no competing interests exist.

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Vibrant Hands for Rural Development in India – A Study

Wechansing Z. Suliya and Vaishnavi Ambadas Dhumale

Abstract: *Potential is everywhere but it needs to be identified and reorganized and revitalized for better results and outcomes. It creates better outcomes if it is properly planned. Things are possible but movements of vibrant hands are required. Many vibrant hands did well for rural development and many are doing. There is requirement of motivation and constant support for bigger hands such as Government of India and public private partnership. There is hidden potential in rural area; it is in form of raw material, natural resources, agricultural crops and human power. Many sociologists and social workers worked for rural development and have seen dreams for great rural pictures. Dr. APJ Abdul Kalam Developed PURA model which aimed at providing Urban Amenities in Rural Area; (Physical, Economic, Electronic and Knowledge Connectivity) and have impact and footprints in rural development. Mahatma Gandhi coined the term 'Swaraj' and shared the thoughts on self-control, non-violence, rural decentralization and acceptance of good things from all religions for rural development. Mahatma Gandhi believed India's Potential in rural area so he had the message "Move towards villages". Nanaji Deshmukh who was friend of Dindayal Upaadhyay worked for rural development in Chitrakoot. This paper will specially analyze the rural development models and their contributions in different corners of India. Paper will critically analyze the reasons about failure and success through exploration and research.*

Keywords: Vibrant, Potential, Revitalized, Reorganized, Contributions, Exploration

Dr. APJ Abdul Kalam was born in a village and fought against poverty and lacunas in education so he inspired good and sustainable model for rural development. He developed Model PURA (Providing Urban Amenities in Rural Area). This was a great idea but PURA Model has failed due to many reasons.

PURA Model

1. Model had more focus on physical facilitates and its development
2. The required time and awareness extent were the hurdles
3. Investment was comparatively higher
4. There were many things in model which were looking like a dream, not reality.

Budget in PURA Model

Initially there was investment of 30 Cr rupees and it was raised up to 70 Cr in second phase and 100 Cr in third phase but PURA model failed due to huge cost requirements.

Idea of Societal Transformation

There was an idea of social transformation through schooling and training centers. There were also many other possible ways like recreation, discussion, brain storming and libraries required for social transformation. Dr. APJ Abdul Kalam has vision 2020 for development of India but it failed to be implemented though pilot projects.

Funding for PURA

This Plan was on the basis of public private partnership and funds through corporate social responsibility and other social funding.

Nandghar Project

Nandghar was a project for rural development in Rajasthan near Jodhpur. Basic project is related to nursery education which motivates kids for learning. It focused not only syllabus but also human values. The kids from that area were good and could communicate well with others. Nandghar project achieved its aims of education though e-learning platform. The teacher requirement was less due to e-learning platform. The Project lead entrepreneurship and attitude of self reliance amongst people.

Villages were self reliant, generating power through solar panels and confirmed 24 hours electricity. Villages were located in dessert but they had technology for maintaining 40 degree temperature through home of fiber sheets by using German technology. They proved that complaint should have alternatives and solutions for future. There are courses for women who can learn things through online mode for their kids. Courses had motivated them for new self-employment. Nandghar project is one nice example of self-reliant village in Rajasthan.

Swaraj Model (Ganddhian Model)

Mahatma Gandhi had thought that real India is in villages; He meant real potential is in villages. The present Gram Panchayat is the fruit of that thought. Mahatma Gandhi thought of growth at individual level by growing human values. All good traditions and things should be accepted irrespective of any religions. Mahatma Gandhi had thought about rural development by using raw material in rural area. Life of Mahatma Gandhi was simple and motivational. He had sowed the 'seed of truth' in Indian culture. Indians are following the theory of non-violence for betterment in life. He is a brand of love, cleanliness and motivation; leading whole Indians towards great destination. As per his thoughts 'simple living and high thinking' a good number of people are living their life in India. He is a brand for rural India so; Government of India launched 'many rural development schemes reflecting the name of Mahatma Gandhi.

Model of Integral Humanism

This model first believes in common values; 'everyone has right to live and right to grow'. Humanity is a separate term from any religion, caste and creed. All humans have right for confirming basic facilities. 'Humans should not be discriminated from any facility and services', was the thought of Nanaji Deshmukh. Mr. Nanaji Deshmukh extended this thought in rural area- Chitrakoot. Nanaji Deshmukh succeeded in his mission and changed many lives. The model was surrounding spiritual as well as physical development of rural area. People were changed and accepted better manners for managing health and education. Literacy grew due to integral humanism model, in that area.

Bandhan Model

This is also rural development model specially focused on widows. The model had thought of self-reliance through skill development. Bandhan mainly focused on basic skills required for developing rural products. 'Bandhan model' focused on plantation, cleanliness, health hygiene, literacy and value-education. There is a scope for betterment due to cooperative nature of rural people. Challenges are there but 'Bandhan model' accepted and overcame from all and succeed.

Need to Develop New Thought Process

'Each good will have sweet fruits', may be its a thought, action or movement. There is scope for improvement so anyone can make a way with right attitude for betterment. Rural Development has the scope for cultural and economic growth only constant and continuous effort is the need.

Effectiveness in Public Private Partnership

Government is supporting to village development but village should come forward for their own development. There are also complaints from village folks about unemployment. People may talk about only failure of Government but everyone can take new initiatives for all types of growth in that area. Complaints exist today and also will be in future but solutions are the only ways with which complaints can be handled. The concept of Public-private partnership is there in India but not well blooming.

Theory of Self-reliance

There are many factors for inflation rate and major factor is price of petrol and diesel. According to theory of international marketing, country should be self reliant and this is possible through production. If this happens, the value of currency will be maintained and there would be more money in each pocket. Ways are there for employment but they should be reorganized according to the need in that area. Rural area can enrich its own area through small business development. Enlisting is required on the basis of needs then picture would be clearer.

Table 1: Showing Classification of Small Businesses on the Basis of Demand

S. No.	*Most Required*	*Required*	*Less Required*	*Complementary*
1	Food services	Food Processing	Food Transportation	Food trading
2	Construction skills training	Construction material transportation	Construction items on rent	Designer
3	Doctor	Hospital	Operation room	Testing facility
4	Schools	College e-learning	Guide services	
5	Recreation –Play ground	Temple		
6	Agricultural guidance	Public Library		
7	Transportation	Public Transport and goods transport		

Self help groups should start their venture on the basis of demand. Self help groups have potential but products and services of self-help group must be sustainable for future. The records and counting are less important than real outcomes. Self-help groups must be self-reliant for long time and can produce important products with export quality at district level.

Table 2: Attitude, Branding and Quality are Supreme in Market

Sr. No.	*Product Name*	*District Export Quality Level*	*State Export Quality Level*	*National Export Quality Level*
1	Ayurvedic Soap	Yes	Subject to quality	Subject to quality
2	Readymade Garments	Yes	Subject to quality	Subject to quality
3	Bamboo products	Yes	Subject to quality	Subject to quality
4	Grains sorting	Yes	Subject to quality	Subject to quality
5	Beauty products	Yes	Subject to quality	Subject to quality

Attitude towards the product or service make it popular in market; if attitude of consumers and products matches then consumer will accept products. It is also observed that perception about the brands is primary than quality. Rural products had rural demand but now trend is changing and demand of some rural products is there in urban market but up to district market. Rural entrepreneurs should develop products for urban consumers and export quality also. It is observed that many products which are manufactured at local level have not demand at state level and national level. Reasons is the mindset of consumers that local product is for below average usage and having low quality. Food products and packets form rural background are generally rejected by the urban consumers due to its hygienic issues. Rural people should aware be about hygienic culture during production of food products. After Covid-19, packaged food products have more demand than non-packaged products. Quality is a secondary thing in this sense. There is changing scenario and rural business can grow its arena by growing updated demand of consumers from all angles. According to research SHGs from rural region are less hygienic as compared to registered company at city level so rural small businesses should understand this problem for growing their business and profit.

Education has great impact on development of society but teachers should learn properly before teaching to others. Schools are the machineries for development of good minds but society and consumer must understand the benefits of schools and education institutes. Training is required to society which might be in any form for starting new initiatives in development. Attitude and thinking methodology of people can change the scenario of village. Teachers and mothers are the designers of society and government should motivate to them for better vibrant culture of society.

One observation is that food processing units are very less in rural area and government is promoting SHG group for launching new food processing units in rural area. Raw material is available in that area but processing is less. According to survey, 20% foods and vegetables perish due to no proper storage and processing. Processing can raise the employment level. There is land available in rural area so at least sunlight is proper for drying food products wherever required. Rural people can dry, clean; pack and transport food to urban area and which will lead to better employment.

There is solution for health but there is not proper solution for mental health and attitude. People have desire and dreams, which can be fulfilled by money and facility. People are moving from village to city for more money, facilities and enjoyments. Migration has not only one objective as per survey but it has other hidden objectives so the problem of migration will not be solved by only creation of employment. There is a nice scheme- ‘Skill India’. Skills are one basic requirement on the road of life and also career. Skills are required which may be soft skills or hard skills. Soft skills are required for life and job and hard skills are for managing machines. There is a scope for its improvement according to the policies of skill India. According to new observation noted by newspapers there is less skills up gradation through ‘skill India’ policy. Skill requirement is there for corporate and simple shop also but people are less skilled till today.

Need to Develop Organized Approach for Rural Development

Movements are going on in rural area but almost all movements are unorganized which should be organized with proper analysis of utilization of resources by current population in rural area. Requirement of energy, health facilities and physical infrastructure should be properly estimated in plan so that administration can plan for export of raw materials and products to another location. Consumption should be properly estimated as per the population. Management of rural potential can enhance the effectiveness in rural development.

Need to Recreate Skills, Knowledge and Land for Farming

Production of crops is possible if fertility of land, availability of water, skilled manpower, knowledge of manpower and weather in that area stand suitable. Weather is uncontrollable factor but other all above factors are controllable. All controllable factors should be handled constructively by farmers and Government. Organic composting is evergreen source for growing fertility in land; which is possible with the help of animal farming and composting initiatives. Water harvesting is possible with Government's actions and continuous training of farmers can enhance the skills and knowledge of farmers. Rural development is possible with organized planning and implementations with above all factors.

Non-Governmental Organizations (NGOs) have contributed hands for development, all over the country. NGOs should take rational initiative for the sense of rural development. NGOs are aware about knowledge and skills requirement for developing rural area so, NGOs can organize the actions for rural development easily. Government of India is promoting many works through NGOs but there is one area of Rural Development; where NGOs can contribute better with effective planning and completion of desired task. NGOs have the potential that can assist rural development.

Conclusions

Rural development plan should have estimation of cost otherwise money will go in vain due to improper planning. Before entry in rural area for its development one should analyze the pattern of attitudes of rural people. Desire of people is unlimited there is always scope of improvement but basic development should be there at rural level as a justice in comparison with urban people. Urban people have the facilities and they are paying for that; urban people should have attitude for paying against the provisions of facilities. Observation and analysis of successful rural development models can draw clear map of rural development. Real picture will become clear after one to one communication with rural people and rural development is possible with positive mindset of public as well as NGOs and local administration for establishment of real rural development.

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Diffusing Family Business Innovations – A Case of Treasure Trove 'Khandelwal Jewellers'

Mayur A. Dande, Vaishnavi Bathe, Vaishali Gadkar, Kajal Kenekar, Abhijit Kharode and Dhiraj Shende

The Inception

The unorganised sector in India has been contributing to the growth of economy since long times. National Account Statistics happens to use the term "Unorganised sector" instead of "informal sector". Despite the drawbacks like getting disappeared from the mainstream documentations, accounting and records, as this sector provides plenty of employment opportunities, has been a foremost choice for the less educated and unskilled mob that can be trained for a short period and contribute to better functioning of the organisation. The Indian gold, gems and jewellery unorganised sector is a symbol of trust for majority of Indians who go by the conventional mechanism of purchase. There are approximately 2.8 million unorganised jewellery outlets in India. Somewhere around 2000, as high as 90 percent retail gold outlets in India were falling under unorganised category. With an electrifying presence of globalisation, privatisation, liberalisation, digitisation unorganised sector is transforming into organised one. The pace of diffusion of innovation for varied outlets may differ but the awareness and consent for the same is appreciable indeed! Family businesses from the corners of India are experimenting. The younger generation is eager and instrumental in this phenomenon.

The Outfit

Considering the increasing demand for gold and related ornaments, India tends to be the world's second largest consumer. China is the top one. Three trillion is the monumental number wished for in India, of which more than fifty five percent is purchased for weddings. Considering attributes like changing consumer preferences, deeper information search, influence of opinion leaders and reference groups, inclination towards ambience and shopping experience, availability of variety of ornaments, volatility, influx quantities, changes in government regulations, micro and macro level environmental parameters, spectacular opportunities lie for the unorganised jewellery sector. These must be sought after with genuine endeavours. Several such attempts have been initiated not only in a metropolis like Mumbai or urban areas of the country but also in small towns.

Khandelwal Jewellers (Akola) Pvt Ltd is the State of art and Trustmark Certified chain of showroom. KJ-1, multi-storey showroom, located in Heart of city at M. G Road Akola, KJ2 Wholesale division at Mumbai, another one know as KJ3 located at KJ3 Square M. G

Road Akola. The Khandelwal jewellers is the leading jewellery in the Vidharbha Region. It is major market share of the total jewellery business in Vidharbha. They are the proud to be professional jewellers to the 90k of our respected customers till 5th Generation. A very big 95 years of Good History is behind their success.

The present case is a narrative of honesty, integrity, trustworthy and purity characters of a very successful entrepreneur for imbibing lessons in entrepreneurship and innovation management area, and successful succession planning of business of generations.

The Lineage

Family businesses assist in flourishing economies all over the globe. In Latin as well as South America, "Groupo" are the businesses fully handled by the members of a single family. These may gradually evolve in kinship partnerships as well. Diversification efforts can be seen through taking over the raw material providers, suppliers, and even the intermediaries. In Japan, "Zaibatsus" were the family controlled businesses that ceased to exist because of World War II. Sumitoma, Matsushita, Toyota are some of the examples to be thought of in this regard. Korea, Indonesia, Germany, Sweden are lighthouses for the other countries and stand as at par exemplars for family businesses. Germany, especially, with the "Mittelstands", a synonym for family owned businesses generate employment for more than seventy percent of the German population. There used to be a time when Wallenberg family owned around 38 percent Stockholm Stock Exchange Shares. Around 430 out of the 500 most valuable organisations reflect family entities in India. Reliance group, Tata group, Wadia group, HCL group are some organisations which touched the zenith of expansion.

There's certainly a line of demarcation between small business and family businesses. Large organisations can also be basically family businesses. This indicates the potential of family businesses to be better and better. If two or more extended family members happen to influence the functioning, owning higher percentage of the share capital, decision making, ownership etc., the entity can be termed as the family business (Davis and Tagiuri). There are some unique characteristics of family businesses like- crystal clear, distinctive ownership and management, strategic vision for safeguarding as well as blooming, being with a common communication/language, room for out of box actions, multi- task handling, journey from subjectivity to objectivity, inclusion of family members who are not directly part of the business.

Methodology

This study can be regarded as quantitative as well as descriptive in nature. It also uses both primary secondary data collection methods for the presented analysis. Primary data is collected through unstructured/freelance question answer session with the owner's family members backed by a kind of storytelling. This was thought in order to receive as much of the random observations/inputs/assertions by the owner. A structured questionnaire was also designed and used to collect data so that more insights could be brought. This enabled the comprehensive, broad spectrum grasping of the proposed study. The concept of Kaizen was utilised for broader data collection. A group of students of post graduate department of business administration and research was chosen to utilise the nascent thought process and more exploration. Secondary data is collected from related newspapers, journals, surveys, and internet (official Government websites, portals of marketers and esteemed media houses etc).

Khandelwals': The Concomitance

Succession planning is a forward looking process that ensure the effective performance and transition of the business by providing coaching for leadership development and replacement while retaining family harmony and goodwill. Succession planning involves.

The objective of this case study are to capture the unique and eternal entrepreneurial traits of the protagonist and to identify the process of succession planning of the business of Khandelwal jewellers through its six generations without any disintegration of the original business and through a smooth transition.

Six generations of Khandelwal Family have carried on the business. It is a huge family as shown in the annexure no – 1. The chart shows the huge banyan tree of the khandelwal family indicating its six generations. It took the following route to reach the present shape of khandelwal jewellers.

The Odyssey

Khandelwal family very smoothly expand their business from one generation to another generation. About Ninety Years ago Late Sadaramji Khandelwal Native of RajsthanStarted a small business of Textile. After that his son Late Bikamchandji Khandelwal continues his business by selling of utensil. Then A great Social Worker Late Shri Shankarlalji Khandelwal Son of Late Bikamchandji, brought into the the reality by his son Shri Madanlalji Khandelwal and touched to the height of sky by his enthusiastic grandsons Mr. Nitin and Mr. Ravindra.

Mr. Nitin and Mr. Ravindra the fifth generation of Khandelwal family give the wings of the family business of Khandelwal Jewellers.

Mr. Nitin and Mr. Ravindra Khandelwal are the decision maker of the Khandelwal jewellers. Mr. Harshal Khandelwal just join there business about 2 year ago and Mr. Pratik Studing in Landon. Then all event organization decision taken by Mr. Harshal.

The Midas Touch

Mr. Nitin Khandelwal the founder member and chairman managing director of Khandelwal jewellers (Akola) Pvt. Ltd, the state of Art an ISO 9001-2008 and Trust Mark certified and BIS (Bureau of Indian standards) Chain of showroom. He had promoted a very good project for akolians – city Sports club house with luxurious cottages, swimming pool, well equipped gym and many more. He a also a director of Ganpati Moulders Pvt. Ltd, Aurangabad a company which manufactures plastic and plastic moulded equipments. He is also a director of

Chintamani Housing and Infraspecs Pvt. Ltd, Thane. Mr. Nitin and Mr. Ravindra Khandelwal are the decision maker of the Khandelwal jewellers. Mr. Harshal Khandelwal just join there business about 2 year ago and Mr. Pratik Studing in Landon. Then all event organization decision taken by Mr. Harshal.

KJ3 – The Knack

Khandelwal jewellers always believe in total satisfaction , comfort, transparency and better service for there valuable customers. For that they are only one in Akola , had adopted and activated all modern systems.

KJ1 is furnished on multi levels on wide area, where as KJ3 is a 6 floor stand alone building, well constructed on an open to sky ground. To capture the elegance of jewellery with unlimited pleasure Khandelwal jewellers has provided following facilities at showroom.

Khandelwal jewellers Pvt. Ltd is one of the largest jewellery shop in Akola

- Two way entrance
- Huge waiting lobby
- Air conditioned
- After Sales Service
- Free Karat Meter Service
- High Tech but personalized service
- 2/4 Wheeler valet parking
- Spacious Showroom
- Separate old gold buying facility
- Musical Atmosphere
- Quality Control Departmeter
- Bridal lounge for bride and groom
- Fully Computerised
- BIS License Holder(Hallmark)
- Trustmark certified jewellers.

They have also provided the good facility of Refreshment and Lodging Room for outstation customers.

The Enactment

Khandelwal jewellers deals with the wide range of Traditional as well as fancy jewellery. They are one of prime sales promoters for the various for the Brands of National markets. They have good no. of customers in our fold who rely on us for purchase of valuable stone and diamond jewellery. Trust, Purity, Transparency, complaint resolution are the qualities of the Khandelwal jewellers. They are the best design provider and focus on customer demand. They follow Customisation. They work with government rather than following their rules blindly. During Covid 19 pandemic they provide their customers home delivery and shows their designs to their customers by online platform and also they motivate their customer to buy jewellery rather than spending it on another expenses due to covid 19. And they also advise their customer that jewellery is the one kind of investment so invest your money in bad time. SSo due to this they gain profit in covid 19 period. By this way they handle their business very smoothly during covid 19.

The Jewellery in the Khandelwal jewellers is customer based, aesthetically appealing jewellery maintained in wide variety at the lavish showrooms. Many renowned jewellery showrooms are the regular bulk buyer of KJ. They have good relations with other gold silver sellers.

The uniqueness of of KJ are they provide 3D design, Quickest seller, latest trend follower. They also provide design by sketch design.

The KJ manufactures gold and diamond to highest standard of its purity and quality. KJ has many examples of carving skills and dedicated work like

- Rani Sati Temple Akola & Amaravati
- Jain Temple at Bhadravati
- Four feet high weighted 80 kg lord Ganesha at Aurangabad

A Marketing Exemplar

KJ have been proven to be very wise in designing "STP" strategies. The segmentation bases, targeting acumen and positioning possibilities have been identified, chosen and implemented in a unique manner. Various bases of segmentation like socio-economical parameters, demographics, geography, psychographics, AIO (activities, interests, and opinions) have been utilised to modify overall functioning. Not only this but even some bases of segmentation which are analysed by big organisations and multinationals are also taken care by KJ. Value segmentation, usage segmentation, loyalty segmentation are some of these. Contrary to this, to get rid of a very small percentage of customers who may enjoy the special treatment and then walk back (treated as superficial segment), are also studied and a good number of those customers are converted into positive catalysts. Marketers strive to achieve a distinct/different/distinguished position in the minds of the target customers. This strife indicates the vitality of the positioning strategies. Features/attribute positioning, benefit positioning, competitor based positioning, user positioning, application based positioning are some of the ways to better position the product/services/brand/offering. KJ has been trying 2-3 of such positioning ways. Value is a core feature in this context for them. They have give the elegant touch of occasional marketing/festivity marketing to positioning and blended it with beautiful emotional appeals. For example, Raksha bandhan, Diwali, Dussehra, Navaratri, Karwa Chauth are some of the festivals during which they have used social media creatively and launched "Swarna Mahotsva" (Gold Festival) for five days or a week.

The Recasting

Interestingly, KJ had experimented with the concept of "Two-step flow of communication". Instead of communicating everything, every now and then to an individual customer, they had chosen some loyal customers who were highly satisfied with the offerings by KJ. These customers were requested to express their opinions and views towards the jewellery they purchased. Thus, the periphery of the family members, friends, neighbours and relatives gradually became part of KJ as first time, then occasional and then loyal customers. This was perfectly cost-effective as the catalyst loyal customers were not at all given any monetary benefits, even when they were asked for the same, they denied it on the basis of a touch of informal relationship.

Vidarbha region of Maharashtra state includes several districts of which Akola happens to be one. The nearby two districts – Washim and Buldana are also inclined for purchases from Akola, particularly wedding related purchases like clothing and jewellery. The population of these three districts is together around fifty five lakhs according to the previous census. KJ is believed to be the foremost trustworthy name for such a vast population for purchases of all kinds – from milligrams to bulk ones.

Conclusion

India is witnessing a prolonged, exuberant and indispensable metamorphosis. The statistically and really young country is on its pursuit of probable business avenues. Pioneering of ICT (Information and Communication) technology has added colours to this very phase. One proactive step in this context may be visualised in encouraging the young generation to revamp and build on the previously existing mediocre business set-ups. The experience of founders and the versatility/vigour of the tech savvy youngsters will beyond any doubt elicit win- win scenarios. The beauty of Khandelwal Jewellers resides in the truth that they have destined to operate in the rural and semi-urban arenas. Innovative mindsets will assist the overall economy if such instances are replicated. Eventually, it's a matter of pride when a beginner from unorganised sector stands as a spectacular example of mastering business and achieving milestones. The old maxim has to be altered for Khandelwal Jewellers. Contemplating their golden era, it should go as "All that glitters is certainly gold".

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Inclusiveness of Scheduled Castes Entrepreneurs into Entrepreneurship: With Reference to Role of DICCI in Promoting Inclusiveness

Rajesh B. Sasane

Abstract: *The primary purpose of this paper is to study the inclusiveness among the scheduled castes entrepreneurs. After going through the literature, a gap was identified that a lot of work has been done in promoting entrepreneurship among the depressed classes but no such work was observed regarding examining the sustainability of the existing entrepreneurs. This paper is an attempt to study the inclusiveness among the scheduled castes entrepreneurs into entrepreneurship and the role played by DICCI in promoting inclusiveness among the scheduled castes entrepreneurs.*

Keywords: DICCI (Dalit Indian Chamber of Commerce), Entrepreneurship, Inclusiveness, Sustainability

Introduction

The Constitution of India guarantees equality of law to all its citizens and this guarantee applies to all aspects of national life-including social and economic. This provision was meant to be a tool especially for the up-liftmen of those sections of the population that hadsuffered deprivation for long periods in history owing to the pernicious caste system. One such section is that of Scheduled Castes. According to the Economic Survey 2017-18, Scheduled Castes constitute 16.6% of the total population of the country (2011 Census) butcontinue to suffer on account of severe socio-economic deprivation arising out of poor assetbase, dependence on wage labor, subsistence level of farming, engagement in scavengingand other unclean jobs and other social evils.

However a lot of steps have been taken in past and many schemes had been drafted to develop entrepreneurship among the depressed classes. But very few or rather I would say minimal steps have been observed which had examined the sustainability or the inclusiveness aspects of the entrepreneurs who have been created by these schemes. If the schedule caste entrepreneurs are not inclusive then there is no point in going ahead with these schemes. This study is step in studying the inclusive aspect of schedule casteentrepreneurs which will pave the way for their future growth. Inclusiveness is a general feeling of acceptance of one's unique individual characteristic and point of view by members of his or her immediate work group and the industry as a whole. Thevariables selected to measure the inclusiveness here are Industry Culture, Diversity Climate, Fairness, and Belongingness & Uniqueness.

DICCI being the first chamber of commerce for the depressed classes had turned the tables fordepressed classes' entrepreneurs. By providing a hand holding support in every step to the entrepreneurs, it came as a blessing. This paper will study the role of DICCI in promoting and developing entrepreneurship amongthe schedule castes entrepreneurs and will state the inclusiveness of these entrepreneurs into entrepreneurship.

Literature Review

According to Planning Commission (Niti Ayog) in their study entitled "Entrepreneurial Challenges for SC Persons in India: A Research Study", what lacks is vocational training. While this may not always be necessary for running a low- skill business, such training would definitely enable the setting up of more skill-oriented businesses that would fetch a better return.

According to Iyer, L. Khanna, T. Varshney, A. (2011), in their study "Caste and Entrepreneurship in India", Harvard Business School explored the SC enterprise owners might thus be disadvantaged by their relatively smaller networks, particularly in urban areas. Testing these kinds of hypotheses would require measuring such networks at local levels than the state levels. We see our work so far as documenting some of the basic facts about caste and entrepreneurship, and leave it to future research to understand the deeper mechanisms behind the observed facts.

Thorat and Sadana (2009) combine evidences from the published Economic Census and National Sample Survey data to present confirmation of continuing inter-caste disparity in ownership of private enterprises.

Deshpande A. and Sharma S, (2013) find it clear and persistent that caste and gender disparities are in virtually all enterprise characteristics in the registered manufacturing MSME sector over 2001-02 and 2006-07. The share of SC-ST ownership has declined over the period, SC-ST enterprises tend to be smaller, more rural than urban, have a greater share in owner-operated (single employee) units.

Objectives

In specific terms, the objectives of the study are as follows:

1. To study the fairness experienced in exploitation of market opportunities byscheduled castes entrepreneurs.
2. To study the role of DICCI in promoting and developing inclusiveness among scheduled castes entrepreneurs.

Hypotheses

The following hypotheses have been developed in tune with the objectives of the study and tested.

H_1: There is a significant relationship between education and business opportunity identification and exploitation by scheduled castes entrepreneurs.

H_2: There is a significant relationship between the role of DICCI and Inclusiveness of schedule castes entrepreneurs.

Methodology

The study is largely based on Descriptive approach. It entails collection of information from primary and secondary sources.

Primary Sources

- Structured Questionnaires were filled through surveys (Online & Offline).
- Focus Group Discussions

Secondary Sources

- Scanning Government Reports
- Journals and Record Books, etc.
- Community establishments helping SC entrepreneurs working for entrepreneurial development of SCs
- Books, Magazines
- Company reports

Sample Design: Non Probability Sampling

Sample Universe: Entrepreneurs registered with DICCI

Element Sampling Unit: One Schedule Caste Entrepreneur.

Sampling Techniques: Convenience sampling

Sample Size: 30

Testing Hypotheses

H_1: There is significant positive relationship between education and business opportunity identification and exploitation.

Regression Results

Regression Statistics	
Multiple R	1
R Square	1
Adjusted R Square	1
Standard Error	1.182E16
Observations	30

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	15.5	15.5	1.109E+33	0
Residual	28	3.9135E-31	1.3977E-32		
Total	29	15.5			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	3	2.26248E-16	1.326E+16	0	3	3
Fairness	1	3.00287E-17	3.3301E+16	0	1	1

Interpretation

The values received after testing the hypothesis such as R= 1, $R^2 = 1$ confirms the correctness of regression analysis. Significance of F = 0 and with P Value 0, the Null hypothesis stands rejected.

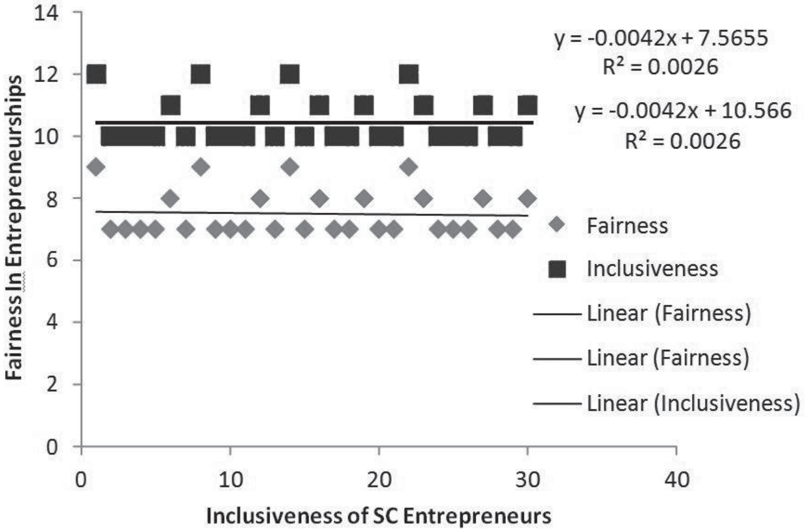

Figure 1

H_2: There is a significant relationship between the role of DICCI and Inclusiveness of schedule castes entrepreneurs

Regression Results

Regression Statistics	
Multiple R	0.144067797
R Square	0.02075553
Adjusted R Square	–0.014217487
Standard Error	0.524519843
Observations	30

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.163276836	0.163277	0.593473	0.447531053
Residual	28	7.703389831	0.275121		
Total	29	7.866666667			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	3.872881356	0.520055763	7.44705	4.13E-08	2.807595417	4.93816729
DICCI's Role	0.144067797	0.18701074	0.770372	0.447531	–0.239006338	0.52714193

Interpretation

The values received after testing the hypothesis such as R = 0.144067797, R^2 = 0.02075553 confirms the correctness of regression analysis. Significance of F = 0.593473 and with P Value 4.13E-08, the Null hypothesis stands rejected.

Conclusions

In the light of the analysis made in the study the following conclusions are drafted.

1. It can be concluded that there is no significant relationship between fairness experienced by the scheduled castes entrepreneurs in exploiting market opportunities.
2. It can be concluded that there is a significant relationship between DICCI's role in promotion & development of entrepreneurship.

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Potential for Rural Economic Development Model in Tribal Pockets of Nimad Region, Madhya Pradesh – An Enquiry

Wechansing Z. Suliya and Mahesh S. Gaikwad

Abstract: *Attitude is everything which makes one move for desired destination. Analysis of need is crucial in any business along with right attitude. Proper use of rural potential and culture form rural area can lead mutual entrepreneurship. Small flow of money will be sufficient to rural business. Rural people are doing their farming but along with farming they should do farming-linked business as supportive to their economic status. There is chance of growth; rural people can install new small venture with the help of Government of India's Schemes; like Mudra Loan, Startup India, Standup India and Skill India. Government of India is supporting to entrepreneurship and countryside people have chance to grow in presence of basic raw material, i.e. water and land. Raw material and human beings have a potential which can grow easily. The only need is to use all things at optimum level in efficient manners.*

Keywords: Attitude, Potential, Mutual Entrepreneurship, Optimum Level

A Need to Identify Employment Opportunities

The sense of real rural economic development is hidden in attitude of rural populations. Sources of raw material are there in rural area but there is lack of planning for using that raw material. Rural people can run small business with the help of raw material available in their area. There is more space (land) for movement and raw material processing. There is rich source of unskilled manpower which needs to be trained through on job training program.

Table 1: Need Based Business Opportunities in Rural Area

Sr. No.	*Raw Material*	*Needs*	*Business Opportunities*
1	Agricultural Produce	Processing	Agricultural processing Units
2	Water	Processing and better use	Drinking water for better health.
3	Population	Effective skill development	Manpower Training
4	Forest Produce	Processing and transportation	Processing Unit
5	Population	School, service center, dispensary, online center, cloth, services related to food, service related to infrastructure development.	Business as per demands
6	Land	Farming, Nursery, Playground, Agricultural processing units	Business as raw materials
7	Knowledge of people	Mental growth	School, library, service centers

Government can enrich transportation facilities for movement of goods from rural area to urban area. Almost 90% agricultural produce came from rural area to urban area without any processing. Installment of processing units can lead to employment in rural area. Need is the mother of any business and identification of the real needs are the backbones of any business.

There is need for inculcation of culture and business for betterment about rural economy in rural minds then rural people can enrich the thought process for better outcomes. In Assam there is a kid song scatters the praise of sportsmanship. So there are more playgrounds in North-East India and more players as well. There is huge potential in rural area for skills development and its up- gradation so, there should be support from family members for enriching small business. Rural women have one great potential and they can enrich their business growth through handicraft and handmade products. There is big demand of hand-touched products in urban market which can enhance the employment opportunities of rural population.

Real Motivation for Able People

'Aanandwana' people who are disabled by their hands can design good products than people who have hands. People have potential and hidden skills but there is a need to develop their skills through on job training and off the job skill up- gradation. Government of India launched 'skill India' in 2015 and initiated new funding for it. Rural people and training institutes should contribute their hands in real skill development. Small Businesses do not require big infrastructure and setup for its growth it is easy to run at home as per conveniences and availability of money. All small businesses can make their own hub and locate them at center place of village. The objectives of research paper are as follows.

1. To create awareness about the available raw material in rural area.
2. To educate about opportunities of business in processing of raw material.
3. To explore opportunities for installment of services in rural area.
4. To empower rural people for starting small business in rural area by using Government schemes.

Literature Review

1. Dr. APJ Abdul Kalam – Former President of India developed 'Providing Urban Amenities in Rural Area (PURA) model and decided to develop physical, electronic, knowledge and economic connectivity. PURA model has failed due to large targets and huge capital requirements because all development is not possible in small duration; it needs bigger time for changing the attitude of local people.
2. Mahatma Gandhi – The father of the nation had a view that 'real India is located in villages' so, he told, 'Move towards villages'. He developed Swaraj model for democratic decentralization as well as cultural, economic and mental growth of rural people. The model succeeded in one sense but effective use of raw material for finished products is lacking even today.

3. Nanaji Deshmukh – After retirement from political movements, Nanaji Deshmukh worked for rural development up to death. He extended thoughts from his close friend Pandit Dindayal Uppdhyay and worked for humanity under 'Model of Integral humanism'. All human are same and everyone has right to live better was the concept. Nanaji Deshmukh transformed the living standard and education in rural area as per expected outcomes.

The excerpts from the literature above motivated researcher for developing this paper so, researcher enquired more to fill the gaps and lacunas in contemporary times.

All Able Hands should Move as Contributors

Money should be in rural hands but distribution of money is not equal till today. There are many reasons, Poor are poorer due to their less efforts, lack of will and there is no desire for growth amongst those belonging to bottom of the pyramid. The maximum money accumulated in rich hands so; there is less scope of improvement in standard of living. Standard of living does not wholly depend upon money but it is one factor for enriching better life. Distribution of money is possible when all hands will move equally for work. Everyone should work for own betterment otherwise the unequal distribution in society will increase. Economic stability can enhance standards and quality of living. Economic disparity should be minimizing through constant awareness and continuous effort for rural entrepreneurship.

Required 'Planning for Rural Potential'

There is potential like source of water, natural resources, agricultural crops and human power. Water can create alive land. Natural resources have its own value and it can raise the value through processing and use. Crops would be valuable through its processing, cleaning and sorting. Proper management of water, utilization of natural resources, planned processing and transportation of agriculture produce and proper planning & utilization of human potential can enhance the rural economy.

Need to Raise Rural Leadership

Followers are many and initiators are less. Followers only follow instructions but initiators can initiate the task and think out of box. Initiators can break the traditions and make new kingdom of growth and economy. In farming sector, land reformation and land composting are examples of rural leadership. There can be many icebreakers in economic development. Attitude of rural people should change for leadership and 'growth mind set'.

Birth of Rural Employment

Job is not only kind of employment; rural people should understand kinds of indirect employment other than job. Unemployment can spoil the peace of the nation because unemployed youth may move for money in wrong purposes. Government of India is creating indirect employment through motivation for entrepreneurship, which should be identified and understood by rural people. Rural population can go on the way of indirect employment after its identification. Government of India initiated many schemes (Mudra Loan, Startup India, Standup India, PMEGP, etc.) for motivation of rural entrepreneurship and economic development.

Mutual Actions and Benefits

In Indian phrase, 'we can kill two birds from one stone'. One stone or one action should fetch two or more than two aims. In rural development; management of two goals is possible through one action. Examples of managing two goals in one action are as follows.

Table 2: Table Shows – Managing Two Goals in One Action

S. No.	*Action*	*Goal-1*	*Goal-2*
1	Digging well	Confirming water source	Utilization of clay for home construction, bricks and farming.
2	flooring House	Flooring first home	Flooring second home
3	Digging home base	Digging Base-1	Using Clay for other home.
4	Wheat cleaning	Wheat sorting	Wheat packaging
5	Vegetable farming	Market	Food for animals

Employment in Education

Education has many forms and it can create opportunities of employment. According to survey of Dainik Bhaskar, in January 2022, there are 1.2 lac schools in rural area which have only one teacher and there is requirement of 11.16 lack teachers. There will be huge opportunities for employment but need is to enhance schooling service though coordination of Gram Panchayat or private sectors. Gram Panchayat can handle and improve quality of schools through their administrative body. An estimation of employment opportunities in one village is as follows per 1,000 people.

Table 3: Total Minimum Estimated Employment Per 1,000 Population is 132

S. No.	*Need*	*Kind of Employment*	*Estimated Employment Count*
1	School up to 7th standard	Teaching and non teaching	10
2	Food	Kirana Shop, flour mill	4
3	Agriculture	Minimum employment	Average 50 per day
4	Transportation	Minimum employment	6
5	Health	Dispensary	2
6	Online Center	Computer Operator	2
7	Nursery school	Teacher and Assistant	2
8	Food processing and packaging center	Supervisor and workers	50
9	Carpentry	Carpenter	2
10	Home Builder	Home Builder	2
	Total Employment		132

Effective Use of Government Schemes

There are many government schemes for rural development but rural development is in developing stage. Identification of needy people with their potential may be a crucial step for rural development. Actual implementation of schemes is fine but targeted people might be different as per the purposes of schemes.

Table 4: Government Schemes as Per Potential

S. No.	*Sample Name of Farmer*	*Land and its Potential*	*Schemes*
1	Anil	Potential for producing any crop	Schemes for All crops
2	Bina	Potential for producing any vegetable	Schemes of vegetable
3	Chetan	Potential for animal farming and composting	Schemes of animal farming and composting
4	Devika	Potential for medicinal plant farming	Schemes for medicinal plant farming
5	Eknath	Potential for playground and construction	Land must use Construction

Techniques to Enrich Potential

- Optimum and proper utilization of land and water.
- Proper utilization of manpower.
- Skilled development of manpower for better results.
- Maximum utilization of machine and animal manure and power.
- Utilization of manure and wastes for composting
- Utilization of human talent and potential for better productivity.

Need to Change Attitude

Covid-19 has lead to unemployment in rural area. Labor forces have migrated from urban area to rural area during lockdown. Many educated youth are wandering without job and work. Work is everywhere one only needs to search it and fetch. Jobs in Government section are limited and jobs in private sector are very less. So, Self-employment is a better option. People can enrich their economic condition through self-help groups and self employment. Government of India is providing helping hands to self-employment through different schemes; youth can take benefit of it. Self employment is the best and evergreen avenue.

Table 5: Unemployment in Nimad Region

District	*Male*	*Female*	*Total*
Khargone	35498	35498	57439
Khandwa	22094	16362	36456
Badwani	23073	13979	37052
Burhanpur	13701	5799	19500

Source: Khandwa Bhaskar, 03-02-2022.

The Concept of Overnight Economy

There are many thoughts regarding 'sleep'. Medical experts have opined that 'sleep is required for 8 hours'. Despite this, someone believes in 10 hours and someone believes in only four hours. Deputy Mayor of Indore has thought 'night time economy' we should think on his thought because Indore is five time winner as a clean city of India. According to deputy mayor of Indore "night time economy can enhance GDP by 10%" 'Villagers should work more up to night 8 p.m.' is the concept. This is only concept for economic growth not at all a force. Economic growth of villagers is also hidden in work timings, patterns of working and workers management.

Employment in Health Management

Cleanliness is the primary action for better health. Better health can lead to positive mental condition which can make good decisions. Good mental condition will have many outcomes such as standard of thinking, standard of living, maturity of thoughts & behavior, understanding nature and good relationship. Cleaning services along with composting can enhance the quality of farming which enrich the organic farming. Liquid composting is also rich source and new way of self-employment. Action of cleaning can create direct and indirect employment. Cleanliness is one major corner of development of village economy.

Employment Through Agriculture Processing

There are many crops taken in rural area; such as wheat, rice, pulses, soya bean etc. Actions of processing such as harvesting, cleaning and sorting create opportunities of employment. In rural area, there's huge manpower with working attitude available in Nimad region. The manpower can be used for the purpose of processing. Currently, cleaning of chilly is going on with almost 500 labors per chilly cleaning center. There is on an average one chilly center per 5 villages in Nimad region. As per the observation, most of rural labors depend upon employment through chilly cleaning centers.

The Problem of Forced Labor

Population migration is a big problem of Nimad region. 'Bundhua majdoor' is an issue with labor which is also called forced labor. People have secured their family by asking money from landlord and working in their land as per their contract. Rural people have less financial literacy and hence they get cheated. The problem is currently going on due to unawareness and illiteracy of labors.

Rural Tourism is an Employment

Happiness is a desire of everyone and anyone wants to enjoy the life; people enjoy it through tourism. Urban people want to wander in rural areas for the sake of changes and enjoyment. Nimad region is hilly region and rural people can develop it as a natural tourist place in that area. Rural farming, waterfalls, and rural food are the attraction for urban people. Villagers can install small tourism unit for urban people as a farm house or providing popular rural foods; so, employment can generate through rural tourism.

Employment through Bamboo and Other Craft

Bamboo is one raw material through which rural people are doing their home-business. There are many other raw materials for rope. Following are the details about raw material and potential for development of new products.

Table 6: Raw Material and Employment through New Products (Potential)

S. No.	*Raw Material*	*Employment through new products (Potential)*
1	Bamboo	Supda, Tokri
2	Raw Cloth	Ropes and Godhdi
3	Raw threads	Ropes
4	Wood	Carpentry
5	Food	Special rural food packets

As per identification of raw material, numbers of product can be increased and employment can be accelerated.

Conclusions

Rural area can develop through continuous effort of local people; the only need is correct identification of rural potential. The problem is the mother of solution so rural people can find out opportunities though problems. Rural people should understand that; 'Fulfillment of any need is the birth of new businesses.' Rural people have space for starting new venture. The only need is to identify real needs of that area. 'Small changes in methodology may give large outcomes.' There are many factors affecting on productivity of grain such as, weather, rainfall, temperature, quality of soil and methodology of work etc. There is need to change attitude, thought process, effective knowledge-sharing, understanding ability, relationship for sustainable rural development in Nimad Region. Above observation and opportunities can change the rural life so, there is need of mutual entrepreneurship in rural area for fulfilling needs of village.

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Recipe for Inclusive Growth – Women Empowerment

S.M. Mishra, M.A. Dande, P.M. Kuchar and Mamta Korde

Financial Inclusion – Current Scenario in India

India is considered as one of the fastest-growingeconomies in the world. We are growing by leaps and bounds on the economic front. But still, the poorest section of society is suffering due to malnutrition. As per the recent report of Global Hunger Index 2021, we stand at the 101st rank out of 116 participating nations. One of the factors that fueldeath due to hunger is poverty. Still, 25.01% of the population is below the poverty line. India is considered to be a male dominant society and it is a general perception that males will earn to meet the end needs. With a sole earner in the family, the annual income of the household is less.Therefore, it is difficult for the low-income group to meet their end needs. In our society, a working woman is not considered to be good, it is evident from the fact that female participation in the labor force is meager 16.1%. Eradicating poverty is one of the millennium development goals, across the world governments, have taken the step in the same direction to reduce the number of people living below the poverty line. In line with the development across the globe, the government of India (GOI) in the past had introduced many initiatives to eradicate poverty, Financial Inclusion policy is one of them and it has been successful up to some extent in bringing the unbanked or underbanked populace in the realms of the formal banking services.

Financial Inclusion is one of the programs which is widely accepted as an instrument to reduce poverty and pull theBPL population above the poverty line (APL).Since a majority of the population is still unbanked that is having no access to the formal source of finance. Hence, the inaccessibility of banking and financial services poses one of the major constraints in achieving the goal. The scenario of the rural pockets of the country is grimmer than the urban regions. Currently, only 27% of the farming household have access to financial services, still, 73% of the farmers don't have access to the same. A majority of the rural population rely on private money lenders for their financial need (Ramachandran et al., 2001). In the turn of the financial help, the private moneylenders charge a hefty interest from the borrowers. Any economy which is an agrarian country cannot think of inclusive growth without addressing this issue. It will be like "Growing grass without roots" (*Tamal Bandyopadhyay: Credit without Roots | Business Standard Column*, n.d.).

Banking services are central to the challenge of financial inclusion(*"Banking the Unbanked": Banking Services, the Post Office Card Account, and Financial Inclusion Thirteenth Report of Session 2005-06 Report, Together with Formal Minutes*, 2006). One of the typical reasons for poverty is being financially excluded(Ravichandran & Alkhathlan, n.d.). Financial exclusionimposes significant costs on individuals, households, and society as a whole. Lack of access to a bank account can be a significant barrier to employment and enterprise. The unbanked can also face higher charges for cheque cashing and utility bills (H. M. Mishra et al., 2013). Providing access to a bank account needs to be the foundation of the Government's strategy for promoting financial inclusion.

Thus, to promote Financial Inclusion, RBI came along with a policy framework to provide access to the Financially Excluded people in the year 2005. Since thenseveral policies and initiatives have been introduced to reach theunderprivileged people. Policies such as Bank savings and Bank Deposit accounts, No Frills accounts, Relaxed and Simplified KYC norms, Relaxation in opening new branches, Business Correspondent model, and many more.

The path-breaking initiative was introduced on the 15th of August 2014 by Honorable PM Narendra Modi under the name of Pradhan Mantri Jan Dhan Yojana (PMJDY). It is considered one of the most successful Financial Inclusion Schemes across the world. Under this scheme, the objective was to first bring the underserved population into the realms of the Formal Banking Services. As per the Government of India around 44.23 crores, Jan Dhan Account have been opened till date out of which 29.54 crore accounts were held in the rural and semi-urban banks. Under this scheme, a very promising step towards eliminating gender inequality can be visualized, around 24.61 crore account is held by women (*Deposits in Bank Accounts Opened under Jan Dhan Scheme Cross ₹1.5 Trn | Business Standard News*, n.d.). Approximately 50% of the total population of our country comprise of women. If a country wishes to make inclusive growth, we need to focus on them as well. Women's participation in economic activity will boost the growth rate significantly.

Mohd. Yunus is considered the father of microfinance and microlending. He established Grameen Bank – The Bank for the Poor, Bangladesh tooffer microloanswithout any collateral to the Basket-weavers. Grameen Bank project has sanctioned loans, over $ 8 billion with a near 100% repayment rate, to more than 8.4 million people out of which 97% of the women population has been offered microloans.With this experience, he once said Women are at the center of our economic activity(*Professor Muhammad Yunus – Women at the Centre of Our Economic Activity | UN Women*, n.d.).

Why do we need to rethink the Financial Inclusion strategy?

SKS microfinance was one of the leading Microlending institutions in our country. It started its journey from Telangana and Rayalseema (Erstwhile known as Andhra Pradesh). The state government banned the organization since the firm had deviated from its primary objective. The borrowers of the organization were forced into a debt trap. Instead of using the borrowed fund to start a microenterprise, the fund was utilized in buying home appliances. This revived the question of how to help the hard-core poor without forcing them into the debt trap (*In West Bengal, Cashless Microfinance Opens Doors for Women – The New York Times*, n.d.).The management of the Bandhan group was having a different strategy to help the poorest section of the society. They were having their main objective 'to work with the women who are socially disadvantaged and economically exploited' (Bandhan::Background, n.d.). Bandhan

Pvt. Ltd., considers that women can play a key role in eradicating poverty. Since 70% of the world's poor are women (*Why Target Women? Promoting Gender Equality and Decent Work through Microfinance in Tanzania*, n.d.). Nowadays, FIs are focussing on women and severalwomenmicro-entrepreneurshave succeeded. But still,the reach of FIs is limited and the performance is not up to the mark. According to the Bureau of International Settlement in fintech products,a gender gap of 8% exists(Chen et al., 2021). Hence, reframing the financial inclusion policy is a must.

Women as Change Agents

A well-developed body of literature shows that closing the gender gap in financial inclusion could have positive effects in smoothing consumption, lowering financial risks and costs, providing security, increasing savings, and investment rates, and facilitating new business opportunities (Trivelli, Pels et al., n.d.). Women can contribute to growth not only by building businesses but also by better managing their financial resources. Having access to and use of a range of financial services enhances not only the contribution of women and women-led businesses to grow but also contributes to women's autonomy.(Trivelli, Marincioni, et al., n.d.)It allows for better use of their personal and household resources and reduces the vulnerability of their households and businesses (*How Blockchain Can Be Used to Promote Gender Equality – CoinDesk*, n.d.). In other words, eliminating the gender gap in financial inclusion can act as an enabler of countries' development, economic growth, inequality reduction, business evolution, and social inclusion.

Many methods were implemented across the world to alleviate the livelihood of the bottom of the pyramid. Traditionally microcredit or microfinance institutions used to offer small loans to the borrowers. In it, the role of the MFI was limited to providing finance. No assistance was provided to the borrowers. Still, after offering microloans the impact on the livelihood of the clientswas negligible. Therefore, another initiative namely Self-Help Group(SHG,1975) was envisioned by the founder of Grameen Bank, Dhaka. The primary objective of forming SHG was to empower women and to improve the livelihood of the group members as well as their households. The SHG was a great success and it attracted the attention of all the nations and India was not an exception. Motivated by the success of the SHG program NABARD introduced it in the year 1991-92(Chapter-4 Self Help Groups Strategy 4.1 Historical Background of the Self Help Groups (SHGs), n.d.).

In India, there is a famous saying that "if you educate a boy, he can change one generation but if a girl is educated then she can change seven generations". Therefore, the need of the hour is toknit strategies specifically targeting women. For a country like ours which is a developing nation, the female participation rate in the labor force is very less in comparison to the developed nations. This hampers the financial condition of the household as well as the economy as a whole. The financialinclusion of women can transform the current scenario and the basic objective of providing a better standard of living to the citizens will be achievable.

Graduation Approach

The Graduation approach was conceptualized based on the Bangladesh Rehabilitation Assistance Committee (BRAC) experiences of tackling extreme poverty in Bangladesh. In a snapshot, BRAC's Targeting the Ultra Poor model aims to 'graduate' the poorest households, through a holistic set of interventions, into microfinance in a period of 24 months. The Graduation approach distills the key interventions of this intricate program into five building blocks; targeting, consumption stipend, savings, skills training, and asset transfer. These inputs are carefully sequenced over a varying period of 18 to 30 months (based on pilot lessons) to 'graduate' households out of extreme poverty – typically female-headed or with an inactive male head, reliant on wage labor, food insecure, with no productive assets and many dependents.The graduation approach was developed by BARC (Sengupta, 2013).

The graduation model has gained a lot of momentum in the past couple of years and it has been widely used by the micro-lending organization to eradicate poverty. It was the first pilot-tested by CGAP and Ford Foundation across four continentsalong with 10 local partners. In order to access the changes in the lives of the borrowers. The program included both male and female participants. There was a significant impact on the livelihood of female participants'householdsin comparison to male participants' households. (*Graduation Approach Case Study: India/Ford Foundation*, n.d.)

In association with Axis Bank and Dell foundation in the year 2007 launched a pilot project targeting the hard-core poor namely ABHA (Axis Bank Bandhan Holistic Approach). In the pilot study, they identified such families which were having their only one source of income from informal labor or, begging. One of the most important criteria was that there should not be any able-bodied male in the household and school-aged children are working rather than attending school.(Hashemi & de Montesquiou, n.d.)

Under the pilot project, they selected 300 women. With whom they provided Consumption support with a small cash stipend of ₹114 per week. The duration of support was customized according to the kind of livelihood chosen by the participants ranging from 15 to 40 weeks. During this time period, the participants were, provided Financial Assistance by Bandhan Financial Services Ltd., encouraged to save at a minimum of ₹10 and any amount thereafter. Savings were voluntary and the participant can access them anytime they want. (Sengupta, 2013)

Depending on the livelihood chosen by the participants they were asked to choose a livelihood taking into consideration their viability and feasibility(S. M. Mishra et al., 2015). Bandhan's budget for assets was ₹3,000 for nonfarming livelihood and ₹5,000 for farming livelihood. Initially, participants were asked to join a training workshop for 3-6 days to acquire skills required to handle and care for assets& small businesses. At the end of the pilot project 96% i.e., 294 women graduated. The graduates were supposed to meet the following criteria: (Sengupta, 2013)

- at least two sources of income,

- eating at least two meals a day,
- having at least two fruit trees or vegetable trees,
- accessing safe drinking water,
- having secured housing,
- maintaining basic hygiene
- children immunization
- school attendance,
- access to healthcare
- participants will be able to write her name.

Findings of Bandhan Graduation Program

The beneficiaries of the Bandhan Program were able to improve their standard of living and their livelihood. As a household, they were more prosperous than before. As per the survey conducted by a group of IIM, Ahmedabadthe following were key findings:

	Clients' Outcomes	*Results*
1.	Change in Income	13.81% increase in annual income for Bandhan's client
2.	Change in Asset (Consumer Durable)	₹1,402 increase for Bandhan's Client
3.	Change in Asset (non-farm business asset)	₹15,588 increase for Bandhan's Client
4.	Change in food consumption/expenditure on food	₹1,780 increase for Bandhan's Client

Source: Bandhan Financial Services

Bandhan has kept such graduation criterion which improves the social standing of the participants.In this way, Bandhan was able to streamline the deprived and underserved populace with mainstream finance.

Promising Turning Point

"To empower a woman is to empower her children, her family, and her community. The smartest investment we can make is in women. Women must have the freedom and possibility to decide who they are."
– Barbara Bush

Women empowerment is the theme of all the strategies that are being implemented by Bandhan microfinance and Grameen Bank. The Bandhan Microfinance program that targeted the hardcore poor population (particularly women) gave the clients not only the capital to start their microenterprise but also provided the entrepreneurial skills and confidence to step out of the home. In the rural pockets of the country, the most difficult step for a woman irrespective of their marital status to step out of home and work. Carrying out a similar program on a larger scale would be difficult but the success of the participants promises a bright future.

The impact of the program is evident from the economic transformation. This program is being considered as the turning point in the lives of the participants. The support provided by the microfinance institution helped them in achieving their financial goals as well as freed them from the never-ending cycle of indebtedness. The economic stability that is provided is not limited to the present only. The parameter of the policy assures that the participant's household's future is secure as it focuses on – two meals a day, accessing safe drinking water, inclusive education, school attendance, maintaining basic hygiene, children immunization,access to healthcare, economic empowerment, access to safe drinking water, a tree to be planted, rotation of funds. Parallel endeavors can be traced in the functioning of Bandhan's founder Chandra Shekhar Ghosh, Grameen Bank's pioneer Muhammad Yunus and the allied graduation model.

An empowered woman through the graduation approach can bring the expected change in the society which can have a long-lasting impact on the livelihood as well as the economy as a whole. It will help the microfinance institutions to achieve the goal of inclusive growth, the time we are able to empower women we will be growing inclusively!

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EMERGING TRENDS IN INNOVATION

Assessing the Need of Personalizing Activities and Role to Drive Academic Innovation

Santosh Bothe, Monali Bothe and H.M. Jha "Bidyarthi"

Abstract: *In India there are 1043 Universities, 42343 Colleges and 11779 academic institutions offering higher education. Estimated total enrollment at higher education is 38.5 million as per All India Survey of Higher Education (AISHE) 2019. All the higher education students are expected to write at least 10 assignments, 02 project reports and perform 15 innovative activities every academic year, but most of these activities are exam and marks driven. If these activities are allied to the innovation needs of the country, it has a potential to transform the innovation landscape of the entire country. This paper presents a few classes of reasons as to how this student potential can be leveraged to drive innovation and theory by economy.*

Keywords: Innovation Landscape, Higher Education, Student Potential

Introduction

Innovation is the primary need of the business world as well as the society. Our country is in the dire need of Innovation and Entrepreneurship activities in academics. It has a potential to address the most pressing problems of the society in a cost effective and efficient manner, develop the economy and create self-satisfaction amongst the concerned individuals. All these factors feed each other, we therefore need to set up a platform to drive innovation in academia. Total manpower available for driving innovation is 385 lakhs students, and 38,986 students were awarded Ph.D. level degree during 2019. India has a total 15,03,156 higher education teachers registered on teacher's information format (TIF) of the government of India. These are massive numbers to drive innovation at any scale by any means across the globe. It is more than the population of some counties in the world.

These numbers need to be leveraged to drive and nurture the innovation landscape of the country, currently focused on examination, scoring good marks to secure the job. But if it is leveraged with a sustainable plan it has potential to solve all the challenges identified by the United Nations as sustainable goals ahead of its deadline in 2030. India is the only country in the world having this potential. Development should be essentially linked with the purpose of fostering and encouraging innovations, entrepreneurship amongst students, faculty, staff, alumni, any individuals or groups, interested and passionate for innovation and entrepreneurial activities in academia.

Our country, in general, and our region in particular is in the dire need of Innovation and Entrepreneurship activities in academics. It helps solve pressing problems of the society, develops the economy and creates self-satisfaction amongst the concerned individuals. All these three factors feed each other, we therefore have set up a platform for Innovation and

Entrepreneurship Development, with the purpose of fostering and encouraging innovations, entrepreneurship amongst students, faculty, staff, alumni, any individuals or groups, interested and passionate for innovation and entrepreneurial activities at academic institutes.

It is believed that innovation also helps in building the goodwill of any academic institution by way of solving problems of the society. The academic organization is expected to contribute a small amount of its resources solely dedicated to innovation and entrepreneurship which can result in wellbeing and improvement of society as a whole. In this competitive era there is always a pressure of price and quality competitiveness on all the industries. Academia has a potential to absorb this pressure by linking innovation and entrepreneurship with regular academic activities as shown in Fig. 1. Innovation and Project Based Learning (IPBL). It needs to have a long term plan, even if, organization sticks to the basic principle of teaching-learning. In this technology driven era everyone expects specially designed personalized solutions, it is a challenging task to understand case specific personalized solutions.

We are now having technologies to record, analyze and predict, using data gathered by organizations over the period of time. There is no shortage of incidents of data analytics of historical data resulting in formulating needed business innovation.

Innovation and Project Based Learning

NEP 2020 envisages that every institute needs to be converted to an autonomous degree awarding school. The institute should get established as a multidisciplinary degree awarding institute by 2030. Today, the regularly increasing gap between actual-expected outcomes of graduates is a serious matter of concerns.

Methodology to Drive Academic Innovation

Phase One

(a) **Pre-identified projects** in the domain of focus, e.g. Transport, Finance, Healthcare, Food and Agriculture to be initiated and form Special Interest Groups (SIG) for each domain. The SIG will include the Students, Alumni, Faculty and Collaborators as per the norms defined in "Innovation and Startup Policy of Respective Institute".

(b) **Introduce AI+ X**, where X is Healthcare, Agriculture, law etc. in line with NEP 2020. The teaching pedagogy: Innovation and Project Based Learning (IPBL fig. 1.) mode address these burning issues where assessment of knowledge and skill is based on the task/project performance. The academic assignment, practical, presentation and project to be carried out based on pre-identified need based planned projects. All teaching learning will be based on live collaborative/industrial projects jointly taught/supervised by industrial experts, scientists from collaborative networks along with regular faculty of respective institutes.

(c) **Content development:** The central content development facilities to be used for developing the eLearning material. The e-Content developed can be offered to our students as part of the regular curriculum and made available on the Learning Management

System (LMS) of respective institutes. It will help the faculty to manage IPBL with regular teaching learning. The time saved due to delivery of e-content can be utilized to motivate the student and drive innovation. After the pilot run and evaluation e-content can be converted to certificate, diploma or degree as the case may be and offered to learners outside institutes university to generate the additional revenue and make the activity sustainable.

(d) **The IPBL system** and e-Content are linked to Choice Based Credit System (CBCS) where students can choose the subjects and earn the desired credits for a respective degree in collaboration with Student Startups, SMEs and identified industries having verticals in the domains of focus. It can bring in a lot of innovation needs in each domain, which can be taken up by the learners as a basis for their degrees. The identified students need to work on the projects of their choice instead of doing traditional practical in lab under the joint supervision of faculty and respective scientist. (Long Term)

The IPBL Potential

Innovation

List of needed innovations to provide personalized solutions to consumers is to be prepared by the respective management students as part of their internship in the first year/semester of their degree. In the next phase focus on ICT based solutions involving relevant departments/

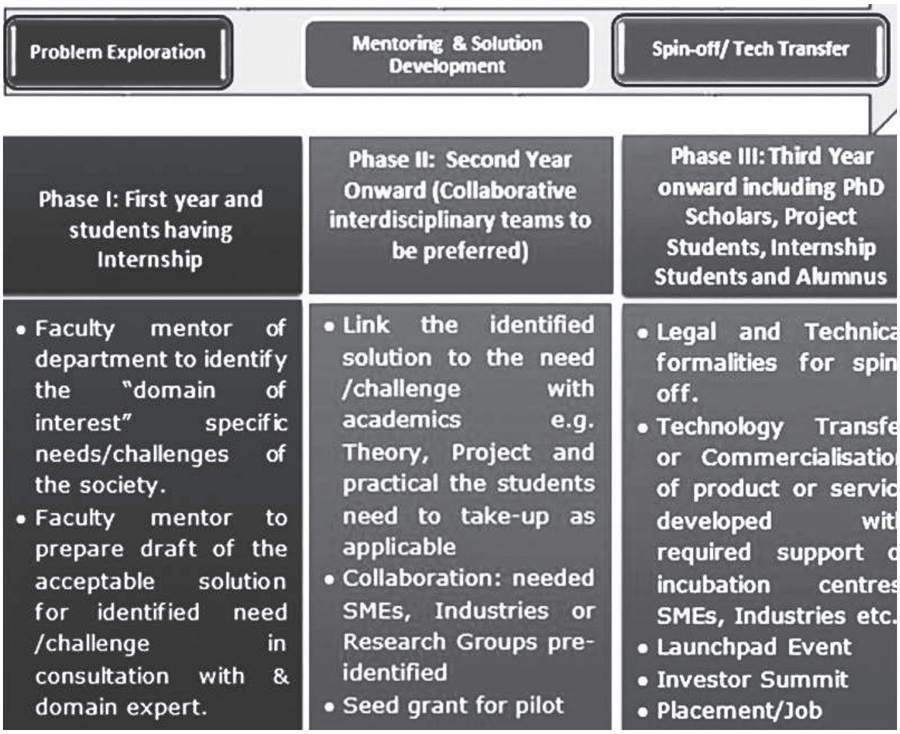

Figure 1: Layout of the Spin-Off Strategy of IPBL

schools. The academic requirements like assignments, practical, presentations and projects shall be linked with the respective proposed solutions. The faculty in-charge to establish the linkages with respective industry/SME/International research groups (already have identified research groups) in consultation with the innovation center and develop the solution in collaboration. The linkages can be utilized for the summer internships, projects, placement, technology transfer, commercialization, and collaborative project funding. Further, it can be linked with fellowships for students and funding for faculty. Students willing to start their own enterprise may avail incubation center and funding under suitable schemes by Govt. of India and other international funding bodies.

Creating Value

Earning of students and faculty by commercialization of service or product is an outcome of IPBL. IPBL is a unique mechanism and unmatched experience of ‘learning by doing’. IPBL outcomes can be brought onto commercial platforms in collaboration with SMES and profit earned to be shared with students and faculty as per the agreed terms from time to time. It will address the issue of cost effective solutions to a large extent and students can start earning before getting their degree.

Collaborations for Individual Growth

The collaborative network with identified organizations, e.g. Overseas Universities, Industries, SMEs and Research Groups to be utilized appropriately, e.g. practical, internship, joint project supervision, etc., with focus on individual growth of students and reskilling/ enhancement of faculty thereby increase in ownership in success.

- Students and faculty may choose for Technology transfer by Innovation cell.
- Placement for all remaining students through placement cell.

Placement

Placement for the students not finding the fellowships or innovative ideas to work on in four years will only come for the placement. The industry will also get ready-to-work human resource, as they worked on the live projects in IPBL, and it will have the better skills as compared to traditional graduates.

Initiation

- Link the identified solution to the need /challenge with academics, e.g. Theory, Project and practical the students need to take-up as applicable.
- Collaboration: With needed SMEs, Industry or Research Groups identified by Innovation cell/Placement cell. Research Projects and Joint Publication.
- If successful education become free.
- Initiate the activity keeping in view the current need and potential of the institute with focus on advances in respective domains, further it can be developed to specialize in

Healthcare, Supply Chain, Agriculture, Transport, Food and Virtual Education. The identified problem statements to be shared with collaborators for joint PostDoc, PhD and UG/PG degree projects (if feasible) in suitable branches of engineering, science and other relevant branches across the region.
- Beside this we can explore the possibility of starting a joint master degree in an agreed domain with possible funding under Erasmus+ of the European Commission or similar.

Expected Outcomes

- Additional revenue generation initially through certificate course, consultancy and subsequently through degree programs in IPBL Mode and Tech Transfer/ Commercialization in final phase.
- Innovations and innovative solution at optimum cost.
- IPRs having commercial potential.
- Linkages with best researchers and institutes across the globe.
- Need based innovation Joint Degree/Doctoral Program in specified areas.
- Possibility of fully funded degrees and earning while learning in IPBL mode.
- Innovation Platform for industry and academia.

Key Findings

- Indians spend the highest amount on education after food and grocery.
- 84% of parents are willing to spend on education if they get an assured quality education.
- 68% Engineering students are not satisfied with current teaching learning methodologies
- 87% Engineering and Life Science graduates (Passed out students with 2-3 years of experience) are of the opinion that our current education systems fail to inculcate needed skills and knowledge.
- 92% of IT, Engineering, Biotech & Medical students said that our education is exam driven, it need to be skill & knowledge driven
- 96% feels that knowledge and skill is important for them over so many regulations, accreditations and affiliations.

Discussion and conclusions

A good starting point for academicians is to take a major role in building innovation and entrepreneurship driven education systems keeping the long term vision. The teachers not having authority to design the syllabus can focus on the components like assignments, projects, practical which is the discretion of the respective subject teachers. The subject teacher can leverage these components like assignments, projects, practical to link with innovation needs. Teachers and students have a direct role in all innovation and entrepreneurship activities. The content delivery and learning management platform can help to personalize the teaching-learning with focus on innovation and entrepreneurship. Personalization of function and all the processes of Innovation & Entrepreneurship, it controls personalization by using modern data analytics, smart data monitoring and data recording technologies. This does not just mean that teaching-learning activities should pay attention to personalization of need assessment but also evolve a sustainable system to personalized innovation as per the needs. For example, providing the spray pumps to the farmers in summer when they don't have crops in their farms for spraying, will not waste the resources but it will fail to bring a positive approach towards academic innovations.

There is a need for a business model which can address the issues and fulfill the expectations of all the stakeholders of innovation from funders to beneficiaries. In the Indian scenario the beneficiary and middle chain operating the innovation significantly lacks the trust factor on government and government agencies. Following business model shown in Fig. 2 can address all issues and challenges.

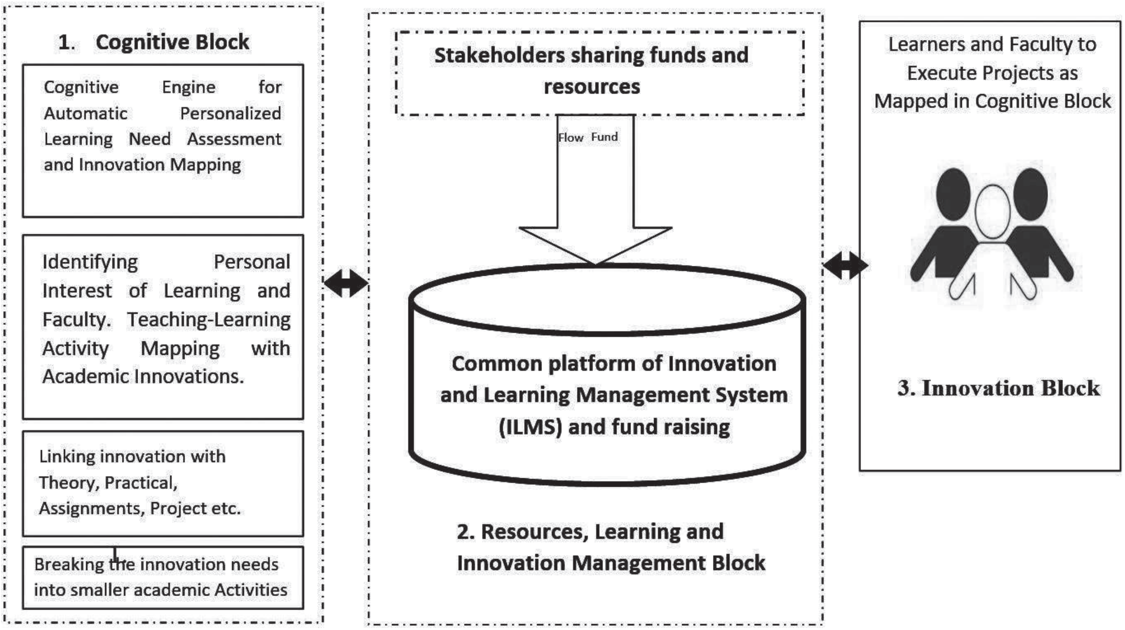

Figure 2: Showing the Resources Allocation, Need Identification and Utilization

Cognitive Block

Cognitive block is an Artificial intelligence based platform to monitor the innovation needs, academic mapping. Individual preferences identification and modularization of the innovation solution to be linked with academic activities. It will consider for their needs, habits and resources availability in a chosen cluster. It will also estimate the potential of the cluster to enter into self-sufficient mode using the academic innovation and resources. Now days it is easy to monitor people and resources using advance ICT tools and technologies. This block will not only identify the problems of the cluster but also predict the possibilities of being self-reliant.

Resources, Learning and Innovation Management Block

After estimating the needs and mapping the local resources, automatic resources sharing and allocation mechanism can be established. It not only avoids the delays but also will help to reduce the corruption.. This block will implement policies using automated electronics system

Innovation Block

The need estimation and resources mapping based on the eligibility to take up the academic will be managed by innovation block. This module will keep the tract of projects and resources being utilized and also monitor the optimum fund utilization.

Personalization can be taken as citizen-directed support, with a participative approach which places minimum burden on need assessment;. User can use the resources as per the personal priorities, which can help addressing personalize and need based issues. Aim of the personalization here is, supporting the individuals to enter into self-sufficient mode using the academic innovations and resources. Our current approach is not having making communities and individuals self-sustainable as primary agenda, which is very essential for process of individuals, community and thereby progress of the nations. Finally, it can result into strong communities within which people support each other.

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Men and Women from Mars and Venus at Work

Pavan M. Kuchar, Satya Mohan Mishra, Mayur A. Dande and Vishal V. Patil

Introduction

Innovations are truly the backbone of nearly every stream of thought, these days. Human Resources are not an exception to this. Human resource management practices (HRMP) have been gaining an increased attention especially in the fields of economics of the organization, strategic management and human resource management (HRM) (Laursen and Foss, 2003). Moreover, the past two decades were characterized by noticeable progress in researching human resource management systems (HRMS) (Wei and Lau, 2010). HRMS and innovation relationship in firms is growing as many researchers inspected this area (Vogus and Willbourne, 2003; Beugelsdijk, 2008; De Winne and Sels, 2010; Ma Prieto and Pilar Pérez-Santana, 2014; Chen et al., 2018). This growing interest is because of the continuous search for having a competitive advantage in a highly turbulent environment (Jimenez-Jimenez and Sanz-Valle, 2008; Shipton et al., 2005).

Innovation can be promoted through proper management of people (Shipton et al., 2005). Moreover, firms intending to innovate consider HRMP as a precious resource (Beugelsdijk, 2008). Furthermore, human capital when leveraged organizational expertizes are developed, thus innovation would emerge as new products and services (Chen and Huang, 2009). Several ways can be adopted to inspect the HRMP and outcomes linkage. However, the current approach is the following: complementarities or bundle of practices or individual practice in isolation (Wright and Boswell, 2002).

This paper seeks to contribute for the comprehension of the HRM and innovation relationship in the context of better halves at work. It has been identified as a black box by several researchers including (Beugelsdijk, 2008; Laursen and Foss, 2003; Messersmith and Guthrie, 2011). Thus, this study tries to inspect the way by which HRM and innovation are linked. Moreover, if there is a need for a mediating or moderating mechanism in the context of recruiting better halves at work to understand such a relation.

Several studies/researches, allied analysis have been published from January 2003 to December 2018 in 18 Journals (Table I). The list is mainly based on high ranking journals with a proven history and impact in the HRM research. The database used includes the following: Academy of Management, Sage Journals, Wiley online library, Taylor and Francis online, science direct, Oxford Academic and Emerald insight.

S.No.	*Title of the Journal*	*Number of Articles*	*Ranking Grade of the Journal*
1	International journal of manpower	2	Grade 2
2	Human resource management journal	2	Grade 4
3	Personnel review	1	Grade 2
4	Employee relations	1	Grade 2
5	Journal of Human resource management	6	Grade 4

Instances of HR Innovations

1. **Interviewing via video:** Cisco has embraced this idea, and others are following. It's more popular than ever for an employee to reside in a different state, or even country, than the corporate office. Used thoughtfully and correctly, interviewing over video had potential to be a perfect marriage of cost cutting measure and technological sophistication. HR should consider this option the next time the perfect candidate is hundreds of miles away.
2. **Using gamification:** Marriott Hotel employs this strategy to drive potential employees to their website. Whether a virtual tour of the office or playing a video game completing some of the potential job's "tasks", adding such elements into the recruiting toolbox woos younger talent to become more interested in the company, and more likely to apply.
3. **Mandated time off:** Progressive-thinking companies understand that recharging on vacation is integral to employee focus and productivity. Instead of rewarding workers for being "too committed" to take time off, taking vacation is a required action. New policies that employees are required to take time off for themselves at regular intervals result in a refreshed, re-engaged employee.
4. **"Owning" unused vacation:** Vacation days are technically an employee's to use as he or she sees fit. If they don't use them, for whatever reason, a fresh idea is to let them donate them to another employee. Perhaps the beneficiary is taking a trip around the world, or preparing for a life-changing event. The point is that HR acknowledges the employee earned these days, and can dole them out without company involvement. Google practices this policy, with great success.
5. **Investing in employee health:** Gym memberships, paid in-office medical screening, in-office ping-pong, and "activity game rooms" are becoming more prevalent in companies large and small. HR managers are learning quickly that investing in their workers' mental and physical health holds great benefit to company productivity.
6. **Giving time off for volunteering:** Businesses are stepping up and becoming good corporate citizens, and some are encouraging their staff to do the same. CRM Salesforce, for example, covers up to seven days for employees to volunteer. Days off to work in a soup kitchen, build a playground, or volunteer at a hospital are worth their weight in gold at building a well-rounded, happy employee who works hard for the privilege of being part of the greater good – and those benefits can multiply when employees work on a project as a group.

7. **Customizing the position for the talent:** Progressive HR managers are ditching job descriptions, opting for building the position based on an employee's strengths and interests. While challenging, this new practice is highly success if moulded correctly. It takes a mix of knowing the employees, and accurately measuring their skill sets.
8. **Getting rid of job titles:** A few years ago, Zappos eliminated job titles to lessen the "hierarchy" feel of traditional businesses. Looked upon as old and stodgy, renegade companies refuse to pigeonhole employees with one title. The opinion here is that titles stifle the creativity and produces an unproductive hierarchy. Removing them fosters a more united, cohesive team of employees.
9. **Two-way mentoring:** You CAN teach old dog new tricks. While newer employees learn invaluable product knowledge and process requirements from company veterans, seasoned employees can get their imaginations sparked, absorb new technology, and discover new "hacks" from the newbies. Smart companies tap into the mentoring relationship as a back-and-forth, not up-to-down.
10. **Setting up workplace flexibility as the new normal:** Focusing less on work/life balance, and more on the integration of life and work, is a paradigm that is emerging in the workplace. It's all about how a company values the contribution of an employee, not just the physical hours worked. Time off for appointments and leaving early for school plays brings about loyalty and satisfaction in employees. Edward Jones is an example of a company who successfully offers a variety of flexible components for their employees.

The Background

They say, "Men are from Mars and Women from Venus." The clearer truth is they are here on this planet, together. The bond of love between the two can tend to be an inventive, experimental, constructive and productive catalyst at work as love is sufficient unto love and it has no other desire but to fulfill itself. A recent beautiful Airtel 3G advertisement displays a picturesque scene of a couple working in the same office and further conveys love between the two and respect towards work as well. One of the pre requisites of an organization with a rhythm is blossomed relationships. There have been HR initiatives in this direction but were with unnecessary consumption of time, rupee and effort. Should a couple with eligibilities and competences be recruited in the same organization, in order to be cost effective and reap the advantages which are aftermaths of one of the best informal relationships is truly an uncommon question to be answered. Despite the inadequacies like occasional probable disturbances in the relation, a varying chance of the forthcoming professional behavior, possibilities of romance, influence of home life of the spouses at work, the creative potential in the concept of marriage has to be rethought. Their faith and trust towards the same organization, assistance with each other, ability to devote more time when needed, may far prove the pillars for the work places.

This paper attempts to travel from the doubts and criticism regarding the recruitment of the couples at same workplace to their unexplored capabilities and proactiveness. The paper further enquires the possibility of selecting the spouses in the current era of fierce competition and allied job rotation, group cohesiveness, complimentary training.

Scanning the Matter

The reel life and real life are mirror images of each other. There's a recognizable impact of one over the other. "Abhimaan", a 1973 Hrishikesh Mukherjee Bollywood old classic starring Amitabh (Subir) and Jaya bhaduri- Bachchan (Uma) weaves an elegant masterpiece. The actor's singing career is at its zenith. He falls in love with a village girl, gets married and cultivates her into a singer. Fortunately, (or unfortunately) wife's singing career blossoms far better and that's where the husband's male ego is hurted, giving birth to jealousy leading to separation. Coincidently, the couple reunites. But some questions remain unanswered even today. Can a male be egoless in relation with his spouse? Will there be always jealousy if wife achieves more? Can better halves work together more constructively? Should organizations intentionally recruit better halves?

The Phenomenon

The current discussion is an outcome of unstructured interviews with 10 couples (Husbands and wives/20 spouses) working in the same organization. Most of the questions asked were open- ended questions in order to facilitate the random thinking of the respondents. Open ended questions also act as a catalyst for bringing into picture attitudes, sentiments, opinions and experience of the respondents.

The formal aspects in an organization run primly on the basis of rationality/reasoning whereas the informal relationship of a married couple will display belief, faith, values and culture. Therefore the unnecessary time, money, manpower and energy spent in laying down rules, procedures will reduce resulting into faster communication and realization of code of conduct and day to day functioning. The couple will be comparatively more easily accessible especially some tasks to be accomplished at the eleventh hour, thus enhancing psychological satisfaction. The same married couple will be with a faster feedback mechanism providing fine relief to top management. Hence relieved top management can come up with healthier policies and decisions. The probability of a married couple to be accountable to each other is higher than any formal relation tending the couple (both the employees) more accountable to organization. It has been revealed from today's workplaces that lack of accountability damages work environment and working in teams. In such a scene, working husband and wife may save the ruin of team spirit.

Comfort

It's indeed more comfortable to be together at work because of several reasons. Departing from home and reaching office in the same vehicle results into convenient, punctual and economic attempt. Some of the tasks/projects/assignments given at work can be interchanged depending upon expertise of a spouse. His/her services can be freely, without hesitation requested rather demanded with right. This comfort will not shatter like any other formal relation because of differences in opinion, conflict at work or a quarrel, fight at home. Still if it happens, the relation will recover with pace which is an added advantage.

Unfairness and Gossips

If there exists an unfairness because of a bias, discrimination, wrong use of power, or any other unethical reason with either a husband or wife, the disappointment, dissatisfaction, frustration cab quickly be overcome as the consideration, support and guidance in informal relationship is substantial. If the unfairness is serious enough and urges for whistle blowing, the couple, may constructively initiate to disclose the matter to higher authorities, top management or media and assist to create a difference by saving organization's image and goodwill, thereby contribute to organization's culture.

The possibility of gossips, rumors, misunderstanding about couples working in the same organization cannot be denied. It's up to conscience, patience and socialization of a couple to tackle such issues. The individual personality traits matter the most here. Yet, emergence of such negative environmental forces can be sorted out by a wise couple. This will still be simpler than handling same kinds of gossips between a male and female who are not husband and wife.

Travel and Transfer

Every organization does not include the aspects of travel and transfer. But if the job demands frequent traveling, one spouse will manage in today's context, as traveling is a common thing for a couple working in different organizations. In case, an organizational assignment consists of traveling by two or more employees, the couple can intentionally be sent provided there domestic responsibilities are not obstacle in traveling together. Transfer of one of the spouses will definitely disturb the rhythm of work. The couple can together be transferred with proper previous training to new location where the chances of exceptional contribution are higher as both of them will realize the care taken by organization for their personal growth.

Nature of Profession

Recruiting better halves with almost similar educational qualification, experience, expertise, job profiles, roles and responsibilities best matches to workplaces like banks (office assistants, white collar jobs), Colleges (academicians), software industry (Computer Science engineering graduates) as the possibility to be part of the same team for a given project or task is higher in these jobs.

Superior-Subordinate Relationship

A plenty of literature is available focusing on this relationship. The essence depends on some parameters like cultural background of the employees, the organizational culture, family environment, personalities, ambitiousness, mutual dependence, maturity, conscientiousness, and retaliation. Informal relationship of a husband and wife includes these features with positivity in the light of superior-subordinate relationship. There are four relationship maintenance strategies towards a superior. A) Use of humor and playfulness enhancing friendliness at work, B) Developing a respect for superior's authority, C) Hesitancy in communicating a bad news, D) Openly sharing views regarding the expected treatment employees wish to receive from their bosses. All these pre requisites are in built in the husband-wife relation. Therefore, obviously the worries at workplaces would be eliminated.

Life Stage

An appealing facet in the ongoing discussion is enquiry regarding the Life Stage of the couples working at the same workplace. The family life cycle stages are given below

- The bachelor stage—young and single.
- The newly married couples—young, no children.
- Full nest 1—young, married, with child.
- Full nest 2—older, married, with children.
- Full nest 3–older, married, with dependent children.
- Empty nest—older, married, with no children living with them.
- Solitary survivor—older, single, retired people.

Some of these stages in the life cycle of human beings can be thought of. The stages like newly married couples with no child ranging from age group 18-21 to 30-35 approximately, full nest one- a couple with a child, full nest two – a couple with two children, full nest three- middle aged couples with dependant adolescents or young children, and empty nest- couples somewhere around retirement (Senior Employees in an organization) with children not living them because of migration with reasons like job, marriage. In the very first stage, at the beginning of the career the husband and wife tend to be very careful, involved and workaholic as they together wish to prosper in the same organization. Slight chances of gossip, rumors about them may exist. In full nest one, the seriousness of earning money because of increased responsibilities of a child (expenditure on healthcare, insurance policies etc.) is more. An extended version occurs in full nest two. In full nest three, the educational requirements of adolescent children and youngster going in college deepen the sensitivity of husband and wife resulting into productivity, achievements more than set targets. Lastly, in empty nest, lonely couple better finds work as a tool to escape from boredom and be busy.

Ego Clashes

Gautam Budhha says, "Ego is just like a dust in the eyes. Without clearing the dust, we can't see anything clearly. So clear the dust and see the world." Ego-clashes at work are obvious. The remedial ways and persons are rare. The root reasons for ego clashes like difference in religions, bias on basis of caste, creed, race, culture, an unhealthy competition, temptation to dominate and show of the self, jealousy are definitely in informal relations and lesser in husband- wife relationship. The Indian marriage system assumes marriage as a *sanskara*

(*Ritual*) providing a sacred meaning. Rate of divorces are minimal in India in the global context. Recruitment of husband and wife at the same workplace will be more effective in case of arranged marriages and in small towns or mediocre cities.

Epilogue

Life asks for frequent breaking of stereotypes. It's beyond belief that women were not allowed to cross thresholds a century back. Times have changed. A woman stays in the space and experiences galaxies today. The prejudice towards husband- wife relation at work is like that threshold which will take its time to dive in space. Our task is to erase those pre conceived notions. In a fabulous Airtel Advertisement, a young multi task oriented dynamic woman is shown as a boss of the husband. The love and affection between the two do not hamper work. The advertisement seems not to be a fantasy but a realistic aspiration. The government of Maharashtra has come up with "Pati patni Ekatrikaran" scheme (Reunion of husband and wife) at work wherein a couple working at two different locations may apply for a common location for work. The functioning is based on usage of distinguished software. Need of the hour is welcoming this truth in private sector as change brings an opportunity. Hope for a sequel of the Bollywood classic "Abhimaan" (Ego) movie remolded as "Swabhimaan" (Self Esteem) where personal growth of better halves occurs and the organization blossoms as well. Aameen!!! (So Be It!!!)

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Millennial Trend in Disruptive Innovation

H.M. Jha "Bidyarthi" and Rajiv B. Jawale

Abstract: *Innovate and progress is the basic human intent exceptionally, though, there has also been incidents of innovate and regress. In pursuit of innovations, there has come about different types of innovations – both good as well as bad. With the onset of the third millennium there has unleashed a peculiar type of innovation commonly known as disruptive innovation which spread all sectors of industries in abundant magnitude so much so that it has started appearing as the trend of this millennium in its beginning itself. Many companies have started following the path of disruptive innovations. The stiff competition in the market furthered fueled the onset of disruptive innovations. This paper is based on a sample survey of some such innovations which occurred during the first about twenty years of the present millennium followed by their careful and analytical study to identify the commonalities amongst them indicating a particular trend which the author calls millennial trend.*

Keywords: Disruptive Innovation, Millennial Trend, Human Civilization, Industry and Organizations, Impacting Life

Introduction

Growth of human civilization has been driven by continuous innovation of big, small and odd nature leading it from the stone-age to IoT (internet of things) age. The very nature of human being is to innovate which is evident from how it conducts itself during childhood to parenthood. These innovations span over a diversified range resulting into equally diversified range of outcomes touching different aspects of human life. Since the fundamental constituent of an industry and organization is human being this character of innovation intent has overpowered the way these industries and organizations behave in the market place. These innovations are supposed to be always for the good but that hasn't been the case always and there are seen deviations in it. A snap survey of these innovations occurring with the onset of this new and third millennium in its first about twenty years reveal of a trend like situation which, though appears little exaggerated, may be called as millennial trend in innovation. Exaggerated because a millennium consists of 1000 years and about a twenty years observations of a particular line of happening cannot and should not be fixed as obvious trend that may persist the remainder of the years of this millennium. But some innovations during this period, like disruptive innovation, have been so forceful and prominent triggering similar innovations all alone over a wide spectrum of industry and organizations covering diversified sectors and functioning like an infectious virus that the author is inclined to term it as millennial trend against his conviction though. This paper presents a sample survey of innovations introduced by industries and organizations during first twenty years of the present millennium which have left indelible impact on human and organizational life followed by a careful study of these innovations to ascertain some commonalities amongst them so as to reveal a trend in the innovation.

Innovation

Innovation is "the art, science or process of converting existing inventions and ideas into practical products or services that create value and can be used in everyday life." Innovation connects the dots between inventions It is defined as the process of making an idea or invention into a good or service that creates value and/or for which customers will pay.

Innovations Categories

Following are the different categories of innovations:

Incremental Innovation: Existing Technology, Existing Market

One of the most common forms of innovation that one can observe is that of incremental innovation. Most innovations are incremental, gradual and continuous improvements in the existing concepts, products or services in the existing market. It is just a little better than the previous version of the product or service and has only slight variations on an existing product formulation or service delivery method. Although incremental innovation does not create new markets and often does not leverage radically new technology, it can attract higher paying customers because it fulfils the customer needs identified from their behaviour or feedback. TV is a classic example of both of these scenarios as it's constantly improved and there are new models available while the core idea and the components remain mostly the same. The mainstream customer can, for example, have a 50" LED television with just a couple of hundred dollars while the more demanding customers can easily spend thousands on a 75" OLED TV. What's convenient about incremental innovation is that it's often easy to sell because one does not need to explain the key principles of your product or service – people are already familiar with the way it works.

Disruptive Innovation: New Technology, Existing Market

Disruptive innovation is a concept introduced by professor, academic and business consultant Clayton Christensen first in an HBR article and later in his book called Innovator's Dilemma. Disruptive innovation is a theory that refers to a concept, product, or a service that creates a new value network either by entering an existing market or by creating a completely new market. In the beginning, disruptive innovations have lower performance when measured by traditional value metrics but has different aspects that are valued by a small segment of the market. These types of innovations are often capable of turning non-customers into customers but do not necessarily appeal to the needs and preferences of the mainstream customers, at least not just yet. What makes disruptive innovation difficult is that established organizations are completely rational when making decisions related to their existing business. They fail to adjust to the new competition because they're too focused on optimizing the existing offering or business model that has proven to be successful in the market so far. Thus, the market is generally disrupted by a new entrant rather than an incumbent. Disruptive innovation is where traditional business methods fail and requires new capabilities. Although the risks are big, there's a huge growth potential if everything goes right.

- **Disruptive innovation in Indian passenger car segment:** The Tata Nano is a compact city car that was manufactured and marketed by Indian automaker Tata Motors over a single generation, primarily in India, as an inexpensive rear-engined hatchback intended to appeal to current riders of motorcycles and scooters—with a launch price of ₹1,00,000. This Rs. 1 Lakh car was officially launched in the year 2008 however the ideation of the project was done almost with the onset of this millennium. This was an innovation strategy that sought to touch a niche market of lower-upper and middle-lower segment of customers capturing their dream of owning a car which was not affordable by them And hence launch of Rs. 1 Lakh car. The social classes namely lower-upper and middle lower show distinct characteristics such as their perception of occupying inferior positions and generating corresponding income. The innovation was so much disruptive that it sought to compete with the two wheeler segment offering them to exchange their two wheelers with Tata Nano. This resulted in discontinuation of Maruti's poor man's car Maruti 800 which was once upon a time its flagship product.
- **Disruptive innovation in Indian telecom sector:** In the year 2016 Reliance Jio introduced into the market a totally free of charge Reliance Jio SIM card with free unlimited mobile data of 1.5 GB per day and free voice call initially for first three months and later on extended for additional three months. This six months free services helped Reliance Jio to penetrate into the mobile telephony market captuting very shortly the highest number of subscribers numbering over 33 crores. The result of this disruptive innovation was withdrawal of many established competitors from the market.

Architectural Innovation: Existing Technology, New Market

Architectural innovation refers to the innovation of an architecture of any product that changes or modifies the way various components of the systems link or relate to each other. The different components of the system can be changed within the improved architecture for example lighter weight, smaller form factor, etc.; however, the main technologies at a component level remain unmodified.

Radical Innovation: New Technology, New Market.

Radical innovation is rare as it has similar characteristics to disruptive innovation but is different in a way that it simultaneously uses revolutionary technology and a new business model. Radical innovation solves global problems and addresses needs in completely new ways than what we're used to and even provides solutions to needs and problems we didn't know we had, completely transforming the market, or even the entire economy. Although radical innovations are rare, there have been more and more of them in the recent past. Technological innovations, such as personal computer and the internet are examples of radical innovations that have transformed the way the entire world functions and communicates. These disruptive innovations provide our society with a platform to build on top of, leading to highly accelerated economic growth. However, when executed successfully, it often means the beginning of a new era that affects many sectors and geographies.

Sustainable Innovation

Sustainable innovation is the opposite of disruptive innovation as it exists in the current market and instead of creating new value networks, it improves and grows the existing ones by satisfying the needs of a customer. Just like incremental innovation, the product performance of sustaining innovation is made slightly better with every iteration, reducing defects. The new improved version of the product can be more expensive and have higher margins than the previous one if it targets more demanding, high-end customers with better performance than what was previously available. However, it might as well be cheaper if it leads to higher volumes and thus higher absolute profits. Sustaining innovations, in turn, continue to grow the market slowly, but no longer in the same proportion. At this point, the focus shifts to increasing profits. New models of the phone sustain the existing business model in the premium segment of the market to meet the needs of more demanding customers who are willing to pay more for a newer, slightly better version of the phone. Because this strategy entails making a better product that they can sell for higher profit margins to their best customers, the established competitors have powerful motivations to fight sustaining battles. And they have the resources to win.

The following figure shows the innovation matrix:

Table 1: Showing Innovation Matrix

Types of Innovation	*Technology*	*Market*
Incremental Innovation	Existing	Existing
Disruptive Innovation	New	Existing
Architectural Innovation	Existing	New
Radical Innovation	New	New

Besides above innovation, there are innovations relating to employee, customer, partner / supplier, competitor, public. It could be product innovation and/or process innovation. Innovation processes could be marketing and branding, ideation, technology, co-creation and social innovation process.. Disruptive innovations have been found in all of these areas being practiced by different sectors of economy as shown in the following table and which has focus on product, service, process, management, etc.

Disruptive innovation has the capability of changing the world. Following is the list of ten such innovations which changed the world.

- Wheel
- Nails
- Compass
- Printing press
- Internal combustion engine
- Telephone
- Light bulb
- Penicillin

Prevalent Disruptive Innovations

Following gives a select and indicative list of some of the recently prevailing disruptive innovations.

Table 2: Showing Select List of Prevalent Disruptive Innovations with Onset of Third Millennium

S. No.	*Innovations*	*Company*	*Sector*	*Brief Description*
1.	Software, battery technology and the ability to iterate quickly	Tesla	Passenger Car	Traditional manufacturing companies find it difficult to follow
2.	New models available while the core idea and the components remain	TV manufacturing company	Television industry	Easy to sell because one does not need to explain the key principles of your product or service
3	Rs. One Lakh Car	Tata Motors, Tata Nano	Passenger Car	Affordable for lower-upper and upper-lower customer class
4.	Free internet and voice call for first six months	Reliance Jio	Internet and mobile sector	Penetration strategy of Reliance Jio
5.	Providing a tailored product to a specific group of people	Netflix	Movie sector	Moving away from a safe space and breaking into streaming media
6	Combination of the iPod and the simultaneous release of iTunes	Apple iTunes	Music and Songs	Integrating the Internet into the music curation process
7	Focus on high-quality produce at temptingly low prices	Aldi and Lidl	Retail Stores	Moving away from a preoccupation with established brands and by educating consumers that unknown brands are certainly not synonymous with low quality
8	Independent, sustainable energy generators	Bulb	Light Energy	100% renewable energy solutions to customers
9	working to change the very definition of our foods	Beyond Meat	Food Industry	Foods with its 100% plant-based meat products

Analytical Study

The foregoing discussion reveals that disruptive innovations have been mostly driven by competition. The present era is an era of completion and it will further grow in strength as the time passes by hence disruptive innovation is bound to stay. This has been practiced by new entrant in the market, old and established player of the market, small company and big and large firms covering a wide spectrum of enterprises. It helps penetrate into the market, helps cut completion or helps create competition. At the same time it is also noticed that a disruptive innovation does not have a vry long standing. And that is very obvious that an innovation takes over the previous innovation by the trend set as a result very much remains.

Conclusions

The current business environment is technologically oriented and highly dynamic. Hence, firms cannot only rely on traditional methods and approaches. The challenges of disruptive innovations have gained significant attention this millennium. Commercialization of such innovations is one of the most critical phases. To avoid being disrupted, one needs to keep an eye on the new entrants in one's market and how they do things. But one thing is ample clear that the disruptive innovation is here to stay. That's appearing to be the trend. Firms engaged in disruptive innovations face challenges managing them especially technology development and commercialization.

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Productive Mental Health: Need of Individuals and Organizations

Wechansing Z. Suliya and Rajkumar Dhanuka

Abstract: *Mental health is primary need of life. The significance of this need has made Government of India to declare fund for mental health in India. Cooperation is more sensible than competitions and emotional support is more sensible than money so, mental health has supreme place in life. Authors and poets coined for requirement of peace in nation so, peace is the mother of all human values for growth and prosperity. Human values are primary for mental health which has many related inputs such as society, schools and situations. Situation also affects mental health and it can strengthen the thought process. Brain storming and interaction also build better mental health. Human beings want to secure within comfort zone. Mental health is having direct relation with productivity and production may double due to better mental health. In one sense, stress is bunch of negative thoughts/ pressures which affect negatively on life. Stress is necessary for leading life but it should be limited. Communication with self may find good solutions for problems in life so it can enrich mental health. Communication with self leads for self management and removes stress from life. Mental health is supreme in work life balance and it can create ideal setup of balanced life.*

Keywords: Mental Health, Peace, Stress, Productivity

The Essence of Mental Health

Mental health is primary requirement of human's life. The state of mind does everything. The state of mind should be better and stable. Covid-19 has lead to some problem in it. People are facing problem of mental-disorder, thought imbalance, disorganizing behavior and mental anxiety. On 1st Feb 2022, Government of India declared fund for mental health; The Government is launching tele-mental health at national level. We can see this may be alarming situation for all humanity due to Lockdown of Covid-19 and many other reasons.

Need to Develop Rational Thinking

All religions are good in rational sense and all religions had thought well. All religions have followers because there is potential of growth of understanding and maturity. United state of America is inculcating Jain religion's thoughts in syllabus; reason is only mental health and peace. Human beings can live better on this earth and do better by avoiding poisonous thoughts. There are very good thoughts not in only the holy, religious books but also in each human's mind. Human mind is full of good thoughts naturally, though which human being can live better. Competitiveness is one natural power of human trough which human is struggling and growing. Other than competitiveness humans also have love, mercy and pity in mind. Tree of humanity can enrich and grow through better organization of thoughts in mind.

Value-Seeds for Humanity

The value-seeds are present in each human mind which should be nurtured with constant effort of understanding. Growth of positive value is depending on situations and thought process. The positive environments and inputs should be there so that humans can grow positive values in their life. The role of society and education reflect leading the changing mental environment of human through value inculcation.

Need to Avoid Comfort Zone

Humans would like to live in comfort zone but comfort zone blocks new growth in life. If one wants to develop new thought process and enjoyment then one should come out from comfort zone. Comfort zone is one major factor of mental health. Humans should be aware about concept of challenge so, they can fight to overcome that challenge. Unknown fear in human mind can spoil good mental health. Sometimes ‘unknown fear’ is like a ‘pass by air’ but due to over thinking it can settle some wrong spot on mind. Mental condition is due to surrounding of human being but for betterment human must know about opposing factors on mental health.

Productivity is Outcome of Positive Mental Health

Mental health is crucial parameter at workplace. Stress is a major factor affecting mental health. So, many organizations are following the policy of counseling and mentoring for their employees. Productivity is centered factor which affected due to imbalance though process and relationship performance at workplace are also affected due to this. Any organization wishing better productivity should focus more on mental health of employees otherwise one unsatisfied employee may spoil more than five minds in an organization. Good mental health and satisfaction of an employee can lead for extra efforts at workplace which link with productivity. Human is social animal and wants to live in society and also asks respect from the society. Respect is one medicine for maintaining good mental health at workplace. Mental health is linked with life and profit so, organizations are spending good amount of money in training and motivation.

Need to Understand the Nature of Stress

There are values and desires in life. Desire makes our movement alive and active. Desires are motivators of life but desire must be proper and manageable and also achievable otherwise it will hammer good mental condition. Humans can start new journey from any corner, only readiness and understanding is required. New journey is possible for everyone in angles of thoughts. Human can live better with others by organizing thoughts and confirming good mental condition. Some people get bothered in process of thoughts without reasons and live stressful life. Stress is only state of mind and it will die if humans make their mind for killing it. The method of thinking can be improved through rational guidance which can help in good mental health.

Communication with Self

Commutation with self is nice therapy for mental health. Understanding self is better than counseling and mentoring. There are problems and challenges in life which need to stabilized. Life will spoil due to words and thoughts and also spoil the body due to unwanted pressure, so negative thoughts should be minimized by humans in life. Meditation and yoga are the examples of physical as well as mental exercise. Mental exercise will release pressure from mind and life will become more clear and comfortable. Communication in relations is also better for maintaining good mental conditions so, communication with self can find out better solution in life.

Self Management

There are many reasons for bad mental health like social media on mobile phone, continuous calling, internet, continuous discussion and less sleeping. Mobile is disturbance of concentration and continuous hammering of bad thoughts can break the concentration and mental stability. Status of mind may be disturbed due to interaction with different people which have different mindsets. Whatever but Self management is best management for better mental health.

Work-Life Balance

There are situations in life in which human being experiences mental stress. Examinations and result for students, rainy season & crop yielding for farmers, new innovations for teachers and scientists, loss and competition for corporate, profitability for business and environment for sportsmen are some of the instances. Stable mental health can stabilize the matters of stress in life. Students can enjoy their exam with better preparation and there is no shortcut for good results but stress is unnecessary. Family life is a major area and conflicts arise amongst family members.

Need to Remove Fear

Fear is blockage which affects mental health. According to research, fear of unknown situations is the major concern. Fear resides in human mind due to psychological setup and faced situations in life. Humans have fear for death and injury and also for loosing profit in business and loss in career. Fear can change the mental condition and which may get converted into big dilemma and confusion. In one angle, fear is positive, which can lead towards betterment of life. Humans can achieve daring by replacing fear.

Mental and Physical Exercise

Movement of body can enhance physical as well as mental conditions. Empty mind can move in wrong ways so mind requires work as a food. Mind also needs enjoyment in any form like tourism, singing, dancing, education, activity, discussion, entertainment and idea generation. Tourism makes us think and analyze whatever we observe during visit; mind works better along with nature. Singing is vocal and brain activity gives us joy and entertainment. Dancing is an activity of body through which brain can enhance stability in life. Education is mind game and through reading and writing human being develops thought process for better life. Discussion and brainstorming are mental activities which can create new ideas and innovation in life.

Instrument for Mental Health

Observation of natural scenes, maps, picture, past photos and videos enrich the thought process. Out of visual, auditory and kinesthetic learning; visual learning styles use eyes for leaning. Eyes and mind association can make better analytical power. Ears also have role in thoughts and communication. During stress human beings should observe natural scenes and photos and also hear favorite music for removing stress. Photos of past also motivate brain for thinking which release stress. Mental condition can improve at any stage with effective use of eyes and ears only, humans will have desire to do so.

Old is Gold

Old persons in family are more experienced and can teach better. Support of Grandfather and grandmother can release mental stress. Old persons know about many facts and situations than younger ones and they can help to avoid stress by counseling them. In other sense, old people are also interested in talking with young kids and they can share good values with them and they can share good tradition of family which also lead to happiness in life. Old people are like gold and their presence is valuable for sound mental health of the family.

Mental Health in Bollywood

Bollywood also tried to project mental disorders in films like '*Taren Jameen Par*' , '*Hansi to Fasi*' , '*mental hai kya*' (*judgemental*), '*atrangi re*' , '*gahrayiya*', '*dear jindagi*', '*darr*' and '*tere naam*' and tried to resolve the problems from society. Bollywood touched real sense of psychology and shared values with society. According to research, mental situation is also starts from simple mental disorder and go deep into depression. Bollywood could project better by analyzing deeply in psychology. If anyone is having problem then it should be clear to all that it is disorder and there should be a focus for recovery of disorder. Sharing/understanding the disorder is the best solution to overcome mental monotonousness. Humans have simple disorder like hate with specific person or a habit may become hate to whole society. This is not about only hate; all bad and good values we can include in mental disorder.

Need to Find Out the Reasons for Mental Stress

Most of the time, a person doesn't know about the reasons of unhappiness and reasons behind mental imbalance. Mental imbalance can affect relationships in whole family. Before pushing legs into shoes, a person must think about the outcomes of wrong mood. Long queue, traffic, bad comments and tiredness can increase mental stress in human. If the reasons are known then mental stress will be resolved naturally. According to Howard institute, during mental stress, one should concentrate on importance of relationship with people instead of bad situations and incidents for natural resolution. According to journal of experimental psychology less sleep is also reason for mental stress so person should take proper sleep in routing.

Psychological Set Up about Happiness

People have their own definition of happiness. According to Psychological research, People are experiencing happiness in natural scenes, picnic, entertainment, movie, emotional support, work and sex. Different people have different understandings about happiness. According to theory of Universal Values, real happiness is continuous and does not need support from outside. Preconditioning is outer factor for stress which can disturb life. Preconditioning is directly linked with wrong desires which can lead for mismanagement of money in life.

Food Makes Mental Health

Mental health is largely affected by food because it is direct input of body. Vegetable and non-vegetable food affects digestion and also thought process of humans. According to research, stressful minds need sweet food. Liking is also matter for making better mood; favorite food can make better mood. Fresh food is very much beneficial to body and also for mental health.

Good Mind and Bad Mind

According to this theory of psychology there are two corners of mind; positive mind and negative mind. There is communication between two corners in body and self. Sometimes, bad mind wins and sometime good but according to theory of Universal Human Values, naturally humans want to listen thoughts of only positive mind.

Mental Strength and Daring

Psychologists had focus on problems of suicide and it has many reasons but one major reason is mental strength. Person must have strong mental health so one can neutralize stress of mind due to normal external factors. People have money and good health but they committed suicide only due to weak mental power. There is pain in life for achievements and growth but there is no such pain which really lead to death and suicide. Scenario is changing and sizes of unexpected desires are growing. Person must understand unexpected desires to remove the stress.

Good Thought is Like a Medicine

Better Life is possible through the root of thoughts. Learning is the lifelong activity though which people are updating their knowledge and skills. Good thought can create productive value in person. Educational institutes and religious organizations are trying to pour good thoughts in human mind and succeed, but it should be continuous for new generation. Good thoughts can add value and wealth in life. Natural voice and natural thinking are the actions of God or nature which will support only to positive value of human being which will be useful in life.

Good Mental Health is Root of Life

Anyone can start 'productive thing' for betterment of humanity. Things will grow in life. Good starting will always have followers. People will accept the good things, which may be related to health, food, relationship, betterment and growth. The natural and real demand is betterment of life. Betterment of life should start from better mental health because it is root of all development. If root is good then everything will be good in life.

Conclusions

There are physical needs for every human being but mental health fulfillment is a spiritual need for better life. Human values are great and can be cultivated into positive and productive life. Peace is one ultimate aim of any nation and through positive mental health the aim can be easily achieved. Life is for happiness and prosperity and metal health can confirm satisfaction and happiness in life. Human values are the main components for better mental health and which can be enriching at highest and optimum level for any human being. Stress can be avoided and happy life is possible if good mental health happens to be in life. Everyone is finding emotional support through different sources. Someone is finding it in human beings as an emotional support; someone in physical facility and someone in sex. Real mental health is resided in right understanding and rational decision of human. Human beings must give time to self and self development. Human beings must give time for self analysis towards betterment. Thought process within self can enrich betterment and peace for mind. Self management is best management and which is possible through better mental health in life.

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Revitalizing Non-profits – An Enquiry into Innovative Inputs by Vinoba Bhave and Baba Amte

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Satya Mohan Mishra and Vishal V. Patil

Introduction

Non-profit organizations are having their roots into the Latin word "Caritas". It means being dear and valuable. This value still percolates to grass root level. NPOs are the cornerstones of a good life for most of the world. The nature of the offerings may differ but they tend to be indispensable. The evolution of NPOs can be traced back to Vedic times. Some of the portion of Rig-Veda elucidates the concept of collective/social realization of the grief of fellow human beings. Hence donating was thought to be a noble concept those days. Maurya and Gupta reigns during fourth and fifth century witnessed deeper countryside social activities. Gradually this took the shape of "Philanthropy". It has been transformed into much more an organized sector as NPOs currently.

But the other side (which is perhaps troublesome too) of the coin is that NPOs are suffering from challenges/problems some of which are drastic and have already happened to be with unwanted, negative aftermaths. Inadequate funds, inconsistency in fund raising, unorganized and unprofessional ways of functioning, absence of electrifying/charismatic leadership, narrow networks and the allied reach, detachment from some segments, unskilled and untrained employees, null value addition, frauds, corruption, getting influenced by specific ideologies, below average infrastructure, failure in scanning/grasping details of both micro and macro environments, dilemmas about strategic approach, no vision acting as a lighthouse, generalized and unrealistic objectives to be accomplished, oversight of the competitive analysis considering it irrelevant, negligent SCOT analysis, half thought segmentation, targeting and positioning strategies. These problems can be rectified through bringing fundamental changes in the ways non-profits are being managed. The superficiality of technology know-how can be eliminated by adopting the inputs backed by experience of some exemplars.

Baba Amte

Biographical Details

Murlidhar Devidas Amte**,** popularly known as Baba Amte was born on December 26, 1914 at a taluka place named Hinganghat in Wardha district of Maharashtra (in the times of British India) He was basically a lawyer and social activist who dedicated his life to India's downtrodden, poorest, bottom of the pyramid and specifically to offer service to people suffering from leprosy. His was bestowed upon numerous international awards of which some were – the 1988 UN Human Rights Prize, a share of the 1990 Templeton Prize, the 1999 Gandhi Peace Prize. Baba Amte died on ninth of February 2008 at Anandwan, the heaven he founded in the state of Maharashtra, India).

Baba Amte is hailed as the last of the true followers of Gandhi's philosophy. He not only internalised the philosophies directed by the Mahatma, but also embraced the Gandhian way of life. He inherited the Mahatma's spirit of standing up for injustice in society and serving the downtrodden classes. Like Gandhi, Baba Amte was a trained lawyer who initially sought a career in law. Later, just like Gandhi, he was moved by the plight of the poor and ignored people of his country and dedicated his life to their betterment. In search of his true calling, Baba Amte relinquished his ceremonial dress and started working with the rag-pickers and sweepers for some time in Chandrapura district. When Gandhi came to know about Amte's fearless protests against some Englishmen disrespecting women, he gave Amte the title 'Abhay Sadhak'. He later focussed his attention towards serving patients suffering with leprosy and spent most of his life aiming to provide better treatment facilities as well as social awareness towards the disease.

The Change

After an exceptional encounter with a person suffering from the disease of advanced leprosy, Amte's vigour and attention turned to that drastic disease. He got involved and studied leprosy and further worked at a leprosy clinic, and academically learned through a course on leprosy at the Calcutta School of Tropical Medicine. Anandwan, a place dedicated to the service, medication, rehabilitation, and the most important- empowerment of leprosy patients was founded by Baba Amte in 1949. Gradually this place magnified functions by adding agriculture, handicraft, small-scale industry, environmental conservation and to offer services people with disabilities.

In addition to his work with lepers, Amte was involved in various other causes, including environmentalism and religious toleration. In particular, he opposed the building of hydroelectric dams on the Narmada River, both for environmental reasons and because of the effects on those displaced by the dams. In 1990 Amte left Anandwan to devote himself to this cause, but toward the end of his life he returned to the ashram. Amte's sons, Prakash and Vikas Amte, became doctors and continued their father's philanthropic work.

The Vision

The constructive changes in the society depend upon life, efficiency and experimentation in social/non-profit organizations. The wisdom and emotions of youth are to be appealed in this regard. If youth chooses non-profit area as career option, even though it is not lucrative and fascinating in materialistic terms, scenes would change. Progressive cooperation of youth is thus essential. According to Hoyle- Narlikar theory, something which is destroyed at one instant, takes birth with a different form at another instant. Same theory can be applied to thoughts and emotions. The possible expression of thoughts and emotions affects growth of a NPO. Age, experience, expertise and other factors are not at all indispensable for foundation of a social organization. Carlyle says, "Experience as to intensity not as to duration." Hence finding a need and discovering a way to feel it is the prime concern. The preparation phase of foundation of an organization includes inadequacies in society, unfulfilled needs and their observation and comprehension with burning hearts and cool brains.

A problem is pregnant with its solution. Making the problem clearer resides with the organization. Foundation of organization without realizing problems breeds newer and broader problems. Often, need identification in the context of NPOs is artificial and organizations rotate around persons as their centre and perish with those persons. They are short term like umbrellas in the rainy season. The roots of these organizations are not deep enough to tackle social needs. Therefore, the growth retards. Failure of NPOs is more obvious than commercial organizations. Venturesome actions should not be compared with failures. Ventures are not expected to be panic of results. Failures are in fact, launching pads for bigger endeavors. Many a times, failure avoids derailing and provides proper direction.

Let's recite pages of Mother Earth and find out the theory of organization. Consistent development is the first feature of any organization, specifically, a nonprofit or social organization. There are three dimensions to this development. 1. Cultivation of idealism rooted which is the foundation of organization. 2. Efficiency of organizational mechanism 3. Contentment of workers and beneficiaries of organization. But there exist negative, rather destructive forces right from the establishment. "*Sarvesham Avirodhen*" (Let all be unopposed) has been the desire on priority basis in the context of perfectionism. But the other truth is that there's a never ending struggle for the same.

Out of Box

An organization is the bee-hive of actions and the role of the Leader/Director is that of the Queen Bee. The Queen Bee never displays autocracy. The respect and obedience towards her is because of her love, trust and care and not because notifications, ordinances and fear. The Queen Bee does not issue artificial bindings on rest of the bees in the hive. They are given freedom. Hence their work becomes play. The skill of the Leader/Director lies in creating congruence between work and play. The least rules/bindings and the most freedom are the backbone of the system. The Queen Bee breeds Worker Bees who chose The Next Queen Bee when the former grows older. It's worth appreciating and practicing that the succession decision is made by The Worker Bees and not at all by The Queen Bee. Further, there's not internal disturbance/chaos in the bee-hive.

"Amantram Aksharam Nasti, Nasti Mulam Anaushadham,
Ayogyah Purusho Nasti, Yojakah Tatra Durlabha."

"There's not an alphabet that is not a part of a hymn. There's not a tree root that's not having a medicinal value. Similarly no human being is incapable/inappropriate. The fact is that the Connector is rare." Andrew Carnegie, a Scottish- American industrialist and business magnate says, “My success is not to be attributed to what I have known or done myself, but to the faculty of knowing and choosing others who did know better than me. I did not understand steam machinery but I tried to understand much more complicated piece of mechanism-Man!”

The Essence

Realizing a human being and arranging him to reap utility for organization or society is a pre requisite of a leader/director. The mute intellect of hundreds of so called countryside, illiterate, handicapped, leprosy suffering agonized people has carved a virtuous monumental endeavor – “Ananadvan”. At the end of a severe disorder, a patient is treated with ‘gradual graded exercise’. Shouldering small responsibilities will finally generate the competence to accomplish greater responsibilities. “Not for the people but with the people.” has to be the underlying principle of the organization. The work for well being of others through only persistence mostly collapses. “I should work to destroy fear, hatred, inferiority and incompleteness within me and not form an illusion of well being of others. Agony within me has to blast their pains. My sorrows and someone else’s sorrows are the reasons for a blend standing firmly against massive sorrows.

The bad word of mouth artificially created by unnecessary competition/rivalry is a matter of concern. It has to be dealt with the help of commitment to the organization and not by initiating a blame game. Good work is self sufficient. Expansion without consolidation is hollow. Production oriented social service is the need of the hour. Times demand for a social approach which is a brainchild of profits resulting from some sort of production. Why should an organization working for betterment of widows and divorcees not have their own laundry, fruit processing and canning unit or a tailoring firm?

“Money makes money is itself an economic doctrine.” Production is commanded by corporate and business conglomerates in the United States of America. But the cooperative system will be ruled by society and nonprofit organizations. The emergence of democratic communism will indeed be a socialist foundation.

Vinoba Bhave

Biographical Details

Vinoba was born on September 11, 1895 at the village of Gagoda in Raigad district of Maharashtra.Vinoba stands as a symbol for the struggle of the good against the evil, of spiritual against the mundane. He was a spiritual visionary, whose spirituality had a pragmatic stance with intense concern for the deprived. He was a brilliant scholar who could knowledge accessible to ordinary people. He was Gandhiji’s ardent follower, who could retain originality in thinking. As S. Radhakrishnan pointed out, “Indeed his life represents harmonious blend of learning, spiritual perception and compassion for the lowly and the lost.” His Bhoodan (Gift of the Land) movement started on April 18, 1951, he attracted the attention of the world. Untouched by publicity and attention, Vinoba had continued his efforts for a just and equitable society. In fact, his life is a saga of his commitment to nonviolent ways of bringing change, his yearning for the highest level of spirituality and his unwavering faith in human values and love.

The Odyssey

On June 7, 1966, 50 years after his meeting with Gandhiji, Vinoba announced that he was feeling a strong urge to free himself from outer visible activities and enter inward hidden form of spiritual action. After traveling through India, he returned to Paunar on November 2, 1969 and on October 7, 1970, he announced his decision to stay in one place. He observed a year of silence from December 25, 1974 to December 25, 1975. In 1976, he undertook a fast to stop the slaughter of cows. His spiritual pursuits intensified as he withdrew from the activities. He breathed his last on November 15, 1982 at this ashram.

Vinoba's contribution to the history of non-violent movement remains significant. It has to be admitted, however, that the achievement of Bhoodan - Gramdan movement in the material terms was much below the expected target. According to an estimate in total 41,94,270 acres was obtained, and the land actual distributed according to 1975 statistics was 12,85,738 acres. 18,57,398 acres was found unfit for distribution. Some of the remaining land got entangled in legal hassles and some was deserved to be written off. As against it has to be noted that Vinoba's movement rekindled faith in non-violence and human values advocated by Gandhiji. It presented an alternative to violence and a vision of non-violent society. It raised important questions regarding inequality prevalent in the society. Vinoba saw the land as the gift of God like air, water, sky and sunshine. He connected science with spirituality and the autonomous village with the world movement. He regarded the power of the people superior than power of the state. Many of his ideas remain relevant and inspiring in the strife-ridden modern times.

Inside Out

One more serious challenge being faced by Non-profit organizations is the inclination, rather habit/craze towards negativity of heart (thinking and feeling), mouth (talking) and body (acting/doing). This denotes the key difference between number of successful commericial organistions and NPOs. Tri-component model of attitudes involving cognitive, conative and affective components

When actions are ceased, we human beings take shelter in talking and boasting. And what can be an everlasting topic to talk about? Something which conveys an imagined self importance, praise of the self and criticizing anyone else, anything else. There are two sides like a full moon day and a new moon day to every object. Hence the freedom of an intellect of a critic is not objectionable. "The Sun showers infinite light in the day but it does scatter darkness in the night." Such a single sentence may question the very reason behind existence of the Sun! If again a defect is to be critically detected, a day will be seen between two nights instead of seeing a night between two days. There will then be born a jurisprudence which draws inferences not based upon flames of fire but its smoke. Lord Krishna illustrates this fun in the "Bhagvad Gita". And Lord has categorized these "Krishna Bhakts" (devotees of black side/negativity) into a separate class, the eyes of whom take pride in the Sun's night, a new moon day and smoke of the fire. The religion of us human beings who see darkness in the day as eyes are closed and who see darkness in the night as eyes are opened is spreading like a contagious disease. May be because the iris is black or there's an attraction for the black shade, the black side fascinates us. It's thus essential to enquire of a medicine to cure this contagious disease.

The Solace

The first medicine is to show the psyche an inward "Krishna" (black/negativity/faults) and not the outward "Krishna" (fault) to this "Krishna Bhakti" (devotion for black side/negativity) soaked in the heart. The habitual inspector of the world perhaps considers himself faultless, rather innocent. Once this illusion fades away, the stings and claws of inspection of we human beings will take a halt. There's a beautiful incidence in the Bible's New Testament. A woman committed some wrong. Judges were sitting for the final decision and justice. The fate of the woman pulled Jesus at the venue. The judges' decision arrived. "The woman is responsible for a severe crime. Make her body free by throwing stones." Jesus stood and appealed the crowd, "The one who is the purest of the pure should throw the first stone." The crowd stood still. Everyone gradually escaped. Jesus guided her and bid a farewell.

The second medicine is silence. The first medicine was to avoid seeing "Krishna" (black/negativity/faults) in others. But knowingly or unknowingly if "Krishna" in others is seen, the second medicine is of utmost utility. This medicine may cause restlessness as side effect in the beginning. There may emerge a few sleepless nights. But this will turn into calmness. The life-force will convert restlessness into sanctity.

The third medicine is work. One, who works wholeheartedly, does not possess an unproductive critical acumen inside. The way a farmer realizes the significance of each grain, a lover of work realizes the value of each moment. Any emphasis on "Karmayoga" is insufficient considering its impact. But in the light of current discussion over "Krishna Bhakti" (Devotion towards negativity), it's miraculously effective.

The Epilogue

The said three medicines seem to be bitter to tongue but are holistically sweet. The true self will not be healthy unless the negativity of heart (thinking and feeling), mouth (talking) and body (acting/doing) evaporate through introspection, silence and purity in work respectively. A medicine can't be denied because it is bitter. Moreover, this medicine is to be taken with honey. Honey will nullify bitterness. Love for all is honey. The honey cloaked dose will eventually sweeten the existence.

Entire realism needs an element of idealism. Here lies the gravity of exemplars. These two personalities from India had given the world a vision to resolve societal issues through unique ways. These ways stand as a lighthouse for non-profits in every walk of their functioning.

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Author Index

Life has been digitalized up to much extent. Digital endeavors have become central to everything. This book provides deep insights into significant and crucial changes due to touch of digital innovations in all the walks of business entities. The distinguished ways with which leaders, organizations, people have traversed can be experienced and replicated by the experimenters, learners and practitioners in the field of Management. This book will further contribute to comprehend the connection of digital dimensions to business world and will prove to be a bridge between generation of the youth and the experienced. Considering academics, the content in the book will enrich the teaching-learning phenomenon through case methodology.

The chapters in this book are categorized into sections given below:

1. Digital marketing
2. Technological innovations
3. Digital finance
4. Digital learning and education

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Contents

Acknowledgements

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It has been a very challenging and massive task to secure support of so many academicians, researchers and students besides a few industry representatives and receive their intellectual work in form of research papers and finally bringing it to a successful culmination in the release of the hard bound volumes at the inaugural function of the conference. We wish to express our sincere gratitude and appreciation to the many who made this publication possible.

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Laxmikant Baburao Deshmukh
Mayur Anil Dande
Wechansing Zyamsing Suliya
Bilal Tafazzul Husain

Introduction

It has been a journey from amoeba to homo sapiens – sapiens for the mankind. This journey is full of innovations. The orientations towards the marketplace in the form of production concept, to the latest one, digital concept have changed the shape of every walk in this very life.

IOT (Internet of things), digital marketing and finance, spread of numerous apps, etc., have added a good number of new words to the management glossary. A bank account holder seldom visits the bank, these days; leave apart standing in long ques. This has been possible due to clicks of buttons and cursers.

This book makes the curious readers travel through profound research papers and case studies based on digital innovations happening in all sorts of business entities. The book serves the purpose of being a friend, guide and a mentor for people who are having a well crafted indulgence in innovations and diffusion thereof. The book is categorized into four sections, viz., Digital Marketing, Technological Innovations, Digital Finance, Digital learning and education.

Digital Marketing

The first section digital marketing focuses on formulating the best strategies through digitalized attempts, reducing dilemmas and problems and thereby achieving the goal of customer satisfaction. The first chapter Online Digital Marketing Trends and Market Challenger Strategies in India by Dr. Bhagwan E. Ingle helps to understand the new ways adopted by the marketers and need to think of specialised digital initiatives in Indian context.

Second chapter, Twitter for Customer Engagement: An Enquiry by Sanskrity Joseph and Susheel Kumar Indurkar provides an in- depth analysis in the context of evaluation of the usefulness of the media vehicle Twitter and thereby build strong partnerships.

Laxmikant B. Deshmukh and Shaikh Avez Shaikh Kadir, in third chapter, Digital Marketing: An Innovative Approach towards Traditional Marketing, talk about using the new tools to succeed in the marketing domain instead of relying on the conventional ways.

Fourth chapter, Discomfort of Website Design in Online Shopping: A Study on Perceived Irritation as a Mediating Variable by Saket Ranjan Praveer and Ashish Kumar Srivastava illustrates varied influences with reference to online shopping intention towards apparels and reflects concerns during website design.

Deepika Pareek and Harshali Gomase in the fifth chapter, a Study of Service Innovation in a Digital World present the feasible, cost effective and innovative ways to identify and nullify threats.

Sixth and last chapter in this section, innovative Marketing Strategies of Leading Shoe Manufactures – A Study, written by Laxmikant B. Deshmukh, Dattatray Sanjay Sushir, Mayur

Ganesh Umale and Shivam Vitthal Satarkar explains in detail the similarities, differences, augmentations between Nike and Adidas.

Technological Innovations

Second section of the book concentrates on design, research, structures, processes and value additions in digital terms to businesses.

First chapter, Facility Planning and Design at SIT Workshop put forth by Jyoti Prakash Pati, Soumya ranjan Mohapatra, Aditya Ranjan Parida, Pranay Biswal, Siddharth Sankar Muduli and Ramesh Chandra Nayak elaborates layout, arrangement, planning and implementation of processes in order to maximize effectiveness.

Abhijit Majhi, Antaryami Das, Rakesh K. Mohanty, Etikeshan Pagal, Biswajit Swain and Ramesh Chandra Nayak, in second chapter, Design And Development Of An Epicyclic Gear Operated Irrigation System to Help Farmers For Their Irrigation Purpose, diffuses the idea of innovations for resolving farming problems, especially modifies the irrigation practices.

Third chapter, A Research on the Upcoming Era of Block Chain Technology written by Harshali Baliramji Gomase and Anurag Nandkishor Waghmare presents the each minute facet of the current block chain technology and suggest possible solutions for further making this technology diffusion speedy.

Next chapter, Model For Achieving Innovation: The Triple Helix Model, by Pooja B. Udasi, P.W.Nimbhorkar and S.B.Kadu talks about strengthening the collaborative relationships among academia, industry and government. Nearly all the WH questions regarding such a collaboration are addressed by them.

Fifth chapter, A Comparative Study On Stock Performance Of The Listed Companies of New York Stock Exchange and National Stock Exchange, thought of by Shivani Agarwal and Krishna Kant Dave offers the readers an opportunity to grasp the ins and outs of the listed companies and realize the differences between operations of between the said stack exchanges.

Om Masne, Mohit Bohra, Gita Fase, Kshitij Khillare and Amitkumar Manekar, in sixth chapter, A Review on Pose Estimation And Its Recent Progress, illustrate challenges in computer vision field, richness of applications, approximation of object placement and location relativity to the reference frame.

Seventh chapter, interactive Smart Mirror Using Raspberry Pi 4, prepared by Akshay J. Agrawal, Vaishnavi S. Kanherkar, Kalyani U. Bonde, Radhika S. Jadhav and Amit S. Manekar provides broad views on Smart Mirror acting as the information desk for new visitors, employees and clients. They have made use of IOT and AI for this purpose.

Amitkumar Manekar, in eighth chapter, Taxonomy and Open Challenges of An Innovative Bio Inspired PSO Algorithm for Optimization in Big Data Analytics Application, justifies his views on problems such as time limitations and high dimensionality in choosing the optimum solution. He also attempts to integrate bio-inspired optimization algorithms to solve the problems of traditional optimization algorithms, which represent a potential approach for tackling complex optimization problems.

Digital Finance

This section draws attention towards dynamic environment, the ever changing customer preferences, independent and dependent economies, public and private organizations' views towards digital innovations. It elucidates the ongoing practices by organizations too. First chapter, Innovation in Finance – A Study on Crypto Currency in India, written by Vaishnavi Mohandas Ingle enquires about the investment avenues and the Crypto currency acceptance rate in India. It also throws light on the future prospects and offers a bunch of suggestions in this direction.

Second chapter, A Study of Different Investment Parameters, by Tushar A. Wankhede helps to understand the way youngsters in the country are investing and also studies the selection of specific securities backed by their strong, rational, logical reasons.

Prasad Khanzode and Deepesh Kumar Zamad, in third chapter, Ad E-Rupi: A Financial Innovation for Transparent Delivery of Welfare Schemes point out the need for more transparency and offer probable solutions. They also converge themselves on merits and limitations of the e-Rupi mechanism as well as its extended use by private sector for their employee welfare and Corporate Social Responsibility (CSR) programs.

Fourth chapter, Changing Face of Rural India through Digitalization of Self-Help Groups: A Review by Shradha Chourasia and S. B. Kadu is interesting indeed. This is because it might be one of the very few endeavors wherein digitalization of the neglected arena is thought of. Reaching the last ladder through self help groups supplemented with digitalization is their idea.

Fifth and last chapter in this section, Innovation In Finance -A Study Of Bond ETF Market With Special Reference To Bharat Bond ETF, written by Anuja Vilasrao Thakare focuses on the concept of ETF, its growth, awareness in Indian market with special reference to Bharat Bond ETF. It also compares ETF with other investment avenues available in market.

Digital Learning and Education

This section provides an orientation of the use of ICT in education, public and private sector initiatives of the education providers, allied advantages and disadvantages, opportunities for reducing costs and also takes into consideration the scenario of teaching-learning during the COVID-19 pandemic.

First chapter, Transformational Leadership, Knowledge Management and Educational Innovation in Higher Educational Institutes of Jodhpur, thought by Nidhi Jain and Puja Gehlot presents data backed analysis of the contemporary situations, inadequacies, boons, collaborative vigor and future prospects in a city like Jodhpur, India.

Ms Pallavi M Kandalkar, in second chapter, Farmers Empowerment through Innovations, assists the readers to better comprehend grass root level issues and reasons behind them.

Further, the case study of Shailesh Nathe, owner of Green Plants Farmer Producer Co. Ltd., Amravati, Maharashtra, India explains the steps to be taken to tackle the issues.

In third chapter, the Experience of Students from Online Learning with Reference to Amravati City – A Study, Sakshi V. Deshmukh discusses about the virtual learning opportunities during the pandemic. She elaborates online learning environments, flexibility, interaction and collaboration as well.

P.W. Nimbhorkar and P.B. Udasi, in next chapter, Innovation for Education in India, take our eyes to barriers for innovation in education. Developmental critical thoughts, inventiveness, and behavioural and social skills are analysed to eradicate these barriers.

The fifth chapter, Comparative Analysis in Lead Recycling Sector – Gravita India Ltd. vs Nile Ltd. By M.B.A. students, Akash Navkar, Anita Mali, Deval Gawande, Swati Ingle and Vaishali Indure illustrates strategies of both the entities through qualitative and quantitative data. Cash flow ratio and Cash conversion Cycle Ratio of both Companies are also utilized by them.

Sixth and last chapter, Life Management in India during Covid-19 Period- a Study by Wechansing Z. Suliya and Ku.Madhuri Chandwani argues by addressing the WH questions about accelerating the pace of innovation. They further emphasize the role of opinion leaders and early majority in making the innovative offerings reach bottom most of the ladder.

Laxmikant Baburao Deshmukh
Mayur Anil Dande
Wechansing Zyamsing Suliya
Bilal Tafazzul Husain

DIGITAL MARKETING

Online Digital Marketing Trends and Market Challenger Strategies in India

Bhagwan E. Ingle

Abstract: *Marketing is the back bone of the Economy of every country, and is related to emerging changes in the commerce as well as Digital aspects. Everyone has smart phone and availability of the internet. Huge numbers of internet consumers want to purchase goods from their houses without going to the market. Social media trends can be seen in marketing and are increasing day by day, which allows consumers to directly purchase goods/articles or services from vendors with the help of internet. Online marketing helps the customer for purchasing all types of goods and also services. This can also be referred to as 'online marketing', 'internet marketing' or 'web marketing. In the age of Online/Digital Marketing, there are tremendous opportunities in India. There are even some challenges. Due to online marketing consumers can be benefitted by good quality goods and services because in this process customers get lots of options for choosing the goods or services. That's why vendors have to provide good quality goods and services. Online digital marketing encompasses all marketing efforts that use an electronic device or the internet. Businesses leverage digital channels such as search engines, social media, email and their websites to connect with current and prospective customers. They are having some advantages and disadvantages. For removing such disadvantages, vendors have to make strong market policy.*

Keyword: Online Marketing, Digital Marketing, Economy, Vendors

Introduction

21^{st} century is recognised for the age of Information Technology and most of the people are using tremendously the internet and fulfil their needs from purchasing goods and services from using the internet which is called social media marketing. This is the new pioneer in current scenario in the world. Online stores usually enable shoppers to use "search" features to find specific models, brands or items. When an online store is set up to enable businesses to buy from other businesses, the process is called business-to-business (B2B) online shopping as well as Online Marketing. Consumers search and find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product's availability and pricing at different e-retailers. In short, Digital Marketing is the beneficial for customers as well as vendors because by the aspects of both it is easy and mediator less Marketing, consumers can purchases all types commodities by using their smart phones from their homes without going to Market.

Objectives of the Study

The present paper is designed for following objectives:

1. To search the concept of Online/Digital Marketing with its definition.
2. To study the online digital market process.
3. To find out advantages and disadvantages of Online Digital Marketing.
4. To study about Market Challenges and allied Strategies in India
5. To study the challenges, opportunities of online Shopping in India

Research Methodology

The study is based on secondary data collected from reputed articles of research journals, books, prominent sites, reports sets, relevant to Online Digital Marketing articles. The study is all about to focus on online Digital Marketing with aspects which shown in objectives of the study.

Definition of Online or Digital Marketing

Definition: Online or Digital marketing is a method that uses the internet to promote or transmit a message about a company's product and services to the potential buyers or target audience.

The Online Digital Market Process

Online digital marketing encompasses all marketing efforts that use an electronic device or the internet. Businesses leverage digital channels such as search engines, social media, email and their websites to connect with current and prospective customers. This can also be referred as 'online marketing', 'internet marketing' or 'web marketing'. In simple terms, any form of marketing that exists online is called as Digital Marketing. Digital Marketing process broadly involves the following steps:

- **Website:** A company must design its website that considers its purpose, products, services, mission and vision. A website should look interesting to view to encourage multiple visits. A website must have the following 7Cs in order to be competent:

- **Content:** It can have graphics, sound, text and video.
- **Context:** It means the layout and design of a website.
- **Customization:** It refers to the site's ability to provide results according to the customer's requirements.
- **Communication:** It should establish two-way communication with the user.
- **Community:** It facilitates user to user communication.
- **Connection:** The extent to which one site provides links to the other sites.
- **Commerce:** A site should assist in commercial transactions as well.

There are certain parameters on the basis of which the visitors can observe the performance of the website. These parameters are: how much user-friendly a site is? And how much attractive it is?

A site's user-friendliness can be ascertained by landing page, navigation to other pages, downloading capability. On the other hand, physical attractiveness is determined by view ability, readability, colours used and so forth.

- **Search Ads**: Pay-per-click ads are the most important element of the Search Ads. When a visitor searches any term on the search engine, the ad of the marketers appear either on the top of the results or next to it, on the basis of the bidding by the marketer and the search engine's algorithm, to identify its significance with respect to the keyword searched. Only when the visitor clicks on the ads, advertisers pay for it.
- **Search Engine Optimization (SEO)** entails the activities that improve the probability that a particular link will appear in the top among all the non-paid links when the visitor searches for a particular keyword.
- **Display Ads**: Display ads or otherwise called as banner ads are the ones that appears in a tiny rectangular box that encompasses text and sometimes graphics, which marketers pay on the placement on specific websites. The cost depends on the traffic on a website, meaning that the more the number of visitors, higher is the cost.
- **E-Mail**: E-mail is quite productive and reasonable selling tools as it enables advertisers to message in order to communicate with a large audience base at a comparatively low cost.
- **Social Media Marketing**: It is one of the emerging modes of marketing these days. Consumers share their videos, audios, texts, and images through various social media platforms Facebook, Twitter, Google plus, Instagram, LinkedIn, Pinterest, etc. with their friends, relatives, acquaintances and companies.
- It facilitates the marketers to make their presence online and connect with their customers directly.

Advantages of Online Marketing

1. A company can grow faster and reach the target audience through a broader range of marketing elements.
2. It has a competitive advantage over traditional means of marketing.

3. It is easy to trace the number of unique visitors, average session duration, click on an ad, and so forth.
4. Contextual placement is one of the important features of online marketing wherein the marketers can buy ads on the websites which akin to their own products and services.
5. Marketers can also place the ads on the basis of the keywords typed by the customers on Google and other search engines like Bing and Yahoo, to reach the target audience.

Disadvantages of Online Marketing

1. Fake clicks on the ads done by software-powered websites.
2. Hacking of the website is possible, which results in the loss of control over the messages.
3. Lack of tangibility

Nevertheless, the advantages of online marketing supersede its disadvantages. As nowadays people spend most of their time surfing on the internet, it instigates marketers all around the world, to advertise their offerings online for broader reach and better results.

Market Challenger Strategies

Definition: The **Market Challenger Strategies** are the marketing strategies adopted by the firms, either occupying the third or runners-up position in the market, to attack the leader or the immediate competitor with the intention to capture a greater market share and earn huge revenues.

Mostly, the market challengers are those firms, which have a good reputation in the market and enjoy a strong financial position. These firms target the market leader or the competitor at the same level with the objective, to reach the first position in the market or become an industry leader.

Market Challenger Strategies

The following are the general attack strategies adopted by the market challengers with a view to becoming a market leader and increase the market share.

1. **Frontal Attack:** The frontal attack is the direct attack, wherein the market challenger matches with the competitor's product, price, advertising, and promotion activities.

   The market challenger can even cut the price of the product, provided he convinces the customers that the quality is not compromised and is as good as the high priced products.

   E.g. Amul adopted this strategy when it launched Amul Kool and Amul Masti Dahi at a low price with the same level of the quality as that of other competitors in the market.
2. **Flank Attack:** The flank attack means, attacking the competitor on its weak points. Here the market challenger determines the weak areas of the competitor in terms of two strategic dimensions, i.e. Geographic and segmental.

   The challenger finds the areas where the competitor is under performing and then pushes its marketing strategies in that area. Also, the challenger spots the segments which the competitor left untapped and try to cover that segment through its products and services.

   E.g. L.G has successfully made use of this strategy by introducing the colour TV "Sampoorna" for the rural people and outshine the other coloured TV players who had a less focus on these areas.
3. **Encirclement Attack:** The encirclement attack means, attacking the market leader or a competitor from all the fronts simultaneously, it is the combination of both the frontal and the flank attack.

   Here, the market challenger launches several offensive campaigns i.e. surrounds the competitor with a varied brand and forcing the competitor to defend himself from all the sides simultaneously. This strategy is adopted to enjoy the long-term market dominance.

   E.g. The FMCG industry applies this attack more aggressively with the intention to outshine the other. ITC and HUL could be the best examples.
4. **Bypass Attack:** The bypass attack is the indirect attack, wherein the market challenger does not attack the leader directly, but broaden its market share by attacking the easier markets.

   The challengers can bypass the leader by following any of the strategies viz. Expanding into the untapped markets, diversifying into the unrelated products, modernizing the existing product with the invention of technology.

   E.g. Pepsi adopted this strategy when it launched its mineral water brand "Aquafina" very well before the Coca Cola's mineral water brand.
5. **Guerrilla Warfare:** The Guerrilla warfare is the intermittent attacks imposed by the challenger to demoralize the competitor by adopting both the conventional and unconventional means of attack.

   E.g. The Pepsi and Coca-Cola follow this strategy aggressively with the intention to harass each other. When the Coca-cola was the official partner of the world cup, the Pepsi counter-attacked it by using the punch line " Nothing official about it".

Thus, These are the major market challenger strategies that a firm may follow depending on its market position and the amount of resources held with the firm.

Conclusion

In the age of internet, Online Digital Marketing has tremendous opportunities in India and even having some challenges. Due to online shopping, consumers can benefitted by good quality goods and services because in this process customers get lots of options for choosing the goods or services. That's why vendors have to provide quality goods and services. It is having some advantages and disadvantages. For removing such disadvantages, vendors have to make strong market policy.

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Twitter for Customer Engagement: An Enquiry

Sanskrity Joseph and Susheel Kumar Indurkar

Abstract: *Communication is the key to strong partnerships. The strongest partnership a marketer aspires to is with its valued customers. A Strong partnership can result in customer retention. In the present era of social distancing, social media has become a vital communication channel. Marketers use various social media platforms as media vehicles to communicate with customers. The present paper is a modest attempt by researchers to evaluate the usefulness of the media vehicle Twitter. Twitter is a micro blogging site that helps flow information between the receivers and senders, i.e. the marketers and customers. The present paper evaluates the importance and usage of Twitter as a media vehicle in the following patterns: (a) what is being discussed on Twitter and its mirroring with important events? (b) role of Twitter in customer engagement.*

Keywords: Social Media, Media Vehicle, Twitter, Micro Blogging, Mixed-Method Approach, Ethnographic Content Analysis Customer Engagement

Introduction

"Customer is the king of the market." Marketers across the globe have initially questioned this phenomenon, then understood it, and have now accepted it. The conscious movement from mass marketing to niche marketing underlines the importance and say of customers in the area. Through their opinion article and empirical work, academics and researchers have often investigated the matter of customer retention and customer acquisition. Ahmad and Buttle (2001) indicated that the traditional marketing approach relied heavily on the acquisition of customers through a dedicated market mix strategy, and customer retention was often considered the end game. The recent changes in the market have made customer loyalty a valued dream; therefore, the marketers understand that customer retention should be part of the centre stage of their marketing strategy. Further customer awareness saves grown, and customers have realized their power. Customers understand that threshold power to demand products and services can be tailor-made according to their needs and wants. Further, McDougall (2001) opined that retention levels are high in those industries where customers are getting higher values across all industry segments. Many studies have additionally tried to analyse the variables affecting customer retention. Marketers are devising strategies like customer engagement to continue the cycle of customer retention. Customer engagement is a continuous activity for marketers to communicate with customers through others plethora of media vehicles to enlighten them about their brand dialogue behaviour and understand their intention to purchase behaviours. Maslow et al. (2016) opined that customer engagement results from brand dialogue behaviour. Their study indicated that the conscious efforts made by companies to engage customers across platforms highlighting their shopping and brand experience coupled with the definition of their offered brand results in customer engagement. The growth of the virtual world and the advent of social media have revolutionised customer engagement concepts. Anubha and Shome (2021) further highlighted marketers' usages of new social media platforms to engage and influence customers. Riley (2020) highlighted the USP of social media platforms and their alarming challenges for customer engagement by specifying that social media platforms provide a competitive advantage for content creation and customer interaction but pose a continuous strain on companies' resources and marketing teams due to constant and free-flowing interaction. Ariel and Avidar (2015) investigated the social media environment and have classified them based on information, interactivity, and sociability. Further, O'Reilly (2007), who coined the term social media, has differentiated social media platforms based on user participation in content generation, user experience, and decentralisation. Social media platforms are giants which can act as a good help when used cautiously by marketers but can be thoughtfully converted into burdens due to lack of control by the originator on the flow of information due to its excessive decentralisation. Bentz et al. (2021) have indicated that information across social media platforms is present in an open playing field, and its reliability is often questioned and debated by users for authenticity. Further, Enke and Borchers (2019) have discussed that social media influencers can strategically create relationships only through proper content creation, distribution, and interaction. In the following backdrop, the paper is an earnest attempt to analyse whether the micro blogging site Twitter which provides a broad scope for content creation, distribution, and interaction, acts as a customer engagement platform.

Twitter as a Social Media Platform

Aichner & Jacob (2015) have undertaken an in-depth analysis of social media platforms available for corporate usage. They have divided the social media platforms into thirteen categories based on their distinct characteristics, which are being used by corporate across the globe, namely: (i) Blogs, (ii) Business networks, (iii) Collaborative projects, (iv) Enterprise (v) Social Networks, (vi) Forums, (vii) Micro blogs, (viii) Photo Sharing, (ix) Product service review, (x) Social Bookmarking, (xi) Social Gaming, (xii) Social Networks, (xiii) Video sharing and (xiv) Virtual World.

The researchers in the present study have chosen to analyse the micro blogging site Twitter as a social media platform for the purpose of customer engagement. Micro blogging sites twitter was established in March 2006 by Darcy, Glass, and Stone in Williams in America. Twitter as a social media platform can be analysed based on the production, flow, and consumption of information shared by the users and producers of information. The conversation made in the micro blogging site Twitter is referred to as a tweet. A tweet is generated content that can be 140 characters. The users of micro blogging sites are divided into individuals who are followers of a twitter handle and who are following a twitter handle. A blue tick identifies the verified user handles. The followers can re- tweet the content on twitter for further viewing, the followers can like the content and they can also give their opinions in the form of comments. The content on twitter is usually discussed with the sign (#) hash tag for identification and the person towards whom it is directed is highlighted by @ followed by user name. The tweets on twitter can be arranged as top stories, latest stories, people, photos, and videos. Tweets can be shared via direct message, through links, and through tweets.

What Users Discuss on Twitter

Rogstad (2016) made an interesting enquiry to understand the working of micro blogging site twitter. His research was focused on analysing whether twitter is a reflection of information available in mainstream media or it provides another important relevant content that can affect society. Further Park and park (2013) highlighted that twitter can be extensively used to develop mass opinions, initiate discussions, and organise collective actions. The researchers assumed that Twitter in India is also instrumental in discussing relevant issues. Therefore, an inquiry was made to understand what Twitter users discuss on twitter. The time framework to find out the highest tweeted hash tag on twitter was from 22nd March 2020 to 30th June 2020 when the country was under Lockdown and was facing the effects of a pandemic due to COVID-19.

Table 1

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
22-03-2020	Bhula Dungaft Sehnaz	1.1 M	Entertainment	Janta Curfew	Did not match
	Who can Save_the_ world	1.1 M	Religion		
23-03-2020	Janta Curfew	1.2 M	Social	1. Sri Shivaraj Sigh Chouhan takes oath as CM of Madhya Pradesh. 2. Maoist attack in Sukama kills 17 paramilitary personnel's	Did not match
24-03-2020	Bhula Dunga FT sidnazz	1.4 M	Entertainment	PM Sri Narendra Modi Announced 21 Days Lockdown	Did not match
25-03-2020	Essential	767.4K	Social	Mass movement by migrant	Did not match

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
26-03-2020	HBD Royal Ramcharan	695.4K	Entertainment	Finance mister announces ₹1.7 Trillion plan for poor and migrants	Did not match
27-03-2020	China	2.0 M	Political	1. PM Modi announced Light Diya's, Candles to give Hope to the poor. 2. RBI allows moratorium on loan repayments	Did not match
28-03-2020	Police	630.0 K	Administrative		
29-03-2020	Carona Lockdown	364.3 K	Social		
30-03-2020	Let's Love Suho	749.4 K	Entertainment		
31-03-2020	April Fool day	1.3 M	Social	Delhi's Nizamuddin emerges as Corona virus hot spot	Did not match
01-04-2020	April Fool day	2.8 M	Social	Tablighi Zamat organised in Nizamuddin Delhi Continues to Stir trouble	Did not match
02-04-2020	Shrimad Bhagwat Gita k Rehasya	327.1 K	Religious		
03-04-2020	Shri Ram	290.1 K	Religious		
04-04-2020	Self-Made Sehnaz	731.2	Entertainment	FIR against unknown person for an online advertisement to sell l statue of Unity	Did not match
05-04-2020	Sid hearts proud of Sid	565.8 K	Entertainment	Millions of Indian Light candles, Diya's and torchlight on the call of PM Sri Narendra Modi	Did not match
06-04-2020	wrestle mania	609.1 K	Sports		

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
07-04-2020	happy birthday Allu Arjun	1.3 M	Entertainment		
08-04-2020	Trump	3.7 M	Political	Vice Precedent Sri Venkaiya Naidu indicates Locke down could be extended	Did not match
09-04-2020	Trump	4.0 M	Political	1. RBI, in its monetary policy report, discussed the ill effects of domestic lockdown. 2. Punjab Govt. made wearing face mask mandatory in public places	Did not match
10-04-2020	Trump	3.1 M	Political	PM Sri. Narendra Modi organized a digital meet with CM's of all the states to discuss lockdown extended.	Did not match
11-04-2020	Sehnaz magic everywhere	658.4 K	Entertainment		
12-04-2020	Sehnaz magic everywhere	1.1 M	Entertainment		
13-04-2020	dil se Sidnaaz	2.1 M	Entertainment		
14-04-2020	1Donlineconcertstay at home	1.3 M	Entertainment	Centre detained lockdown till 3rd May 2020	Did not match
15-04-2020	Trump	4.2 M	Political		
16-04-2020	Trump	4.2 M	Political	1. Govt. allows e-commerce; agree industry to resume from April 20th, 2020. 2. Palghar Mob lynching	Did not match

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
17-04-2020	Trump	3.2 M	Political		
18-04-2020	Trump	3.0 M	Political	Director of 7 IITs announced plans to boycott time higher education world university ranking.	Did not match
19-04-2020	BangBangcon_D2	2.4 M	Entertainment		
20-04-2020	China	1.5 M	Political	The situation becomes serious in Mumbai, Pune, Indore, Jaipur, and Kolkata due to the Covid-19 condition.	Did not match
21-04-2020	China	1.3 M	Political		
22-04-2020	Decade for classic darling	1.5 M	Entertainment	Union Cabinets approves ordinance making act of violence against Doctors as a non-billable offence.	Did not match
23-04-2020	Decade for classic darling	1.8 M	Entertainment		
24-04-2020	Congress	680.3 K	Political	Meeting between PM Sri. Narendra Modi and Finance Minister for a second economic package	Did not match
25-04-2020	Yoongi	915 K	Entertainment	Govt. allows opening of shops with 50% strength	Did not match
26-04-2020	Thalaajit BDay Gala CDP	2.8 M	Entertainment		
27-04-2020	Thalaajit B Day Gala CDP	3.1 M	Entertainment		
28-04-2020	14yearsforsouthindian1 Pokhari	3.7 M	Entertainment		

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
29-04-2020	Gigi	650.4 K	Entertainment	Govt. cautioned against the use of Plasma Therapy, and 1000 confirmed deaths were recorded on April 29 in India.	Did not match
30-04-2020	HBD Dearest Thala AJITH	4.8 M	Entertainment	Govt. allows movement of laborers, students, tourists back to their home states who did not have symptoms of Covid-19	Did not match
01-05-2020	Vijay The Face of Kollywood	2.7M	Entertainment	Lockdown extended till May 17th, 2020	Did not match
02-05-2020	0613FM_0502	349.4 K	Entertainment	Shramik special trains for Migrants	
03-05-2020	Stop Targeting Muslim	335.6 K	Political		
04-05-2020	Who is Kall	321.7 K	Religious	India entered 3rd phase of nationwide lockdown known as lockdown 3.0	Did not match
05-05-2020	Taekook	1.9 M	Entertainment	Cross border clash between India and Chines Soldiers at Nathula Crossing	Did not match
06-05-2020	Taekook	2.0 M	Entertainment	India Security Forces killed wanted terrorist Riyaz Naikoo	
	IUxSUGA	2.0 M	Entertainment		
07-05-2020	X AE A-12	1.1 M	Social	1. Vande Bharat's mission began to bring stranded Indians home from Foreign countries.	Did not match

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
				2. Gas leak at a chemical plant in Vishakhapatnam	
08-05-2020	X AE A-12	411.0 K	Social	16 migrant workers returning by foot were killed by goods train accident near Karmad in Aurangabad	Did not match
09-05-2020	NTR Birthday CDP	2.2 M	Entertainment		
10-05-2020	8YrsofGabbarSingh Hysteria	6.0 M	Entertainment		
11-05-2020	Mother's Day	2.0 M	Social		
12-05-2020	Mother's Day	1.9 M	Social		
13-05-2020	SUHO	333.5K	Entertainment	Finance Minister Dr. Nirmala Sitaraman announced majors of 5.94 trillion as part of a 20 trillion monetary package.	Did not match
14-05-2020	Hobi	382.4K	Technology		
15-05-2020	Percy Jackson	560.0 K	Entertainment	Finance Minister announced 3rd Set of economic measures for agriculture and agreed on the related industry.	Did not match
16-05-2020	Taegi	523.5 K	Entertainment	1. India overtakes China regarding the total number of reported cases. 2. Finance Minister announced 4th set of stimulus measures	Did not match

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
17-05-2020	Samay Rahte Pahchan Le	563.5 K	Religious	Lockdown extended till 31st May	
18-05-2020	Jaehyun	740.5 K	Entertainment		
19-05-2020	Happy Birthday NYR	9.8 M	Entertainment	Corona virus cases continue to increase, and India tested more than 100000 samples in 24 hours.	Did not match
20-05-2020	Happy Birthday Mohanlal	958.7 K	Entertainment	Cyclone Amphan causes kiosk in West Bengal	Did not match
21-05-2020	Happy Birthday Mohanlal	1.3 M	Entertainment		
22-05-2020	agustd2	2.3 M	Entertainment		
23-05-2020	agustd2	3.4 M	Entertainment		
24-05-2020	Alkhidr is Allahkabir	722.9 K	Religious		
25-05-2020	BAEKHYUN candy	945.0 K	Entertainment		
26-05-2020	Eid MubaraK	422.4	Religious		
27-05-2020	China	964.4 K	Political	1. Petroleum gas oil leak in Oil field in Assam 2. Death of pregnant elephant by a firecracker in Palakkad	Did not match
28-05-2020	Black Live Matter	4.6 M	Social		
29-05-2020	Trump	6.4 M	Political		
30-05-2020	Trump	6.0 M	Political		
31-05-2020	Trump	4.4 M	Political	India record 5000 deaths due to Covid-19	Did not match
01-06-2020	Antifa	3.8 M	Political	1. India became the 7th most infected country 2. Indian Rail starts 200 special trains	Did not match

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
02-06-2020	white house	1.7 M	Political	Cyclone Nisarg hits western coast of India	Did not match
03-06-2020	Suryabirthdayfestin 50days	746.7 K	Entertainment	Cyclone Nisarg hits western coast of India	Did not match
04-06-2020	Jungkook	1.5 M	Entertainment	Cyclone Nisarg hits western coast of India	Did not match
05-06-2020	623rd God Kabir prakat Diwas	505.4 K	Religious	President of India appraises three ordinances related to agriculture	Did not match
06-06-2020	box office king ramcharan	1.2 M	Entertainment		
07-06-2020	sidnaaz shines	2.1 M	Entertainment		
08-06-2020	dear class of 2020	1.6 M	Social	Phased reopening begins after 75 days of lockdown, known as unlocking 1.0	Did not match
09-06-2020	happy birthday NBK	751.4 K	Entertainment		
10-06-2020	happy birthday NBK	975.3 K	Entertainment		
11-06-2020	happy birthday NBK	953.2 K	Entertainment	India surpasses the UK to become 4th worst hit nation	Did not match
12-06-2020	7ToEternitywith BTS	2.0 M	Entertainment		
13-06-2020	THALAPATHY B day Fest CDP	3.2 M	Entertainment		
14-06-2020	Bang Bang Con The Live	1.7 M	Entertainment	Death of Sushant Singh Rajput	Did not match
15-06-2020	Shocked	430.8K	Social	20 personnel of India Army were by in Galwan valley of Laddakh in cross border tension with China	Match

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
16-06-2020	Soldiers	534.5 K	Social	20 personnel of India Army were by in Galwan valley of Laddakh in cross border tension with China	Match
17-06-2020	America	991.2 K	Political	1. India registers the highest ever 2003 COVID -19 deaths every day. 2. India wins two years seats on UN security council	Did not match
18-06-2020	America	1.2 M	Political		
	Bolton	1.2 M	Political		
19-06-2020	America	1.2 M	Political		
20-06-2020	Advance HBD Mahesh Babu	2.5 M	Entertainment		
21-06-2020	HBD Thalapathy Vijay	4.9 M	Entertainment		
22-06-2020	HBD Thalapathy Vijay	5.6 M	Entertainment		
23-06-2020	Apple	709.3 K	Technological		
24-06-2020	Taeyong	440.5 K	Entertainment		
25-06-2020	Liverpool	997.5 K	Sports	1. CBSE cancels Board exams. 2. Indian Rail suspended all passenger trains except Rajdhani and Migrant Special train till 12th August 2020	Did not match
26-06-2020	Lisa	2.1 M	Entertainment		
27-06-2020	Liverpool	788.6 K	Sports	India reported half a million active COVID -19 cases	Did not match
28-06-2020	Mask	1.3 M	Social		

Date	*Hashtags*	*Highest Tweets*	*Area Assessment*	*Important News during the Selected Period*	*Matching of Twitter Hashtag and News Discussed on Media*
29-06-2020	Mask	1.4 M	Social	Indian Govt. banned 59 Chinese App	Did not match
30-06-2020	Tik Tok	328.7 K	Social	PM Sri Narendra Modi addressed the nation for unlocking 1.0	Did not match

Source: www.trends24.in; www.wikipedia.org and www.business-standard.com (Data Complied by the researcher)

From the above table it can be analysed that during the selected period the hashtags related with entertainment field were 53 followed by politics which were 22, social were 16, religion were 08, sports were 03, technology was 02 and administrative were 01 respectively. Further analysis of major events in the selected period indicated that the hash tags trending on Twitter did not match the major news in concern. Further, the analysis of important news during the chosen period and the issue discussed on Twitter matched only twice and did not match for 47 times.

Role of Twitter in Customer Engagement

The increasing social media presence can see the impact of social media on customer engagement of various industries. Malhotra and Balvinder (2016) indicated that social media platforms' popularity, interaction, and content could be used to understand the level of customer engagement present for social media platforms. The researchers have assessed the customer engagement of selected banks like State Bank of India, ICICI Bank, Axis Bank, Kotak Mahindra Bank, HDFC Bank, and Yes bank on parameters of popularity, interaction, and content.

The Popularity of Selected Banks on Twitter

The popularity of selected banks on Twitter was judged based on the number of followers on Twitter of selected banks (Table 2).

It can be seen from the above table that the number of followers on Twitter of selected commercial banks like State Bank of India, ICICI Bank, Axis Bank, and HDFC Bank has increased over a period of time from 2020 to Feb 2022. Further, it can also be noted that the number of followers of Yes Bank has declined in the selected time span. Additionally, HDFC Bank showed the highest percentage increase in followers as 43.02%, followed by Axis Bank with a 30.72% increase, ICICI Bank with 29.73% increase, and State Bank of India with an 11.40% increase. Further, it can be seen that Yes Bank showed a decrease of 5.77% in Twitter

Table 2

S. No.	*Name of the Banks*	*Number of Followers as of Feb 2022*	*Number of Followers in 2020*	*Increase or Decrease in the Number of Followers*	*Percentage Increase or Decrease in Followers*
1	State Bank of India	4422864	3970280	452584	11.40%
2	ICICI Bank	693048	534235	158813	29.73%
3	Axis Bank	397828	304343	93485	30.72%
4	HDFC Bank	510285	356789	153496	43.02%
5	Yes Bank	1627468	1727100	-99632	-5.77%

Source: Compiled by the Researcher and https://www.retailbankerinternational.com/news/banks-on-social-media-ranking/

followers. Further, the follower and the following ratio was also calculated by the researcher to find out the level of popularity of twitter handles of selected banks (Table 3).

Table 3

S. No.	*Name of the Banks*	*Number of Followers as of Feb 2022*	*Number of Users of Following as of Feb 2022*	*Ratio Followers/ Following * 100*
1	State Bank of India	4422864	22	20103927.3%
2	ICICI Bank	693048	3633	19076.4657%
3	Axis Bank	397828	368	108105.435%
4	HDFC Bank	510285	246	207432.927%
5	Yes Bank	1627468	95	1713124.21%

Compiled by the Researcher

It can be seen from the above table that the followers: following ratio of HDFC bank (207432.927%) is highest, followed by State Bank of India (20103927.3%), ICICI Bank (19076.4657%), Yes Bank (1713124.21%), and Axis Bank (108105.435%) respectively.

Interaction of Selected Banks on Twitter

Further, the study has used the mixed method approach suggested by Vankatesh et al. (2013) to analyse the interaction in the following steps:

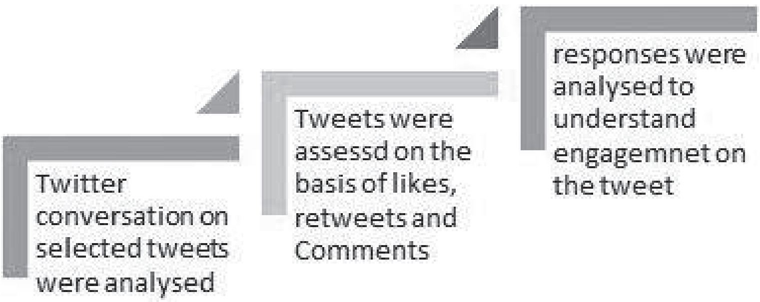

Figure 1

Table 4

S. No.	*Name of the Banks*	*Total Number of Tweets as of 9th Feb 2022*	*Presence on Twitter*
1	State Bank of India	792.4 thousand Tweets	Joined Dec 2013
2	ICICI Bank	41 thousand tweets	Joined Nov 2011
3	Axis Bank	24.3 thousand Tweets	Joined July 2012
4	HDFC Bank	26.1 thousand Tweets	Joined August 2010
5	Yes Bank	90.9 thousand Tweets	Joined May 2009

Source: Compiled by the Researcher

It can be seen from the above table that Yes Bank was the first to join the Micro blogging site Twitter followed by HDFC Bank, ICICI Bank, Axis Bank, and State Bank of India. Further, the State Bank of India uses maximum tweets for customer engagement, followed by Yes Bank, ICICI Bank, and HDFC Bank. Axis Bank has done the least number of tweets amongst the selected banks. Further, the researchers have analysed the Twitter conversations of banks from the period of one week from 1st Feb 2022 to 7th Feb 2022 to understand the customer engagement in terms of likes, re-tweets, and comments.

Table 5

S. No.	*Name of the Banks*	*Number of Tweets during the Period*	*Likes*	*Re-tweets*	*Comments*	*Total Engage-ment*	*Engagement Ratio Total Engagement/ Number of Tweets * 100*
1	State Bank of India	17	3001	522	449	3972	23364.71
2	ICICI Bank	21	4777	435	69	5281	25147.62
3	Axis Bank	8	719	189	102	1010	12625
4	HDFC Bank	6	334	58	69	461	7683.33
5	Yes Bank	3	38	5	13	56	1866.67

It can be seen from the following table that the highest number of tweets during the selected period was done by ICICI Bank (21), followed by State Bank of India (17), Axis Bank (8), HDFC Bank (6), and Yes bank (3) respectively. Whereas the engagement ratio of the ICICI Bank was highest 25147.62%, followed by State Bank of India was 23364.71%, Axis Bank 12625%, HFDC Bank 7683%, and the lowest was Yes Bank 1866.67%.

Content Analysis of Twitter Engagement

Further, Chen et al. (2014) have discussed that customer engagement is reflected through favourable and unfavourable feelings, thoughts, and behaviour exhibited during the interaction. For the study, the researchers have undertaken an ethnographic content analysis of Twitter responses from the official website of selected banks to analyse the likes, re-tweets, and comments on a Twitter conversation made by the bank to understand the level of customer engagement. Kozinet (2010) indicated that it is essential for marketers to analyse the communication in the virtual world to better understand a cyber-culture for better user engagement. His study highlighted that ethnographic content analysis must follow the cycle of planning, data collection, representation, and evaluation. The researchers have analysed the tweets of selected banks for the period of 1st Feb 2022 to 7th Feb 2022 to understand the engagement given to contents posted by the selected banks. The contents of each bank were analysed on the basis of each tweet during the period and engagement was also analysed on the content of the tweet.

Table 6: State Bank of India

Date	*Type of Tweet*	*Content*	*Engagement*
1st Feb 2022	Re-tweet	1. Referral 2. Photo 3. Corporate Image	13 comments, 51 re-tweets, and 181 likes
1st Feb	Tweet	1. Video 2. Corporate Image	33 comments, 21 re-tweets, and 125 likes
2nd Feb	Tweet	1. Corporate Image 2. News link Sharing 3. Photo	2 comments, 14 re-tweets, and 111 likes
2nd Feb	Tweet	1. Corporate Image 2. Photo	14 comments, 18 re-tweets, and 144 likes
3rd Feb	tweet	1. Product Information 2. Toll-free Number 3. Video	34 comments, 26 re-tweets, and 122 likes
4th Feb	Tweet	1. Corporate Image 2. Photo	14 comments, 26 re-tweets, and 137 likes
4th Feb	Tweet	1. Corporate Image 2. Photo	11 comments, 21 re-tweets, and 148 likes
4th Feb	Tweet	1. Web link 2. Photo 3. Product Information	22 comments, 19 re-tweets, and 96 likes
5th Feb	Tweet	1. Product information 2. video	15 comments, 19 re-tweets, and 122 likes
5th Feb	Tweet	1. Photo 2. Information Sharing	43 comments, 32 re-tweets, and 234 likes
5th Feb	Tweet	1. Photo 2. Product Information	4 comments, 15 re-tweets 111 likes
5th Feb	Tweet	1. Web link 2. Product information 3. Photo	17 comments, 17 re-tweets, and 109 likes
6th Feb	Tweet	1. Corporate Image 2. Photo	5 comments, 16 re-tweets, and 152 likes
6th Feb	Tweet	1. Web link 2. Product Information 3. Photo	13 comments, 15 re-tweets, and 117 likes

Date	Type of Tweet	Content	Engagement
6th Feb	Tweet	1. Photo 2. Corporate image	23 comments, 94 re-tweets, and 267 likes
7th Feb	Tweet	1. Quiz 2. Photo 3. Product information	151 comments, 94 re-tweets, and 267 likes
7th Feb	Tweet	1. Web link 2. Product information 3. Photo	35 comments, 16 re-tweets, and 120 likes

Further, the photographs in the tweets of the State Bank of India were an ode to the 75th Independence Day Celebration known as Azadi ka Amrit Mahotsav as it highlighted its emblem. Further State Bank of India also paid tribute to Late Lata Mangeshkar, Pt. Bhim Sen Joshi, and awardees of Param Vir Chakra and winner of Padma Vibhushan Award.

Table 7: ICICI Bank

Date	Type of Tweet	Content	Engagement
1st Feb	Tweet	1. Photo 2. News web link share 3. Product Information	1 comment and 11 likes
1st Feb	Tweet	1. Photo 2. News web link share 3. Product Information	1 comment, 1 re-tweet, and 11 likes
1st Feb	Tweet	1. Photo 2. News web link share 3. Product Information	8 comments, 3 re-tweets, and 6 likes
1st Feb	Tweet	1. Photo 2. News web link share 3. Product Information	1 comment, 2 re-tweets, and 8 likes
2nd Feb	Tweet	1. Event Information 2. Webinar 3. Web Link 4. Photo	2 comments, 6 likes
2nd Feb	Tweet	1. Photo 2. News web link share 3. Product Information	2 comments, 1 re-tweet, and 6 likes
2nd Feb	Tweet	1. Photo 2. News web link share 3. Product Information	5 comments, 2 re-tweets, and 16 likes
3rd Feb	Tweet	1. Photo 2. News web link share 3. Product Information	2 comments, 2 re-tweets, and 10 likes

Date	*Type of Tweet*	*Content*	*Engagement*
3rd Feb	Tweet	1. Photo 2. News web link share 3. Product Information	8 comments, 2 re-tweets, and 9 likes
3rd Feb	Tweet	1. News web Link Share 2. Product Information	2 comments, 3 re-tweets, and 19 likes
4th Feb	Tweet	1. Video 2. Toll-Free Number Share 3. Corporate Image	238 re-tweets, and 2500 likes
4th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	3 comments, 2 re-tweets, and 11 likes
4th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	9 comments, 5 re-tweets, and 14 likes
5th Feb	Tweet	1. News Link Share 2. Corporate Image 3. Photo	5 re-tweets, and 13 likes
6th Feb	Tweet	1. Corporate Image 2. Sentence tweet	4 comments, 9 re-tweets, and 80 likes
6th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	3 comments, 1 re-tweet, and 8 likes
6th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	1 comment, and 15 likes
6th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	2 comments, 1 re-tweet, and 10 likes
7th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	4 comments, 1 re-tweet, and 12 likes
7th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	11 comments, 2 re-tweets, and 12 likes
7th Feb	Tweet	1. Photo 2. News link 3. Corporate Image	155 re-tweets and 2000 comments

Further, the unique content of tweets of ICICI bank included the web links of various e-newspapers which were carrying articles related to the products and services of ICICI Bank. It also gave information about a Webinar related to Budgets and provided a toll-free number for inquiries related to a product.

Table 8: Axis Bank

Date	*Type of Tweet*	*Content*	*Engagement*
1st Feb	Tweet	1. Photo 2. News web link share 3. Product Information 4. Event promotion	1 comment, 6 re-tweets, and 15 likes
2nd Feb	Tweet	1. Photo 2. News web link share 3. Event promotion	5 comments, 3 re-tweets, and 23 likes
2nd Feb	Re-tweet	1. Photo 2. Referral for Customer awareness	41 comments, 119 re-tweets, and 460 likes
2nd Feb	Tweet	1. Photo 2. Service Information	6 comments, 3 re-tweets, and 20 likes
2nd Feb	Tweet	1. Photo 2. News web link share 3. Product Information	14 comments, 3 re-tweets, and 17 likes
4th Feb	Tweet	1. Photo 2. News web link share 3. Product Information	18 comments, 7 re-tweets, and 16 likes
5th Feb	Re-tweet	1. Referral Tweet	8 comments, 49 re-tweets, and 139 likes
7th Feb	Tweet	1. Photo 2. Corporate image	4 comments, 6 re-tweets, and 29 likes

Further, the unique feature of tweets of Axis Bank was related to providing referrals related to customer awareness regarding the use of the UPI app and event promotion related to a panel discussion.

Table 9: HDFC Bank

Date	*Type of Tweet*	*Content*	*Engagement*
2nd Feb	Tweet	1. Video 2. Product Information 3. Web Link Sharing related to Product	14 comments, 2 re-tweets, and 23 likes
2nd Feb	Tweet	1. Video 2. Product Information 3. Web Link Sharing related to Product 4. Promotion of offers linked with the usage of products related to other vendors	13 comments, 4 re-tweets, and 17 likes
4th Feb	Tweet	1. Photo 2. Web link share related with the product 3. Product Information	7 comments, 6 re-tweets, and 7 likes
4th Feb	Tweet	1. Photo 2. Corporate Image	8 comments, 7 re-tweets, and 46 likes

Date	*Type of Tweet*	*Content*	*Engagement*
5th Feb	Tweet	1. Photo 2. Web link share related with the product 3. Product Information	16 comments, 3 re-tweets, and 20 likes
6th Feb	Tweet	1. Photo 2. Corporate Image	11 comments, 36 re-tweets, and 221 likes

Further, the unique feature of the tweet of HDFC bank was related to the promotion of usage of services of HDFC bank which can help them avail benefits from other vendors.

Table 10: Yes Bank

Date	*Type of Tweet*	*Content*	*Engagement*
1st Feb	Re-tweet	1. News link 2. Photo 3. Opinion sharing 4. Corporate Image	3 comments, 4 re-tweets, and 15 likes
2nd Feb	Tweet	1. Opinion Sharing 2. Link Sharing 3. Corporate Image 4. Statement sharing	3 re-tweets, and 13 likes
4th Feb	Tweet	1. Video 2. Link sharing 3. Corporate Image	7 comments, 1 re-tweet, and 10 likes

Further, the unique feature of the tweet of YES bank was related to sharing opinions regarding the benefits of Budget and investing in share markets.

The content analysis of tweets highlights that the tweets and re-tweets of selected banks for the selected period of 1st to 7th February included photos, videos, product or service information links, news links, referrals event promotions, the building of corporate image, and tributes to important personalities. Further, it was also analysed that the tweets related to the corporate image with photographs and quizzes related to the product information had the highest engagement in the case of the State Bank of India. In the case of ICICI Bank, the tweet which gave information regarding the toll-free number to avail service information had the highest engagement. The researchers found that in the case of Axis Bank the re-tweet related to a referral with a photo had the highest engagement. In the case of HDFC Bank, the tweet related to paying tribute to legendry singer late Lata Mangeshkar had the highest engagement. In the case of Yes Bank, the opinion-sharing tweet of Shri Prashant Kumar MD and CEO of Yes Bank had the highest engagement.

Managerial Implication of the Study

Guesalaga (2016) indicated in his empirical study that competent usage of Social media by organizations has a direct impact on sales of the organizations due to higher customer engagement. The present research work is an earnest attempt by researchers to provide justifications for the usage of social media platforms for the purpose of customer engagement. The present research analyses micro blogging site on two parameters: (i) reality of what was discussed in Twitter in terms of trending hash tags and what was the actual news of the day, (ii) analysis of the importance of Twitter handles of selected banks in terms of popularity, interaction and content.

The research revealed that the trending hash tags on Twitter often do not match with the important news for the day. It leads to the conclusion that the hash tags trending on Twitter media are results of Public relations generated efforts and can be created by sincere efforts. Further, the usages of BOTS cannot be denied to create the buzz in micro blogging websites by the PR machinery. The major trending hash tags during the selected period from 22nd March 2020 to 30th June 2020 were deliberately studied by the researcher as the period was marked by important events like a pandemic, Lockdowns, cross border skirmishes, Cyclone, mass migrations, and measures undertaken for unlocking the Lock Downs. The analysis revealed that the most trending hash tags were related to the entertainment world and were not the mirror of what was happening in society.

Further, a time series analysis of the increase in the number of followers on the Twitter handle of selected banks from 2020 to 2022 revealed that there has been an increase in the number of followers on the Twitter handle of selected banks except Yes Bank. It indicates that the popularity of Twitter for customer engagement is increasing amongst selected banks. Further, the analysis of interaction level also showed that engagement levels are high when the number of tweets is also high. The highest number of tweets was done by ICICI Bank in the selected period and it also exhibited the highest interaction ratios in terms of likes, re-tweets, and comments. Further, the content analysis of tweets of selected banks highlighted that majority of tweets were either related to the creation of a brand image or product information. The tweets related to the creation of brand image usually reflected banks' congruence to safe banking, digital payments, alignment to a social cause, or celebration of a national hero or achiever. Further, the tweets related to product information were accompanied by features and web links for more information. The tweets also highlighted photos and videos related to a tweet. Further few banks also highlighted Toll-free numbers for service enquires. The content analysis revealed that the tweets which were related to information like toll-free numbers or were a reflection of the general sentiment of the society like the celebration of the achievement of legendry singer Lata Mangeshkar on the eve of her death had the highest engagement. Therefore, it can be concluded that tweets that are carefully designed keeping in mind the rational appeal or emotional appeal will have the highest engagement. The marketers need to understand public sentiments and then use Twitter as an engagement tool for better results.

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Dr. Sanaskrity Joseph has teaching and research experience spanning over two decades in the field of management studies. She has obtained her Post Graduate degree from the Institute of Management Studies, Devi Ahilya Vishwavidyalaya, Indore, and Ph.D. from the Institute of Management, Pt. Ravishankar Shukla University, Raipur. She has more than 50 research papers to her credit. She has attended more than 80 national and international seminars in India and abroad. She has a specialization in Marketing and Financial management. Sustainable management practices and branding are her areas of research interest. Four students have been awarded Ph.D. under her research guidance and currently, two students are working under her for their Doctorate degrees.

Dr. Susheel Kumar Indurkar has rich teaching and research experience in the field of management spanning over a period of more than 15 years. He is an MBA and Ph.D. from the Institute of Management, Pt. Ravishankar Shukla University, Raipur; Chhattisgarh. His area of specialisation is Marketing and financial management. He has published more than 25 research papers in national and international journals and edited books. He has attended various national and international seminars in India and abroad. His area of interest includes quantitative methods, management science, investment analysis, and Foreign Exchange Markets. He has been awarded best researcher awards from Psycho-Linguistics Association of India (PLAI), 2010 and 2nd International Conference on Fostering Interdisciplinary Research in Health Sciences 2019, organised by Confnext India and AIMST University, Kedah, Malaysia, 2019. Two students are currently working under him for their research degrees.

Digital Marketing: An Innovative Approach Towards Traditional Marketing

Laxmikant B. Deshmukh and Shaikh Avez Shaikh Kadir

Abstract: *Marketing has got immense importance in all sorts of industries. Historically, it has passed through the phases of Production, Product, Sales, Marketing, Social Marketing, Partnership Marketing and now we observe is the Collaborative Marketing phase. The tools of marketing have changed over a periods of time. In the advent of rapidly developing technology, The Marketers have got tools of digital marketing using web based technologies. This paper analyzes the modern Marketing tools and its effectiveness particularly in the Digital Marketing tools. In the recent past the Pandemic of Covid-19, most of the marketing is done through digital ways. Digital marketing enhanced the use of e-rupee and acts as a channel of distribution. It is not only exhibiting the Optimisation of the distribution network but is handy in the entire marketing mix management. This paper also highlights the changes happening in marketing domain as Digital Marketing evolves and a modern marketing organization performs this function. The authors also attempt a thorough literature review of Digital marketing.*

Keywords: Digital Marketing, Traditional Marketing

Literature Review

1. **J Suresh Reddy has published article in Indian Journal of Marketing. Title of article is "Impact of E-commerce on marketing".**
   Marketing is one of the business function most dramatically affected by emerging information technologies. Internet is providing companies new channels of communication and interaction. It can create closer yet more cost effective relationships with customers in sales, marketing and customer support. Companies can use web to provide ongoing information, service and support.
2. **Manjunath published article in Indian Journal of Marketing. Title of article is "Digital marketing trends".**
   Digital channel in marketing has become essential part of strategy of many companies. Nowadays, even for small business owner there is a very cheap and efficient way to market his/her products or services. Digital marketing has no boundaries. Company can use any devices such as smartphones, tablets, laptops, televisions, game consoles, digital billboards, and media such as social media, SEO (search engine optimization), videos, content, e-mail and lot more to promote company itself and its products and services. Digital marketing may succeed more if it considers user needs as a top priority. Just like "Rome was not built in a day," so, digital marketing results won't also come without attempt, without trial (and error).

Introduction

Marketing – this term is familiar to almost everyone in this world. In past years, marketing emerged as a good career option, but have you ever wondered what does this term marketing refers to and what is its actual meaning? Many people think marketing is all about sale of the goods and services, but marketing is much beyond that. Marketing includes Advertisements, Brand Building, Promotion, Distribution, Sales and much more. Sales is just a small element or we can say a very small part of marketing. According to a survey conducted in 2020, over 3.6 billion people were using social media worldwide. In today's world it is expected that every single working professional is familiar to core tenets of Digital marketing. As we all know, Marketing refers to activities a company undertakes to promote its buying and selling activities. Similarly, Digital Marketing is all about selling products or services using digital means; now what does this digital means refers to? Digital means here will be social media, SEO, E-mail, websites, mobile applications and much more.

In simple words, we can say,"marketing which is done with the help of any electronic device can be termed as Digital Marketing." In the process of digital marketing, a business organization may use different medium for marketing, it can be websites, blogs, search engines, videos and similar means. We are familiar with the methods of traditional marketing, where organizations used only billboards, flyers, etc. which were considered static and one-way communication. Digital marketing provides an opportunity for two-way communication, which is interactive; digital marketing acts as a medium of communication between the business and its customers. Interesting part is that, digital marketing is not limited only to Internet, its scope is beyond that; it may include mobile phone (use of SMS and MMS). Important is the use of right tactic by the business organization to promote its business and reach the target customer. This term was first used in 1990s. It all began with the introduction of internet and development of the Web 1.0 platform. But at that time it was just limited with users viewing the information and was not allowed to share information, due to which marketers were unsure about the digital platform. And the marketers were confused, like what strategies they can use and whether the strategies will work or not. The digital era of marketing began in 1993, when first clickable banner went live.

Marketing: Historical Overview

According to American Marketing Association "Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large."

Today, the concept of marketing has changed a lot; it is an advanced combination (blend) of marketing strategies and emerging technologies. The discussion of beginning of marketing is still disputed, but it is believed by many historians that the concept of marketing emerged or we can say, came into existence around 1500 BCE (before common era). Even we can say, the concept of marketing is as old as civilization itself. Some recent research shows that, the concept of modern marketing or the development of marketing began during Industrial revolution. It is known to all of us that, with the beginning of industrial revolution people, it was easier for consumers to purchase products rather than making it by themselves. Some of the questions related to industrial revolution were – what to do? How to get customers? The obvious answer was marketing, promotion of the goods produced, creating awareness among the consumers and letting them know, how their product is better than others.

It's very common. Everything gets changed or developed as the time changes and similarly, this marketing also developed with time. The world of this marketing began to change around 1990s. And now the scene was, companies started realizing that they can start selling high quality product and can start focusing on their brand building. And after many researches, the companies were very successful in improvement in the margins, as well also improved their reputation in the market. With the development of marketing, reputations of the companies also improved. According to research, many private companies were able to increase their market by more than 49%.

And as stated before, with the evolution of web in around 1990s, websites were being considered as an essential part of any business. Even if we look in the market today, it's very difficult to find a business, which does not have a website; and the scene is that before starting actual business, the owners start their websites with a motive of brand building. Back in 19th century, usually around months and sometimes years were required for the settlement of the business but now we can see so many startups are coming up and which are successful. This much of development is all due to the development of marketing, it's all due to the blend of technology and strategy. Now internet was being used widely all around the world, even though all the businesses were using websites, it became hard to attract the customers. If we look back in the history, we can find out that the first company to have an online marketing campaign was Bristol-Mysers Squibb, and that campaign was so successful that it added around 10,000 names to its customers list.

Current Marketing Statistics: Global and Indian

You might have noticed one thing. New technologies are being introduced regularly. Trends, fashion, strategies are dynamic and keep on changing. Though the survival in this ever-changing market is very tough, you need to keep moving forward, you need to keep changing, you need to adapt to the change or else you will be kicked out from the market and disappear. And it's quite normal that you don't want to be left behind in this competitive world and your first intention is always to stay ahead of your competitors; but still a question arises- How is this possible? For moving ahead, for becoming a market leader, all you have to do is follow the market trends and closely monitor the marketing statistics around the world, specifically the market you are in.

Let's have a look on some current marketing statistics.

SEO Statistics

Search engine optimization is something which deals with improving the quality and quantity of the website traffic from any search engine. Research revealed that, slower the website – a smaller number of visitors; in this digital world, what matters is speed, even a delay of one second can lead to 20% drop in lead conversion. And it's very important to keep in mind that, today around 93% of interactions are based on SEOs.

Email Marketing Statistics

A study revealed that, today around 4.03 billion people around the world use email. And this number is expected to grow in near future, it may reach to around 4.48 billion by 2024. And it's the fact that, no other platform has even reached close to this. You might have noticed one thing that, we receive N number of mails on daily basis, which contains promotions of the brands and some mails are so attractive that we end-up visiting the website. This is how email marketing works and it holds a good potential for growth.

Social Media Marketing

3.6 billion+ people were using social media worldwide during 2020 and this number is expected to reach 4.41 billion in 2025.

It is very important for every business to formulate an effective social media marketing strategy, so as to reach maximum customers because over 53% of world's population is using social media today. And the advertisements run on social mediaare having a good conversion rate as compared to the other platforms.

Every ad published on social media is having a conversion rate of approx. 2-5%.

Mobile Conversion Statistics

A study done by the Pew Research Center reveals that at least 96% of the American population owns a cellphone. To break it down, 81% own a cellphone while 15% own a cellphone that is not a smartphone. This means that businesses have a chance to reach a broader market using mobile marketing techniques.

Origin of Digital Marketing

Digital marketing is nothing but marketing of products and services using any type of digital or electronic media. Digital marketing aims at attracting customers as well as other businesses using various digital means. Digital marketing aims at convenient buying and selling of the products, but if specifically speaking about our society, we can find that there are still many individuals who feels that online marketing is not safe; but steps are being taken to make this system complete fraud free and helpful for everyone.

As we all know that, marketing began or we can say emerged as a concept around 1500 BCE, and this kept developing and change is must in almost everything, so as to survive in this world. Talking about humans, even we keep on changing our habits, in past we used to walk for miles to reach our destination and now we are having many alternatives, today we have vehicles to cover distance, we have vehicles which run on petrol and we have vehicles which run on electricity, this is just innovation, changes. Similarly, marketing keeps of changing due to its dynamic nature, ancient marketing, then modern marketing and now its digital marketing. This Digital Marketing is nothing but the outcome of internet, we are connected to people around the world, we do networking, we do business globally, this is all because of internet. In 1990s, the term Digital marketing was introduced and since then it evolved. Internet came into existence and Web 1.0 platform was developed and digital marketing took off. It's still argued, who is the father of Digital Marketing? It's argued by some that the inventor of radio, "Gugliemo Marconi" was the first digital marketer. But it is also argued that, computer engineer "Ray Tomlinson" should be given credit for the birth of digital marketing, the reason for this is he was the first person to ever send an email in 1971.

It was between 1996–2005, when digital marketing began in India. Digital marketing started growing, developing and improving from 2008, when internet began reaching masses and the users started using the internet and several search engines like Google, Yahoo, etc. and the rest is history, with the coming up of new technologies, development of internet, introduction of 2G, 3G, 4G and now 5G is on its way to India, and this resulted in the access to many online businesses around the globe. And this increased with a good pace in past few years. In the year 2020, world was severely hit by the COVID-19 pandemic, lockdowns were imposed around the world, but still businesses were operating, customers were able to purchase the products from the safety of their homes and all the credit goes to Digital Marketing. Looking at current marketing trends, we can say with the damn surety that we can't even imagine a world with digital marketing.

Applications of Digital Marketing

It's now very easy for any company to use various channels for marketing of products and services. World has realized that, digital marketing must be an important component while making marketing strategies. Today, almost everything is done using digital means, like we can't even imagine a single transaction without the use of digital medium. Education has become digital, businesses are online, Banks are functioning online. Advertisement, lead-generation, branding, distribution and everything is done using digital means; and this is nothing but the application of digital marketing.

Let's have a detailed look on the applications of digital marketing:

- **Advertisement medium:** In old times, until past few years advertisement was done using newspapers, magazines, flyers, etc. which was not having expected reach but with the help of digital medium we can reach a wide audience, marketing can me more target specific, using social media, email marketing, and so on.
- **Direct-response medium:** In past, marketing was one way; as stated before it was a one-way communication. Digital marketing enabled a two-way communication between the companies and its customers. Almost every business is having its own website, which enables customers to view the product and its description and ultimately purchase the product. The complete process has become very convenient.
- **Platform for sales transactions:** The development and evolution of internet and information technology is continuously changing the aspects of life, and now online

shopping has become the new normal, its trending now. Before, it was very difficult for the customer to get the desired products and services but with the evolution of digital marketing, an individual gets many alternatives and access to cross border transactions.

- **Distribution channel:** Under traditional marketing, it took a very complicated distribution channel and it used to consume time for a product to reach customer from the producers. But digital marketing enabled companies to sell goods directly to customers and other retailers.
- **Customer service mechanism:** This the world of self service, customers need no second person to get the product or service. For example, in this digital world customers can access multiple websites and can easily order the goods and services easily.

Digital Marketing vs Traditional Marketing

S.No.	*Traditional Marketing*	*Digital Marketing*
1.	Traditional marketing includes print, broadcast, direct mail, and telephone.	Digital marketing includes online advertising, email marketing, social media, text messaging, affiliate marketing, search engine optimization, pay per click.
2.	No interaction with the audience	Interaction with the audience.
3.	Results are easy to measure.	Results are to a great extent easy to measure.
4.	Advertising campaigns are planned over a long period of time.	Advertising campaigns are planned over short period of time.
5.	Expensive and time-consuming process.	Reasonably cheap and rapid way to promote the products or services
6.	Success of traditional marketing strategies can be celebrated if the firm can reach large local audience.	Success of digital marketing strategies can be celebrated if the firm can reach some specific number of local audience
7.	One campaign prevails for a long time.	Campaigns can be easily changed with ease and innovations can be introduced within any campaign.
8.	Limited reach to the customer due to limited number of customer technology.	Wider reach to the customer because of the use of various customers technology.
9.	24/7 year-round exposure is not possible.	24/7 year-round exposure is possible.
11.	No ability to go viral.	Ability to go viral.
12.	One way conversation.	Two ways conversation.
13.	Responses can only occur during work hours.	Response or feedback can occur anytime.

Effectiveness of Digital Marketing

Now it's very common that the market is becoming more digital day to day, as new technologies are coming into the existence. There's no second opinion that, digital marketing has emerged as most powerful marketing tool. Digital marketing is having so many benefits that even many benefits are not even figured out. Buying and selling activities are increasing day by day. It was cleared with research that, over 2.1 billion people worldwide, buy goods and services online in the year 2021, which is much more than what it was in 2016, which was around 1.66 billion. And the interesting part is that, online trading and business has become a common practice among the people all over the world. In the year 2020, nearly 356 billion dollars were spent for digital marketing. And due to the market trends, this amount will increase at a rapid pace in the near future. If reports are true, then the advertising revenue will be up to 460 billion U.S. dollars.

Here are a few facts that clearly state the effectiveness of digital marketing:

- **The comparative analysis:** Previously, it was very difficult for the individuals to compare between different goods but now with the introduction of the digital marketing and online platforms, it has become so convenient for the customers to compare.
- **The acceptability:** In this era of technologies, wide range of information is available and which is widely accepted which physical marketing and shopping.
- **Wider audience:** Digital marketing enables us to reach a large number of audiences round the globe. It provides us with a good opportunity to enter the market.
- **Impact:** Advertisements in televisions and newspapers are having very less impact on the audience, while we can observe that the pop ups which appear while surfing the internet attract a good number of customers.

Digital marketing not only benefited the businesses, but also created the opportunity for the aspiring youth, who wants to excel their career in marketing.

Digital Marketing Mix

We all have read about marketing mix, which is often referred as 4P's of marketing. First let us simplify what does this marketing mix means and how is this associated with digital marketing and much more. So basically, we can say marketing mix is some set of actions, tactics or strategies a company uses in order to promote its brand in the market. In marketing, these 4P's affect a lot, because this Price, Product, Promotion and Place have a direct effect on the demand and supply. And these 4P's are true for Digital marketing as well.

The four P's of the digital marketing mix are:

1. **Product:** It is something, which a customer wants. It's quite obvious that the company will produce only that goods and services which is demanded by the customer. A high level of research must be conducted before the production of any kind of good and services, market research is must. What will a company do by producing something which is of no demand because it will be a complete waste? So, product plays a very big role in survival of a company
2. **Price:** Price plays a very vital role, its linked with the psychology of the customer. Lower the price, more customers will be attracted towards your product but if we increase the price of our product then customers will shift to some other brand. You must be very accurate while pricing your product because if prices are too low then it will cut into your margins.

3. **Place:** Refers to the market or the platform where the product will be sold. Previously, it was very difficult for any business organization/company to enter any market but with the digital world taking charge it provides a good opportunity for the companies to enter the market.
4. **Promotion:** Promotion does not refer to marketing but it's an element of the marketing. If look closely, we can figure out that many companies put a lot of effort and time for the promotion. Sometimes it ok, but most importantly its very crucial to figure out where to promote. The medium of promotion must be chosen wisely, targeting the customers. For example, recently, many companies, whose target customers are youth, promote their products on Instagram (Social media), the reason is very clear it is having a good conversion rate as many youths use Instagram.

Future of Digital Marketing

The world is changing day by day with the evolution and coming of new technologies, we can see before it was all about the traditional marketing and now it revolves around digital marketing. And it's not very difficult to predict that more is yet to come. We know very well that how COVID-19 affected the world economy, many businesses were affected initially, even some businesses were so badly affected that, they were forced to shut down. But interestingly, the world of digital marketing gave opportunity to many existing and new comers to grow their businesses. Digital platform is the place for the people who are broadminded people, meaning that digital world do have many different angles to explore and one who is about to enter this world must have a clear vision in the mind to learn and grow.

Digital marketing, has gained a good amount of popularity in past few years and this got boom with the coming of COVID-19 pandemic. Educational institutions turned online and almost every business, which had resources for the development turned online. Today, if we go and ask any random person what digital marketing is then that person will be very clear with at least the basic meaning of digital marketing. Science and Technology is developing day by day. The work which was done by humans is now being completed by the robots and machines. AI has been introduced by various organizations; businesses are turning automatic. In the near future, around 85% of ads will be through automations. Data analytics will also turn automatic. Almost everything will become digital. The digital marketing, which we know is nothing because it's just the beginning of the era and more is yet to come.

Conclusion

Every business is set up with an objective of profit earning and its maximization. After the industrial revolution, many industries started the production of the goods, and it became difficult to attract the customers and gave birth to the modern era marketing. It was very clear that change is the rule, nothing remains static. Similarly, the concept of marketing also changed and with the introduction of internet and information technology, digital marketing started developing. According to some of the research reports published, usage of internet and digital media, by the adults increased with around 5% and this is expected to increase with a pace in the future. Digital marketing allows us to target the customer with more specificity.

In traditional marketing, the advertisements were very expensive. Television ads, billboards, newspaper ads were not specific and the rate of conversion was not so good. With digital marketing, it's now easy for any business organization to target the customers. With just a good market research, any business can figure out what digital platform is best suited for promoting any specific product or service. It has become very convenient to track the conversion rate of promotions or advertisements, while it was very difficult to track the conversion rate by using traditional means. It will be not considered wrong if we state that, digital marketing have given much to this generation and this is not going to stop.

Its just the beginning of this digital era, more trends and innovations are on the way for digital marketing.

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Discomfort of Website Design in Online Shopping: A Study on Perceived Irritation as a Mediating Variable

Saket Ranjan Praveer and Ashish Kumar Srivastava

Abstract: *Website reference is one of the important factors of online shopping (Daroch et al., 2021; Aelita et al., 2015). Consumers most often refer the brand, variety, list price, offers, return policy, warrantee, services, etc., through websites while purchasing products whether online or offline. This information is a sort of comfort to the buyers. But at times these consumers face discomfort caused by websites such as incomplete or lack of information, ambiguity, lack of clarity of content etc. The study has been conducted to determine the impact of website discomfort on perceived irritation which, in turn, influences online shopping intention towards apparels. The study has been conducted on online consumers of apparel based on primary data collected structured questionnaires.*

Keywords: Website Design, Online Shopping, Perceived Irritation

Introduction

The mode of shopping has dramatically changed during the last decade in India. According to IBEF (2021) report, E-commerce has brought a drastic change in Indian retail business. This market has been observed to be US$ 46.2 billion in 2020 and it is estimated to grow by US$ 111.40 billion by 2024.There has been a high increase in internet and smart phone penetration. In July 2021, there were 784.59 million internet connections in India. 'Digital India' programme has played a significant role in mobilising this strength. Website design plays a significant role in online shopping. Moreover, lockdown situation which ranged for almost two years has also been a driving factor of online shopping which is supposed to prevail in post lockdown because of human habit as a part of comfort and time saving. The role of website has come up as a significant variable in online shopping which is the only station providing product information. The design of website, its reliability, convenience, information adequacy, attractiveness etc. are of significance while making online purchases.

The study in an attempt to identify and determine the website design related factors which influence the consumer irritation which, in turn, influences buying intention towards apparels. Apparel segment has been considered as it has the largest reach to the online consumers. The latest figures on the top online shopping categories rank fashion as the most popular category of all internet purchases. Of the total ecommerce expenditure worldwide in 2022, consumers are forecast to spend $1.04 trillion on electronics (Oberlo, 2022).

Literature Review

Many studies have been conducted on the role of website design in online shopping behaviour. Website is frequently referred during online shopping (Daroch et al., 2021; Aelita et al., 2015). Online shopping is going popular as it is time saving (Huseynov and Yildirim, 2016; Mittal, 2013). Lennon et al. (2008) finds convenience, enjoyment and quickness as the determinants of online shopping. Akroush and Al-Debei (2015) observe that busy life style and long working hours are the leading factors of online shopping. Karvonen (2000) finds aesthetic beauty of website as the element of trust. Cyr (2008) finds that visual design of website positively influences enjoyment and trust. Navigation leads to minimising the risk and maximising the trust (Harridge-March, 2006; Lim and Dubinsky, 2004). Proper and clear information leads to higher purchase intention, satisfaction, loyalty and trustworthiness (Park and Stoel, 2005; Kim and Eom, 2002; Mithas et al., 2006; Corritore et al., 2005).

Literature Gap

There are many researches and findings as well where the comfort aspect of website design has been discussed. These studies are covering the influences on either trust or purchase intention. Discomfort aspect is almost untouched while at times it is experienced by the shoppers. Somewhat it has been covered by Bassam (2016) that he finds in his experiment that visual, navigational, and informational factors in website design highly influence the consumer irritation while perceived irritation has shown negative effects on various aspects of consumer shopping behaviour. Although he has covered irritation still, he is not covering discomfort aspect.

Framework and Hypothesis of the Study

Conceptual Framework of the Study

Website Design Discomfort is considered as predictor of purchase intention of online shopping with Irritation as the mediating variable. Monotonous Design, Ambiguous content, Inadequate Information and Hazy Look lead to Irritation which, in turn, leads to low Purchase Intention. So, Monotony, Ambiguity, Inadequacy and Haziness of website design are taken to be explanatory variables of Irritation while Irritation is explanatory variable of Purchase intention in online shopping mode towards apparels.

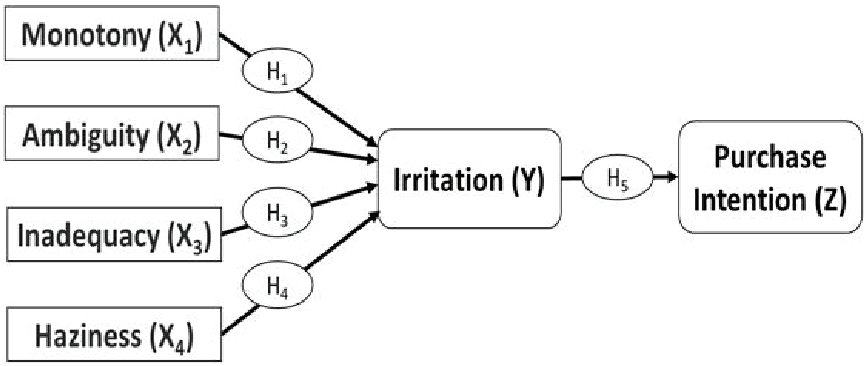

Figure 1: Conceptual Framework of Research
Source: Researchers' Own Construct Based on Literature

Mathematical Framework of the Study

$Y = f(X_i)$; $Z = f(Y)$

Where i = 1, 2, 3, 4

$$\hat{Y} = \beta_0 + \sum_{i=1}^{4} \beta_i X_i + \varepsilon_{t1}$$

$$\hat{Z} = \beta_0 + \beta Y + \varepsilon_{t2}$$

Hypothesis

H_1: Monotony of Website Design has a significant impact on Irritation;
H_2: Ambiguity of Website Content has a significant impact on Irritation;
H_3: Inadequacy of Information from Website has a significant impact on Irritation;
H_4: Haziness of Website Look has a significant impact on Irritation; and
H_5: Irritation has a significant impact on Purchase Intention.

Research Methodology

The study has been conducted through causal research design with multivariate technique using regressions analysis based on the primary data collected through structured questionnaires with Likert's scale from online shoppers of apparel. The data has been collected on the basis of systematic random sampling. Total 385 samples were planned on the basis of Cochran's method of sample size determination out of which 309 was returned as the response part.

Data Analysis

Descriptive Analysis

Table 1: Descriptive Statistics

Factors	*Mean*	*Std. Deviation*
X_1	5.51	1.891
X_2	6.00	1.647
X_3	2.52	2.150
X_4	3.84	2.590
Y	6.56	1.066
Z	6.27	1.548

Inferential Analysis

Table 2: Model Summary

Model		*R*	*R^2*	*Adjusted R^2*	*Std. Error of the Estimate*	*Durbin-Watson*
1	$Y = f(X_1, X_2, X_3, X_4)$	0.669	0.448	0.441	0.797	2.019
2	$Z = f(Y)$	0.578	0.334	0.332	1.265	

Table 3: ANOVA

	Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	$Y = f(X_1, X_2, X_3, X_4)$	Regression	156.763	4	39.191	61.649	0.000
		Residual	193.257	304	0.636		
		Total	350.019	308			
2	$Z = f(Y)$	Regression	246.653	1	246.653	154.037	0.000
		Residual	491.587	307	1.601		
		Total	738.239	308			

Table 4: Coefficients

Model			*Un- standardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*	*Colinearity Statistics*	
			B	*Std. Error*	*Beta*			*Tolerance*	*VIF*
1	$Y = f(X_1, X_2, X_3, X_4)$	Constant	4.361	0.205		21.310	0.000		
		X_1	0.234	0.026	0.415	9.115	0.000	0.878	1.139
		X_2	0.191	0.029	0.295	6.548	0.000	0.897	1.115
		X_3	–0.139	0.022	–0.279	–6.370	0.000	0.944	1.059
		X_4	0.031	0.018	0.075	1.694	0.091	0.928	1.078
2	$Z = f(Y)$	Constant	0.756	0.450		1.681	0.094		
		Y	0.839	0.068	0.578	12.411	0.000		

Interpretation and Findings

It is seen from the descriptive statistics (Table 1) that standard deviation against mean is too smaller which suggests that there is consistency in the data. It is seen from the model summary (Table 2) that the coefficient of determination is 0.448 when Irritation is dependent on Monotony, Ambiguity, Inadequacy and Haziness. It suggests that it explains 45% of variance. Further, the Durbin-Watson statistics is close to 2 which is the sign of no autocorrelation. It is also seen the coefficient of determination 0.334 when purchase intention is dependent on irritation. Both the parts of the model are significant at 5% level of significance (Table 3) which is the sign of model fit. Hypotheses H1, H2, H3 and H5 are accepted while H4 is rejected (Table 4) which suggests that Monotony, Ambiguity and Inadequacy significantly influence irritation while Haziness does not have significant impact on irritation. On the other hand, irritation has a significant impact on purchase intention during online shopping towards apparels.

Conclusion

Monotony, Ambiguity, Inadequacy of website design significantly influence irritation while online shopping towards apparels. Moreover, irritation has a significant impact on purchase intention. It is advisable to the online sellers to consider the hazard aspects also along the favourable ones while making designing websites for online shopping.

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A Study of Service Innovation in a Digital World

Deepika Pareek and Harshali Gomase

Abstract: *Innovation is about survival but it is about inspiration and profitability too! New digital upstarts are threatening the bottom lines, growth prospects, and even business models of traditional service providers. This Study analyses the threat which service sectors are facing in the era of digitalization. It's time for incumbents to innovate or too left behind. A growing number of companies is finding their service businesses under threat. The culprits are members of a new wave of digital upstarts. The findings of the study help to propose a framework for enabling innovation in service sector. The paper focuses on service sector in India, threats to it, efforts taken till now and what measures and steps to be taken to retain the position in the market and in the minds and hearts of the people. Purpose of the Research is to understand the threat, find the solution and implement it before the market is conquered by foreign digital companies. The study is based on Primary sources as well as subordinate sources obtained from articles, Wikipedia, newspapers, journals, social media, etc.*

Keywords: Innovation, Digitalisation, Business Model

Introduction

Companies today are rushing headlong to become more digitalised. But, what does digital really mean? For some executives it's about technology, for others digital is a new way of engaging with customers. And for others still it represents an entirely new way of doing business. Digitalization is revolutionizing the way business is conducted within chain of services through use of internet, intensive data exchange and predictive analysis. Today's world is a digital world. Everything is online. Customers look online for the products they need, they go online to get more information about almost anything, and they go online to talk to friends. Whenever a customer goes online, a business has the chance to connect with them. How strong this connection is and whether it leads to a sale will depend on the business's branding.

Customers recognize brands they are familiar with and tend to purchase more from those brands than from companies they might not have heard about yet. They tend to trust brands that are familiar to them and that they have a connection with over a new business. If it comes down to two businesses, one they recognize and one they don't, the customers are going with the one they recognize and have a connection with, even if the price might be a little higher. Branding creates recognition and the connection with customers, helping businesses grow.

The Service Sector, also called tertiary sector, is the third of the three traditional economic sectors. The other two are the primary sector, which covers areas such as farming, mining and fishing; and the secondary sector which covers manufacturing and making things. The service sector provides services, rather than producing material commodities. Activities in the service sector include retail, banks, hotels, real estate, education, health, social work, computer services, recreation, media, communications, electricity, gas and water supply. Innovation in service sector means making changes in their business so as to compete with today's digital world and earn profit. Successful service firms compete through innovation because how a service is designed and delivered is in large part not protected by patent or copyright.

What is Service Innovation?

A new service idea is an innovation if it:

- Is an intentional change in the service provided
- Provides a new or substantially improved benefit to the customer
- Significantly improves the service firm's profitability
- Can be duplicated from customer to customer

As a service firm, your competitive edge lies in your ability to acquire, absorb, and apply new information on changes in customers' needs and frustrations, customers' service priorities, competitors' service offerings, and the technologies available to support service delivery. The success or failure of a service innovation is linked to two primary factors: (a) a correct reading of the market and what matters to customers, and (b) appropriate management of the innovation process. While firms usually give explicit attention to the market factors, they are much less likely to attend to the management of the innovation process. Traditional services which have reduced their importance in this era should try to innovate themselves and make changes according to the need of customers. Numerous companies are finding their service businesses under threat. The culprits are members of a new wave of digital upstarts that capitalize on changes in technology, customer behaviour, and the availability of data to create innovative, customer-friendly alternatives to the services incumbents offer. Indeed, the sorts of digital disruptions that began in retailing with the likes of Amazon, two decades ago, are fast coming to an industry near you—if they haven't already. Examples include Uber and Zipcar in transportation, Air BNB in hotels and hospitality, Angel List in venture capital, and Castlight Health and Healthgrades in healthcare. Attackers such as these may be small now, but they represent a growing challenge to traditional companies.

Nonetheless, some incumbents are fighting back successfully. These companies are learning from the attackers while mobilizing their own strengths—including scale, superior resources, and access to customers—to redefine service offerings, harness digital technology, and improve the customer experience. Some are lowering their costs as well. While few organizations have mastered the new environment

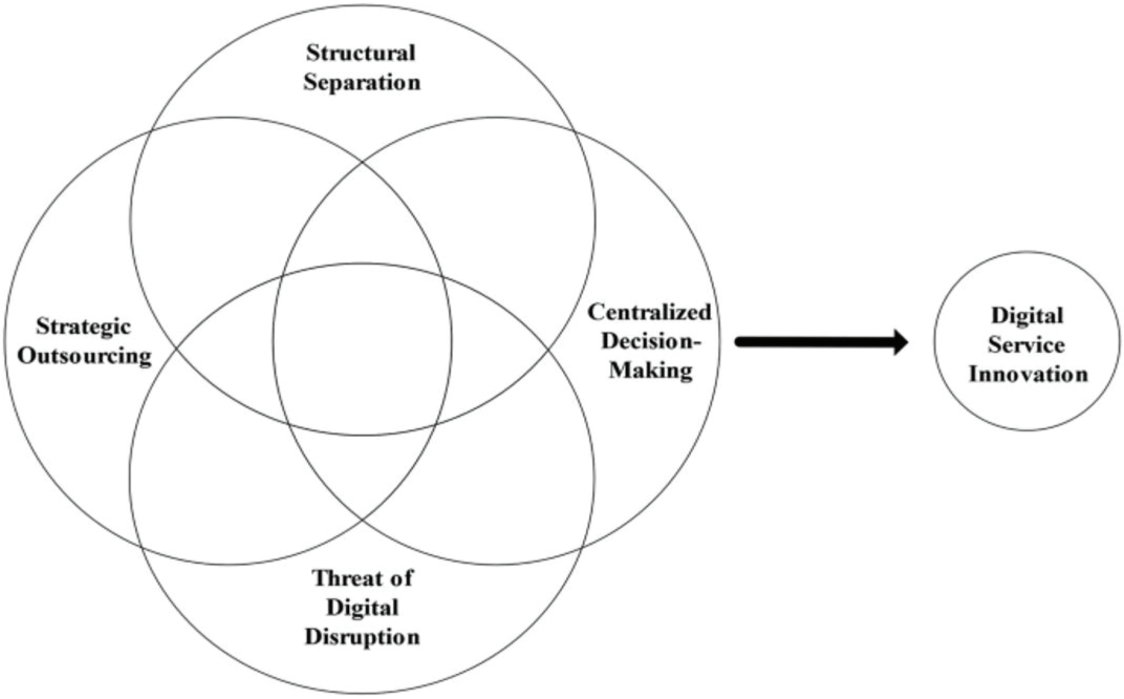
Literature Review

Several scholars have highlighted the role of digital technologies in service innovation (Lusch and Nambisan 2015; den Hertog 2000; Goduscheit and Faullant 2018). Extant research has also demonstrated that technology is a fundamental enabler of service innovation (Troilo et al. 2017), and, in particular, a major driver for achieving radical service innovation in established organizations (Goduscheit and Faullant 2018).

A major focus of extant research is the process of DSI. The challenge of managing efficient value co-creation can be tackled by using an agile micro-service innovation approach (Sjodin et al. 2020). To ensure successful cooperation and governance, relational teams that integrate knowledge from both providers and customers are required. To connect data-rich organizational environments with opportunities for service innovation, data density processes need to be implemented (Troilo et al., 2017). To make these processes more effective, companies are required to design a customer-centric, data-oriented organizational culture, and to implement strong support from senior management (Troilo et al., 2017).

Various articles have also investigated the characteristics and benefits of DSI. In particular, it can be used to include service-disadvantaged communities, for example, in the context of healthcare or finance (Srivastava and Shainesh 2015; Economides and Jeziorski 2017). Depending on the specific context, there are also distinct archetypes of innovation (Frey et al., 2019). While DSI provides various benefits for organizations, it also comes with serious challenges since it "requires a change in managing provider-customer relationships by adopting new and innovative co-creation approaches" (Sjodin et al., 2020, p. 479). While extant literature provides multiple insights into organizational enablers and process frameworks for DSI (Goduscheit and Faullant 2018; Troilo et al., 2017; Sjodin et al., 2020), so far it has not shed light on the role of DT strategies in achieving radical innovations. Various organizational science scholars highlight the advantages of decentralized decision-making (Mihalache et al., 2014; Jansen et al., 2006). Such an approach may strengthen the responsiveness and flexibility of an organization due to a decrease in information decay, caused by the exchange of information between different levels of hierarchy (Mihalache et al., 2014).

The researcher can identify potentially relevant theoretical constructs based on relevant literature, distilled patterns leading to a specific outcome, and afterward return to the literature by theorizing based on the identified patterns (Park et al., 2017). We propose that this approach is especially well-suited to the context of our research question since recent literature on the relatively new field of DT strategies provides plenty of avenues for exploratory research designs. Figure 1 summarizes our proposed research framework. By using a Venn diagram, we denote the configurationally perspective that we adopt to answer our research question. On the left side, we show the different antecedents that interact with each other to account for the outcome on the right side of the figure.



Research Methodology

Research is based on observational data – data which is covered through observation in the area and city. It is also based on discussion with the family and friends who work in service sector. Further research for Primary data is under process through methods of Questionnaire and Personal interview.

The Study depends on subordinate information collected from other Printed information from government and non-government institutions, websites, books, reports, conference papers, journals, and magazines.

Findings and Conclusions

Digital economy affects all aspects of life causing significant changes in the business environment. The nature of services and the pace of change have shifted dramatically in recent years and mastering the traditional aspects of service delivery will no longer be enough. To seize the opportunities companies must learn to tap the potential for service innovation made possible by four evolving trends. Expectations of customers are becoming higher, more than ever, consumers demand greater involvement, customisation, personalisation and mobility from services – with immediate results. When they see cutting edge service innovation in one industry they expect to find them in others as well. Services which currently represent about 65% of global GDP are expected to account for about three quarter of global growth over the coming decade. Companies that evolve quickly will better position themselves to capture this growth, while those clinging to traditional models will face growing pressure from digital attackers.

Suggestions and Discussion

The above aspects put light on the service innovation which is required for traditional shops which works offline. For Example, if we take Restaurants, clothes shops, medical stores/ outlets, etc.

They can innovate in the following ways:

- Can create app and website where customers can get all the details of the product, price, specifications, etc.
- Shopkeepers may try to give home delivery.
- Digitalisation is a platform where they do not manufacture the products and they just take it from seller and make available to the customer. Same way retailer shop can sell their products through these platforms.
- Offline selling is already going on since long time where they are selling the products.
- Can display the products on social networking sites.
- It does not matter how small the business is, every small business can start innovation and can reach towards their goals.

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Innovative Marketing Strategies of Leading Shoe Manufactures – A Study

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Abstract: *In sports footwear industry, Nike and Adidas are having upper edge competition. They both utilize the market segmentation concept to delineate their markets. Market segmentation is an important marketing strategy that many organizations have tried to implement. Organizations have grouped their markets based on number of variables such as demographic, operating variables, purchasing approaches, personal characteristics, and situational factors among others. Some of their ways applying this concept are discussed in this case study.*

Keywords: Marketing Strategies, Innovation, Shoe Industry, Nike, Adidas

Introduction

A shoe is an item of footwear to protect and comfort the human foot. Shoes are also used as items of decoration and fashion. The design of shoes has varied enormously through time and from culture to culture. Though the human foot can adapt to varied terrains and climate conditions, it is still vulnerable to environmental hazards such as sharp rocks and temperature extremes, which shoes protect against. Some shoes are worn as safety equipment, such as steel-toe boots which are required footwear at industrial worksites.

Fashion has often dictated many design elements, such as whether shoes have very high heels or flat ones. Contemporary footwear varies widely in style, complexity and cost. Basic sandals may consist of only a thin sole and simple strap and be sold for a low cost. Traditionally, shoes have been made from leather, wood or canvas, but are increasingly being made from rubber, plastics, and other petrochemicals-derived materials. Globally the shoe industry is a $200 billion a year industry. 90% of shoes end up in landfills because the materials are hard to separate, recycle or reuse. The global footwear market is highly competitive and fragmented with a few major players. The footwear market can be divided into two categories- Athletic footwear and non-athletic footwear. Globally several companies crack the $1.0 billion dollar barriers in footwear sales but only Nike, Inc. and Adidas bring more than $5.0 billion. Athletic footwear includes footwear that is not designed for a specific individual or team sport but may be performance inspired or intended for other activities. Products such as ski and snowboard boots may also be included in the overall scope of the athletic footwear market.

History of Shoe Industry

It's hard to imagine a time before the invention of shoes. Jump ahead a few thousand years to the beginning of modern footwear. in the 18th century, fabric shoes were made by using of silk. In the early 1800s women's and men's shoes finally began to differ from one another in style, color, heel, and toe shape. Cloth-topped shoes made an appearance during this era, and boots grew exceedingly popular. After much fluctuation, the standards for a man's heel finally settled at 1 inch. In the 20th century, the face of footwear changed drastically form decade to decade. This was due in part to a variety of technological advances that made the shoemaking process simpler.

Antiquity

The earliest known shoes are sagebrush bark sandals dating form approximately 7000 or 8000 BC, found in the Fort Rock Cave in the US. It is thought that shoes may have been used long before this, but because the materials used were highly perishable.

Middle Ages and Early Modern Period

The shoes originated in the Catalonian region of Spain as early as the 13th century and were commonly worn by peasants in the farming communities in the area. Many medieval shoes were made using the turn shoe method of construction in which the upper war turned flesh side out and was lasted onto the sole and joined to the edge by a seam. The turn shoe method is still used for some dance and specialty shoes. Until around 1800 shoes were commonly made without differentiation for the left or right foot. Such shoes are now referred to as straights. Only gradually did the modern foot-specific shoe become standard.

Significance

Now, the shoes are considered a necessity for fashion and health reasons causing there to be an abundance of brands, size, height, width, color, and designs that are used for different occasion. Shoes come in a variety of styles.

Global

Rising sports activity has significantly increased the focus on sportswear globally. Different international brands are merging sportswear with fashion wear nowadays. In addition, there has been a surge in health and fitness activities among consumers worldwide, particularly in running and other sports. Thus, leading sports brands are continuously involved in the manufacturing of technically sophisticated and innovative products. On account of their changing lifestyles, men and women are wearing sports-inspired footwear in daily life. Versatility, comfort and style are some of the major factors driving the appeal of sportswear, which in turn is likely to propel the growth of the footwear market globally. There has been noteworthy growth in the advertising and marketing related investments made by different brands. Internet retailing is also gaining popularity for the purposes of shopping for women's footwear as well as sports footwear.

Indian

The need for footwear, Indian culture developed a unique history of praising the feet. Mothers massage the feet of their babies. Youth honor the feet of elders. Someone seeks forgiveness at the feet of his or her victim. But in the areas of India where shoes are not necessary because of the warm weather footwear, although not worn daily, has become an important part of religious devotion and other ceremonies. Some of the most common types of shoes worn in India are toe-knob sandals called Padukas, strapped sandals referred to as Chappals, pointed shoes known as Juttis, and tall boots called Khapusa. Shoes are also used as an item of decoration and fashion.

Major Global Players in Shoe Manufacture

The global footwear market has been growing by rapidly or in fast over the past few decades, thanks to the drastic rise in consumer spending patterns and a change in consumer perspective that puts style on the same footing as comfort.

Nike

This is one of the world's largest shoe brands. Nike has always been at the leading edges of innovation, technology development and cutting-edge marketing campaigns that help it surpass other brands in term of popularity and sales. Nike, with tagline "Just do it" its marketing campaigns featuring Colin Kaepernick has proven to be financial for the company as it helped grow their online sales of footwear products across the world. Nike, the largest sports footwear brand is reinventing itself for the digital era. The company is taking several steps towards its goal of becoming a retail tech company and some of these tactics already appear to be working.

Nike market share stands about 27.4% in 2019.

Adidas

Adidas is a German company and also one of the top shoe brands in the world. The company produces more than 900 million sports and lifestyle products with independent manufacturing partners around the world. It generated sales of approximately $25 billion in 2019, and these numbers are a testament to what a large and multifaceted company Adidas, with more than 1000 stores across the world, has risen to extreme heights of success. Adidas has not only become a symbol of sports fashion but has also presented a collective image of street, pop-culture, music, sports and other fashion statements, defining its existence through its remarkable communication strategies.

Marketing Strategies by Major Shoe Manufacturing Globally

Adidas, Nike, and other footwear brands made headline with their shoe marketing campaigns. Nike focuses on creating meaningful stories that evoke emotions. Adidas has emerged as a brand built on innovation, while Zappos delivers highly personalized customer experiences.

The development of a strong competitive position in today's global sporting goods market is a concern for Adidas.

Strategies of Nike

Nike adopted a differentiation competitive strategy. Nike focused on innovation and massive investments on research and development activities aimed at producing the best footwear, apparel and athletic equipment. By focusing on performance needs of athletes, Nike intends to draw high level of athlete's satisfaction which leads to greater customer loyalty. Innovation is also at the heart if Nike's business growth strategy that aims at ensuring that it becomes the most sustainable company in industry.

Nike also follows market segmentation, targeting and positioning (STP) strategy. STP strategy assists Nike to advertise its products by focusing on specific exclusive segment of the market. Since Nike produces comfortable products, whose goal is to aid athletes' performance, main target market for Nike is the active athlete market. Nike can easily grab attention of consumers who were willing to purchase products associated with their favorite athletes at a premium. Nike uses closed-loop business model, this model is in line with the company's operational efficiency strategy as it ensures that all reclaimed throughout the manufacturing process can be reused or recycled.

Finally, Nike uses premium pricing strategy or the best cost provider strategy in this strategy, Nike develops a special kind of intimacy with the customers leading to enhanced loyalty. Once loyalty has been established, Nike can take this advantage to associate their customers with their premium price. Nike understands that the consumers are willing to pay more for products with Nike logo. In addition, the premium pricing strategy also caters for the company broad differentiation strategy. In this strategy, Nike adopts three approaches firstly Nike produces products for men. Secondly, Nike offers variety of accessories such as shoes, gym bags, gloves and skates. Thirdly, Nike has licensees that manufacture and sells Nike branded products aside from athlete products. These are some strategies have helped Nike to become and remain the most profitable sporting goods company.

Strategies of Adidas

Just like Nike, competitive strategy of Adidas focuses on broad differentiation approach. At the corporate level, the company focuses on innovation, production of new and unique products and effective process to assist in copying with competition. As part of this strategy, the company has developed multiple brands and also taken over Reebok brands thus giving it competitive advantage especially in its main market. The multi brand approach helps not only in development but also allows the company to cater for all segments of the market.

Adidas also strives to keep a unique identity by focusing on its core competencies such as best marketing and distribution channels in different countries, critical evaluation of consumer buying behaviors. Adidas has also e-commerce so as to become more efficient and appeals more to their customers around the world. Adidas also has a close control of its supply chain and overseas producers.

The company is currently putting more emphasis on balancing the interests of the shareholders, needs of the employees as well as the environmental concerns. Further, the company focuses on faster production and continuous improvement of infrastructure, processes and systems. Adidas has simplified group level operations by streamlining global product range and consolidating the warehouse base. The company also innovating speed models so that it can quickly respond to the consumer needs.

Adidas STP strategy is based on demographic, psychographic and behavioral facts. Adidas has a strong brand portfolio made up of Adidas, Reebok, Rockport and Taylor made intended for different market segments. Adidas uses differentiated targeting strategy to target young adults and children who have passion for sports and fitness. Adidas positioning is based user and benefits strategy. The goal of this strategy is to create a distinctive image in the mind of the prospective consumer by putting emphasis on the value of quality products from a trusted brand.

Innovation by Nike

True innovation reflects novelty and betterment. Product development and innovation are continuous things every company has to do. This thing is also done by Nike.

Nike Reinvention Emphasis on Prototyping without Constraints

Nike also has completely reinvented its shoe manufacturing process. Rather than setting out to design a new shoe, the company designed a new way to think about the manufacturing of an athletic shoe. The outcome of this process innovation was the Flynit racer, a shoe that is more environmentally friendly and could reduce long-term production costs.

Several recent product design innovations have been successful. In addition to business model innovations such as integrating sustainability within business departments and improving the supplier incentive structure, Nike has also been focusing on collaborative product and process design innovations allied with environmental sustainability. The company has targeted innovations that can prevent environmental issues and still create value for the customers. Nike is also investing in manufacturing process innovations. For example, it made a minority investment in Dyecoo, a Dutch technology firm, which seeks to create the first commercially available waterless textile dyeing machines.

Innovation by Adidas

Innovation reflects our commitment to the open-source mindset, where we seek to build value together with athletes and consumers, universities and innovative companies as well as national and international governments and research organization. Five strategic plans enable Adidas to develop the best products and experiences for athletes and consumers.

Athlete Innovation

A very clear focus is to produce the best and most innovative products for athletes to enable them to perform at their very best. For this, Adidas works closely together with athletes and teams as well as numerous universities and innovative companies, to deliver against the needs of our target consumer.

Manufacturing Innovation

Manufacturing enables product innovation and increase speed to market capabilities. The company's innovation activities are also focused on new manufacturing technologies.

Digital and Experience Innovation

The Adidas brand was amongst the first in the industry to bring data analytics to the athletes. With decades of continuous investment in sports science, sensor technology and digital communication platforms, Adidas has taken a leading role in terms of changing the sporting goods industry through technology. With the increasing speed of digitalization, this field will remain one of our core areas.

Sustainability Innovation

To stay at the forefront of sustainable innovation, Adidas is pursuing a proactive approach to establish internationally recognized best practices and achieve scalable improvements. They invest in materials, processes and innovative machinery which will allow us to up- cycle materials into products and reduce waste. They further focused on taking responsibility for the entire product life cycle and established a clear game plan for moving toward a circular business model.

Female Athlete Innovation

To fuel the growth of their women's business, they have taken a holistic approach to understanding the female athlete's performance and non-performance needs throughout her active life. With a focus on the female consumers, it is crucial to fully understand the specific product needs of the female athlete to help unlock her full potential. To enable this industry leaders and academic experts with their "Path to Expert" approach, this help to accelerate the building insights and foresights that keeps at the forefront of product innovation.

Strategy Competition of Nike and Adidas

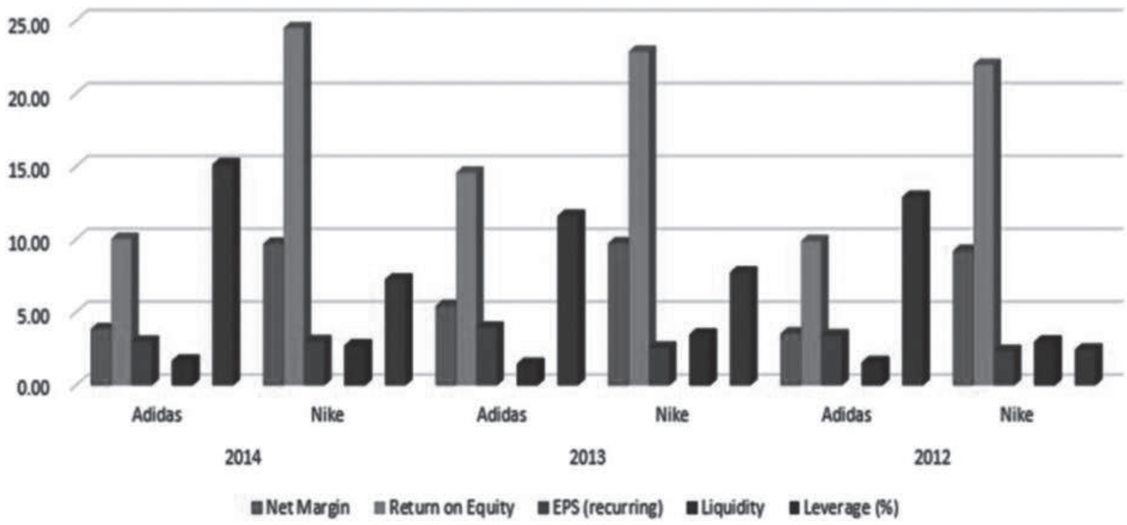
Nike and Adidas are two most popular companies that deal with sporting equipment in the world. Nike and Adidas are the largest sellers of sports and athletic footwear in the world. Adidas is the second largest sporting goods manufacture after Nike all over the world. Nike is more popular than Adidas as it is with various celebrity sponsorships, with main target on basketball players. Thus, their main market is in the states but it has recently expanded globally. Adidas targets people involved in football and tennis. They have a major market in European countries while being represented international.

Over a period of several years, Nike has shifted its focus to football with the aim of gaining the international recognition just as Adidas dominates the world football market.

The football market is usually considered to be the "World Sport" (Marketing Strategy for Adidas versus Nike). Prices of products of both Nike and Adidas are high and Nike products price are overall higher than Adidas. Pricing strategy used by Adidas is that of market skimming strategy. Adidas products prices are dependent on looks and color. An example is where a pair of Adidas white color shoe is usually more expensive comparing with another pair of shoes of the same quality but in different color. Nike uses the competitive and different pricing strategy from those of Adidas. Pricing strategies of Nike are based on premium segments as their target customers. The placing distribution strategy that is used by Adidas is that of concentrating most of its product and resources in places, where there are clusters of customers. This explains why it has opened many of its shops in various parts of the world. A trend developed by Adidas is where its products are sold online. But Nike employs distribution strategies similar to Adidas. It explores new and developing markets around the world and sets up its shoes in different countries all around the world. Distributors of the company are independent, as well as subsidiaries and licenses. It is also offers online shopping for its products. However, although there is intense competition, both Adidas and Nike have continued to experience a substantial growth over the last two decades.

Promotional strategies used by both companies are aimed at promoting their products as there is adoption of endorsement, use of magazines. Both Adidas and Nike have unique brand promotion. Customers have in their minds that if they want to wear light weighted sporting shoes, they need to go for Adidas. This explains why most basketball shoes are manufactured by Adidas. Customers view Nike as being innovator and creative, since the company comes up with new innovations and designs of new shoes styles.

The chart below summarizes the comparison of three years (Fact set Fundamentals 2014).

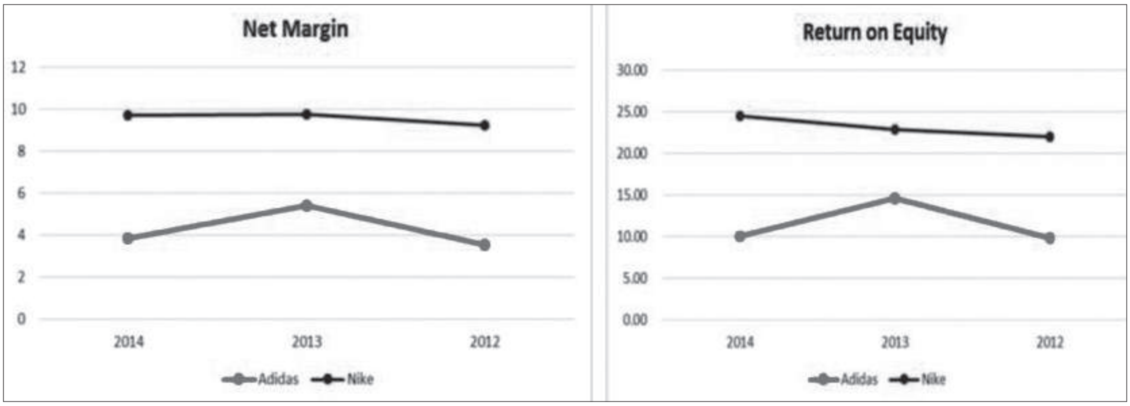


Comparative Analysis (Nike and Adidas)

Nikes has been the dominant leader in sports apparel industry for several decades. Adidas business model is highly focused on creating innovative products designed to meet consumer needs. Nike achieved this position by taking an aggressive approach towards building relationships with celebrity athletes. On other hand Adidas focuses on faster product creation and production by continuously improving the infrastructure, processes the systems. Nike has shifted from traditional media and spending more money into social media. For athletes, Nike is heading off to focus is on athletes who can show a high ROI as measured by the quantity of Facebook fans and twitter followers. In addition, Adidas also emphasizes on significantly reduced complexity on a group level by streamlining the global product range, consolidating the warehouse base as well as harmonizing above market service.

Sr. No.	*Content*	*Conclusions*	
		Nike	*Adidas*
1.	No. of outlets	1,096	1,333
2.	Sales volume	$44,493 MILLIONS	23,640 million euros
3.	Market share	39% footwear 13% apparel	6% apparel 33% footwear
4.	Distribution strategy	It focused on intensive distribution strategy.	It focused on products and resources in places.
5.	Pricing strategy	Premium segments as their target customers.	Includes Skimming pricing and Competitive pricing.
6.	Promotional strategy	Major focus on direct marketing, sponsorship, public relation and social media.	Major focus on marketing through television and product placement.

Financial Comparison



Conclusion

A shoe market segment is vast and allows companies to group their markets into appropriate segments so that they are able to target them with specific measures that are aimed at improving their competitiveness and profit returns. Nike and Adidas have applied in their own, unique market segmentation ways. Adidas has been implementing measures to attract the specific targets, as evident in its market share, which is second to Nike. They should also ensure that they put more measures to keep up with the latest trends in the fashion industry by providing products that match the trend.

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TECHNOLOGICAL INNOVATIONS

Facility Planning and Design at SIT Workshop

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Aditya Ranjan Parida, Pranay Biswal,
Siddharth Sankar Muduli and Ramesh Chandra Nayak

Abstract: *The workshop gives students the opportunity to gain hands-on experience with today's various machine tools, such as geared lathes, CNC turn-milling machines, planers, drilling-grinding machines, welding, etc. The main purpose of the engineering workshop is to provide hands-on experience with the production and properties of various industrial materials, as well as an overview of the basics and applications of various types of tools, equipment, machines and methods used in manufacturing. A special arrangement of machinery and equipment in the workshop is called "Workshop layout", and a good workshop layout creates a wonderful atmosphere for students and staff members to perform their best and not only improves the productivity of the students, but also achieves efficient use of machinery and materials. Workshop of an engineering college is the best place for students to learn practical knowledge. In most cases the engineering college workshop is considered as a pattern for a small industry. Proper layout of various machines in an Engineering college workshop increases the productivity and decreases the chances of accident. In this work the design and development of layout for the workshop of Synergy Institute of Technology (SIT) has been presented. The work consists of positioning of machines, equipment, operator workstations, assembly area, storage areas (for raw materials, related products and finished products), shipping area, employee amenities and related products in such a way so as to minimise the use of labour, machines and space to increase the overall productivity and efficiency of the workshop.*

Keywords: Machines, Workshop, Layout, Facility, Planning, Efficiency

Introduction

In industry numbers of machines and service stations are there. Engineering college workshop is a pattern of manufacturing industry. The machine layout is the most efficient physical arrangement of existing or planned workshop facilities, i.e. the arrangement of machines, process equipment, and service departments to achieve the greatest coordination and efficiency of the 4Ms (people, materials, machines, and methods) in the workplace. Synergy Institute of Technology is one of the graduate Engineering college in Odisha where more than 3000 students are studying. The college also provides training facility to B. Tech and Diploma students. The institute has a central workshop with 4000 square feet of carpet area. The workshop consists of different shops like machine shop, welding shop, foundry shop, fitting shop. The major equipment available in workshop are Lathe machine, drilling machine, shaper machine, planner machine, bench grinder, bench drill, milling machine, power hack saw, surface grinder, slotting machine etc. The workshop is a place where students acquire knowledge about the operation of various processes involved in production. The Practice course teaches students to do practical work in an engineering environment. The machine shop is also involved in various maintenance and repair work for the institute. In this work facility planning and design concept has been applied on the workshop of Synergy Institute of Technology to maximize the productivity of workshop and minimize accident. There are numbers of work on application of facility planning in industries has been done by various researchers. Dhepe et al. studied on setting laser room and found that certain procedure and guidelines has to be followed to set up such room. Lee et al. [1] studied on space planning and found that remodelling the workshop could lead to improving the efficiency and output. Wenjie et al. [2] studied on process design and analysed that demand for planning of new work shop facilities get increase to satisfy design requirements. Temeljotov et al. [3] studied on urban facility management and reached to a conclusion that urban facility creates a necessary link between community and environment. Vukmirovic et al. [4] studied on overarching ideas and good approach which could lead to a good planning procedure where everybody will participate and contribute to make it a good management. Kamma et al. [5] studied on design of plant layout and found out that by using lean manufacturing principle and a continuous improvement process will able the industry to compete. Wang et al. [6] studied on equipment facility and found that this method could improve both layout facilities and production efficiency too. Ni et al. [7] studied on logistic and simulation methods and analysed that working hours of production and process are obtained through this. Liao et al. [8] studied on simulation layout of solar module and found out that production process in simulation environment improved sales process and effectiveness of layout too. Hosseini et al. [9] studied on problem related to facility layout and reached to a conclusion that the effective arrangement has to be made based on the criteria like shape, size and orientation. Zineb et al. [10] studied on synchronization methodology and found out that a better material flow, high production, less inventory is achieved in stipulated time. Li et al [11] studied on facility layout of the machining workshop and found out that workshop layout's both quantitative and qualitative approach is feasible.

Klocke et al. [12] studied on integrated technology used method and came to a conclusion that production efficiency and overall product cost is increased. Wen et al. [13] analysed on improved logistic facilities and came to a conclusion that by implementing these new facilities the waiting time is reduced and logistic cost is less. Wang et al. [14] found that by using genetic algorithm design methods proved to more appropriate which ultimately improve facility layout. Cao et al. [15] found out that by implementing industrial engineering methods workshop production efficiency can be achieved. Xu et al. [16] studied on systematic layout planning and internal logistic method and found that by adopting this method facility layout and logistic coast is reduced. Jia et al. [17] studied on facility layout and concluded that by using weighted method of layout workshop will attain an improve production efficiency.

Fish Bone Pattern

The fishbone diagram (FBD) is a cause and effect diagram. The importance of FBD lies in the fact that it uses visual power to highlight problems and the relationship between problems and their potential sources. In this work machines in the work shop of SIT are taken as branches of the FBD. The following procedures have been used to draw the FBD in the workshop.

- Problem statement.
- Decide the steps to perform the task.
- Decide the machines requirement as per steps of the task.
- Create branches of machines.
- Review the diagram.

The Figure 1 shows the arrangement of machines by fishbone pattern in Synergy Institute of Technology. All machines are arranged as per the steps requirements to perform a job by students.

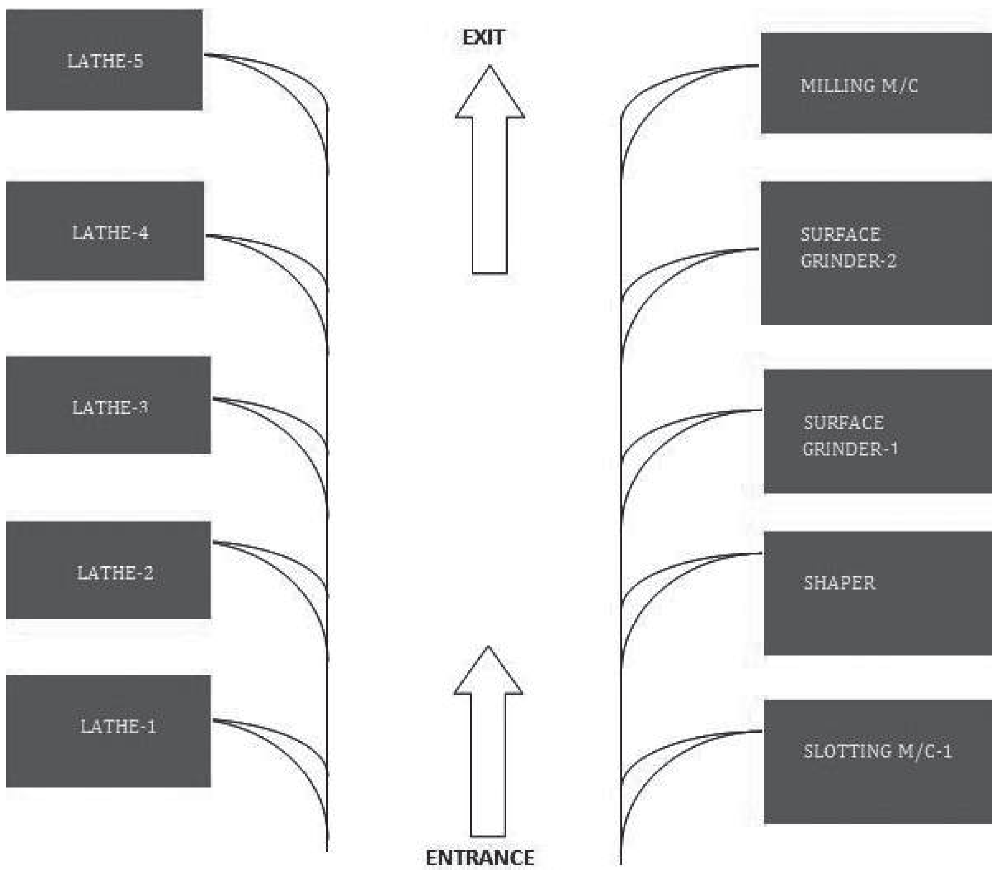

Figure 1: Fishbone Pattern Machine Arrangements

Followings are the advantages that we got from the Fishbone pattern arrangement of machines at SIT.

- This is easy to understand and appreciate.
- This will help us to determine the root cause of the problem.
- This will help us to find bottlenecks in the process.
- This will help us to find ways to improve.
- It involves an in-depth discussion of the problem that informs the team.
- It prioritizes further analysis and helps us to take corrective action.

Flow Layout Pattern

Flow layout pattern are designed to affect the orderly and rational system of manufacturing facilities that will be equivalent to large production volumes. Equipment is placed in the same order as the physical system, as specified in the manufacturing plan and process. In other words, part of the product or all of the equipment required for the entire production is used continuously in a continuous line. The Figure 2 represents the flow out pattern machine arrangements of SIT.

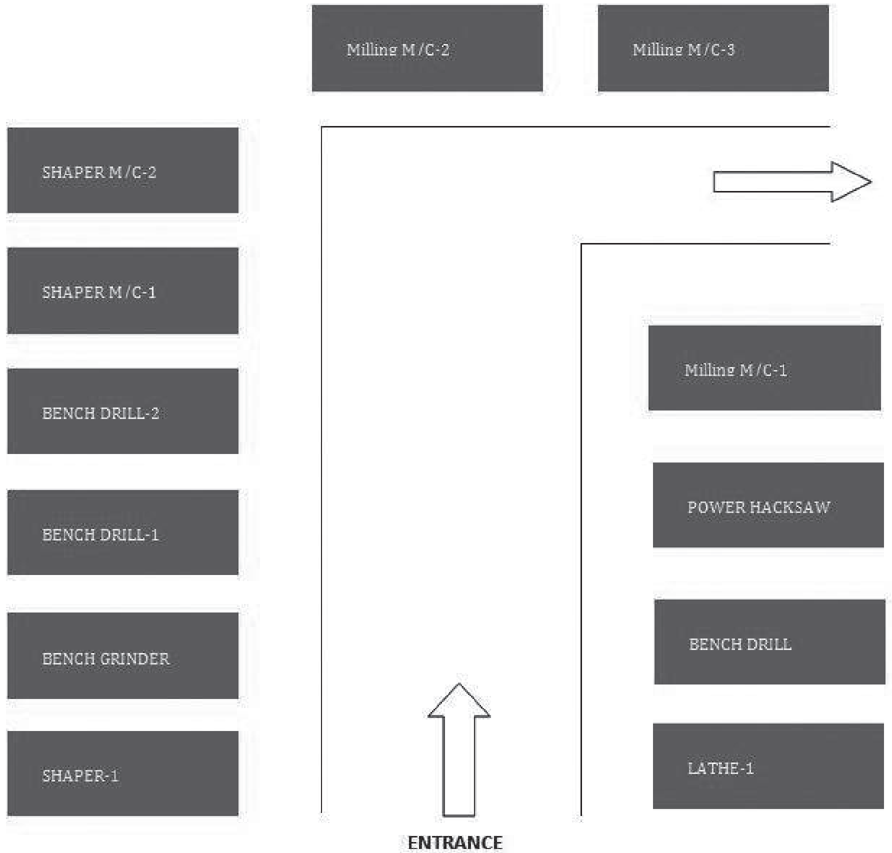

Figure 2: Flow Layout Pattern Machine Arrangements

A number of machines will be lined up to perform certain compound activities associated with the production of a given product. The job successfully moves from machine to machine, moving a small distance at a time, until all necessary operations are completed. "This scheme leads to the processing of the product in a direct flow from the receipt of raw materials to the shipment of finished products.

Followings are the advantages that we got from flow out pattern arrangement of the SIT workshop:

- Since production is planned according to an ordered sequence, the production time from the initial operation to the finished product is managed economically and efficiently.
- This arrangement facilitates... introduction of automatic material handling devices. Guiding the work flow through straight lines and short travel distances in the product layout allows the installation of labour-saving and low-cost mechanical handling devices (moving materials from operation to operation) such as roller conveyors, monorails, chutes, etc. This reduces the cost of material handling in compare to total production costs and ensures faster and smoother job movement on the line.

Process Layout Pattern

A process diagram is especially useful when a small number are required. If the products are not standard, a single process design is less desirable because it has the flexibility of other

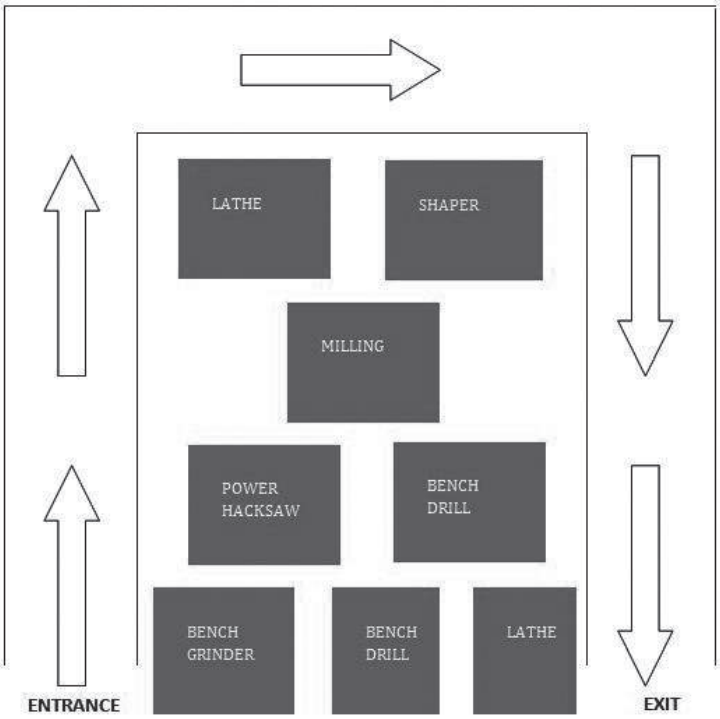

Figure 3: Process Layout Pattern Machine Arrangements

creators' process. With this type of layout, machines are used not in the order of work, but by type or character. This layout is ideal for non-repetitive work.

Followings are the advantages that found for Process Layout pattern arrangement of the SIT workshop:

- There will be less duplication of machines. Thus, the total investment in the purchase of equipment will be reduced.
- It offers better and more effective control through specialization at various levels.
- There is a lot of flexibility in equipment and workforce, so load distribution is easily controlled.
- Better use of available equipment possible.

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- There will be less duplication of machines. Thus, the total investment in the purchase of equipment will be reduced.
- It offers better and more effective control through specialization at various levels.
- There is a lot of flexibility in equipment and workforce, so load distribution is easily controlled.
- Better use of available equipment possible.
- Equipment breakdown can be easily dealt with by transferring work to another machine/ workstation.
- The control of complex or precise processes will be improved, especially where close control is required.

Conclusions

Workshop in an Engineering college is used to store, control and protect materials, goods and products throughout the production, distribution, and consumption and disposal process. In this work equipment and machines in SIT workshop has been positioned by four methods. The following points are describing the conclusions.

- Increase the productivity of each student with a high processing frequency,
- Improve product quality and limit damage to materials and equipment when the work piece is heavy or difficult to hold and damage is likely due to human error or carelessness.
- Reduce fatigue and injury when the environment is dangerous or inaccessible.
- Effectively utilization of workshop for all batches of student is possible.
- Fish bone pattern machine position provides better advantage over others.

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Design and Development of an Epicyclic Gear Operated Irrigation System to Help Farmers for their Irrigation Purpose

Abhijit Majhi, Antaryami Das, Rakesh K. Mohanty,
Etikeshan Pagal, Biswajit Swain and Ramesh Chandra Nayak

Abstract: *The agricultural segment plays a strategic role in the economic development of the country. In India maximum population are staying in rural areas. Peoples in rural areas are depending on agriculture. The output from agriculture sector is the main source for development of the country. Agriculture sector provides the source of food, income and employability to rural population, so it is required to provide better facility and technology to this sector. Irrigation is the main requirement for all types of agriculture; farmers spend maximum money for their irrigation purpose due to their traditional methods of irrigation. To solve this issue, in this work a new technology for irrigation purpose have been described. An epicyclic gear operated irrigation system, that works without any external source has been designed and presented. The designed model will work by the concept of Mechanical Advantage (MA), Velocity Ratio (VR) and energy storage. By using this model for irrigation purpose, it is not required any external sources like petrol, diesel, kerosene operated pump, The designed model is environment friendly with less cost. Only purchase and installation cost initially is required for this purpose. Repetitive expenditure for irrigation purpose is restricted by this product.*

Keywords: Epicyclic, Mechanical Advantage, Velocity Ratio, Energy Storage

Introduction

In agriculture, irrigation to crop is a major requirement. 60% expenditure on crop is for irrigation. Irrigation by Indian farmers is usually by petrol, kerosene and electric operated pumps. Due to unavailability and gradual price hike of these sources, farmers has been suffered extra burden. To overcome such problem, we have developed an epicyclic gear train operated irrigation system that will help farmers for their irrigation purpose, without any external sources. There are numbers of advantages from uses of epicyclic gear train as discussed by various researchers, Liu [1] on his study found various characteristics of planetary gear arrangement by using various methods, The fault signal is analyzed to determine the health and wear condition of the planetary transmission meeting gears. As well as the effectiveness of the proposed model, error indicators are confirmed by both artificial signals and experimental signals. Marghitu et al. [2] studied on various components of epicyclic gear train, they calculated angular velocities by using various methods. Nayak et al. [3] developed an gear train operated irrigation system, that works without any external sources, they also proved with less effort on handle, water lifted from tube well easily. Ge et al. [4]

worked on load sharing characteristics of epicyclic gear train, in their work an experimental load distribution behavior was developed for a planetary gear train with five planetary gears and a flexible ring gear, and the strain gauge structure was investigated and tested under various operating conditions. The test results show that the error of the load distribution factor, calculated theoretically and experimentally, is less than 5%. From the work of Mathur et al. [5] the results demonstrate the capabilities of the high power density pericyclic drive and the potential to reduce gear noise. The developed model is applicable to real surfaces of gear teeth. Sang et al. [6] explained that both the lateral synthetic vibration signals and the torsional vibration outputs can be used to identify faults and localize the 3K-II planetary gear train, but both have their limitations. Some of the results in this article are available as a reference for troubleshooting 3K planetary gear problems. Prikhod'ko and Smelyagin [7] studied on gearing arrangement of planetary trains and found that The kinematic analysis of a planetary gear with a non-circular gear allows to find functions of position, analogs of the speed and acceleration of the output shaft of the mechanism. Sun et al. [8] presented a new modeling method for the systematic removal of interference patterns using graph theory in structural synthesis. Building on the original graph theory, this paper proposes an equivalent replacement modeling method for converting a graphical motor model to a brake-like graph model. Feng et al. [9] confirmed by numerous tests on an experimental setup developed in this work. It can be concluded that the narrowband demodulation method can be used to develop an autonomous system for identifying imperfect gears in a nested planetary system. Crispel et al. [10] developed a prototype to demonstrate the design structure and feasibility of the Wolfram variant. In addition, the trend of the efficiency model is confirmed. Lu et al. [11] studied on load sharing behaviour of epicyclic gear train, they found that the interconnection effect of complex meshing errors degrades the load balancing performance of the system. The load sharing performance of a step is degraded when the components of that step introduce complex errors into the mesh. Wang et al. [12] studied on transplanting mechanism of Planetary Gear Train. The results showed that the simulation trajectory and the test trajectory mostly corresponded to the specified trajectory, which confirmed the correctness and feasibility of the theoretical method. Gravagno et al. [13] presented the numerical results are consistent with the trend of the experimental data. In particular, assuming that the harmonic drive is operating at rated torque, plots of mechanical efficiency versus various parameters such as temperature and angular velocity have been modeled. Ozturk et al. [14] on their work The relationship between various PGT modal characteristics and TPM performance has been extensively researched, leading to interesting results. In addition, different sensitivity characteristics are observed for linear and parabolic modification schemes. These results; along with further evaluations of other design aspects such as load intervals during operation, manufacturing tolerances, gear wear, etc. can be used in the PGT design guide. Zhang and An [15] studied on Dynamic analysis of a single-rotor multistage main gearbox of a helicopter depending on design parameters, from their work A method for optimizing the parameters to improve the load characteristics of the system is proposed, which theoretically substantiates the design of the main transmission system of the helicopter. The performance of a Vernier actuator is theoretically studied by Chang and Chang [16] using quasi-static analysis, and its performance is verified on additively manufactured prototypes. The results show that the Vernier drive can cover a wide range of gear ratios with a simple mechanism.

Experimental Setup

India, an agricultural country, our farmers rely heavily on groundwater for irrigation. So tube wells are drilled in their farm for irrigation purpose. Petrol, kerosene, diesel and electric operated pumps are used to draw water from tube wells. But in this work we have developed an epicyclic gear train operated irrigation system, that system will attach with the tube well to lift water.

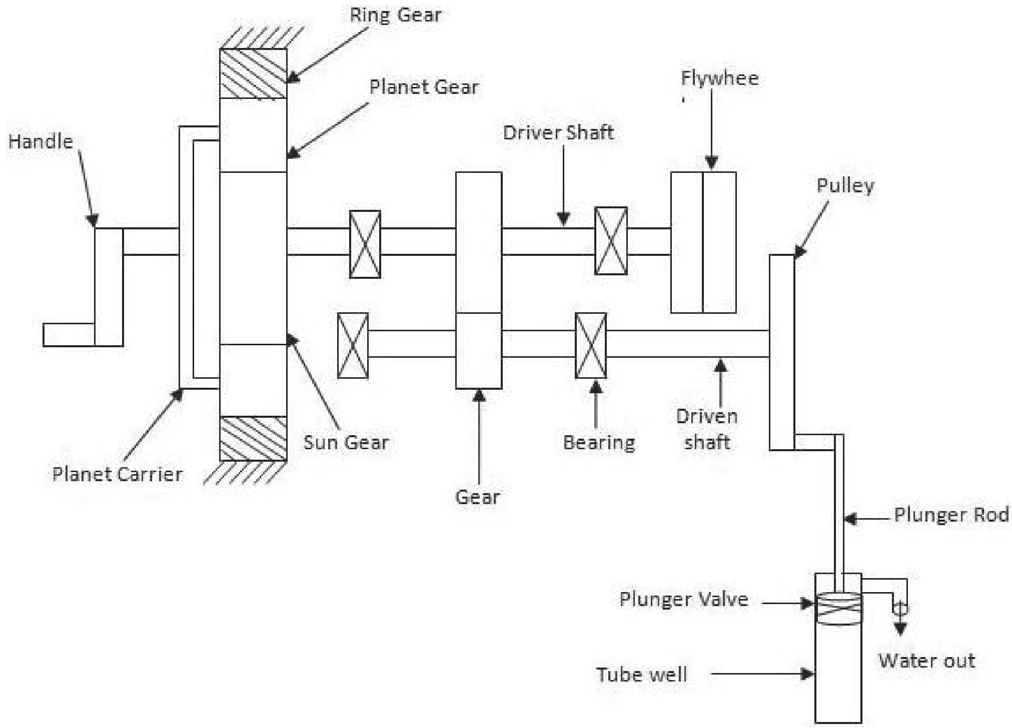

Figure 1: Overall Experimental Setup of Epicyclic Gear Train Operated Irrigation System

The Figure 1 shows the overall experimental setup, which consists of an epicyclic gear train unit, simple gear train, energy storage concept parts, transmission system. The setup is fixed on a frame. The epicyclic gear train unit consists of sun gear, ring gear, planet gear, and planet carrier. The simple gear unit consists of a bigger and a smaller gear. The energy storage unit consists of a flywheel. The transmission system consists of bearings, shafts, and pulley. Numbers of teeth on ring gear is 80, numbers of teeth on sun gear is 20, and numbers of teeth on planet gear is 30. There are three numbers of planet gears are connected. A planet carrier is attached with planet gears. In simple gear train unit the bigger and smaller gear consists of

100 and 30 numbers of teeth. Shafts used in the attachment are of 500 mm length each. A 40 kg flywheel is attached for storage of rotational energy. Four numbers of bearings are used for support the system with the frame. Raw material required for this model is cheap and easily available. The manufacturing process of the setup is easy and its weight is only 20 kg, due to its light weight the system will easy to transmit by farmers to their farm for irrigation.

The handle is attached with the planet carrier, the planet carrier is connected with planet gear, planet gears rotate around the sun gear, the ring gear is fixed and planet gears revolve around the ring gear as shown in figure. One end of the driver shaft is connected with the sun gear, and its other end carries the flywheel. Bigger gear of the simple gear arrangement is attached at the middle of the driver shaft. The bigger gear is meshed with the smaller gear. The smaller gear is placed on the driven shaft. And the other end of the driven shaft carries the pulley. The pulley is connected with the plunger rod of the tube well.

Due to rotation of handle the planet carrier causes to rotate the planet gear, planet gear rotate around the sun gear, now rotational energy from sun gear transmit to the smaller gear through the bigger gear. Due to rotation of smaller gear, the driven shaft causes to rotate the pulley, finally the plunger rod of the tube well reciprocates by rotation of the pulley.

Table 1 shows dimensions of some important elements of this designed arrangement.

Table 1: Important Dimensions of Designed System

Sl. No	*Elements*	*Sun Gear*	*Planet Gear*	*Ring Gear*
1	No of teeth	20	30	80
2	Normal module	3.6	3.6	3.6
3	Pressure Angle	350	350	350
4	Pitch circle Diameter	95	80	185

Result and Discussion

The present model was attached with the tube well in a farm having 1 acre land area, where vegetable farming was being done. Earlier farmers of that farm were using diesel, petrol or electric operated pump for their irrigation purpose. We conducted a survey regarding their expenditure earlier and compared the expenditure after attaching the present model for irrigation. In this present study we observed that our present model gives mechanical advantages to farmers and also we found that the model with epicyclic gear arrangement provides better advantage. Table 2 below shows the expenditure details including purchase cost, fuel cost, and maintenance of different pumps for irrigation of crops in 1 acre area land.

Table 2: Cost of Different Pumps

S. No.	*Variables*	*Diesel Pump (2 HP)*	*Petrol Pump (2 HP)*	*Electric Pump (2 HP)*	*Designed Model*
1	Purchase Cost (INR)	18000/-	13000/-	12000/-	6000/-
2	Expenditure per day	600/-	650/-	320/-	200/-
3	Maintenance per week	250/-	150/-	100/-	50/-

A new designed system is used for lifting water from tube well has been presented in this work , the system consists of gears, shafts, flywheel, bearings and handle. The system is attached with the plunger of tube well. Less effort on handle and transfer of motion from handle to plunger causes lifting of water. Smooth motion of handle is possible due to provision of bearings, less effort on handle to reciprocate the plunger is possible due to provision of flywheel and gear arrangements. Mechanical advantage, velocity ratio, and efficiency concept has been considered in this work.

M.A. = Mechanical Advantage
V.R. = Velocity Ratio
η = Efficiency
W = Load
P = Effort
X = Distance moved by Load
Y = Distance moved by effort

$$\text{M.A.} = W/P \quad \text{...(1)}$$

$$\text{V.R.} = Y/X \quad \text{...(2)}$$

$$\eta = \text{M.A./V.R.} \quad \text{...(3)}$$

Maximum efficiency is possible for less V.R. and less velocity ratio is possible for maximum value of X (Distance moved by Load) and for minimum value of Y (Distance moved by effort). In this work less effort is provided at handle and maximum plunger motion is happened. So our designed system provides maximum efficiency.

Conclusions

- The model we have developed is environmentally friendly, since it does not require any external sources to work. The model we have developed is in great demand in agriculture.
- The material needed to make it is readily available, so our idea can open the way for entrepreneurship.
- The model we have developed requires less maintenance, so farmers will not face any problems.
- The model developed by us will not have a harmful effect during operation, so our product can be used at any time.
- The planetary gear model with simple gear arrangement has several more advantages over a simple gear train. In a planetary gear train, it has been found that in one rotation of the handle, the plunger rod of the tube provides 7 up and down movements, so the maximum water rises is possible.

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A Research on the Upcomming Era of Block Chain Technology

Harshali Baliramji Gomase and Anurag Nandkishor Waghmare

Abstract: *The block chain is a distributed database of records of all transactions or digital event that have been executed and shared among participating parties. Block chain is the backbone Technology of Digital Crypto Currency. Each transaction is verified by the majority of participants of the system. It contains every single record of each transaction. It will create a huge impact in the world. Block chain has the potential to solve the acute issues of data storage and security, transactions processing and intermediaries, supply chains, intellectual property, government operations, charity, voting, and crowd funding. So suppose we have a chain of 10 blocks, so the 10thblock depends on the 9thblock, the 9thblock on the 8thblock and so on. Thus in a way, the 10thblock depends on all the previous blocks and genesis block as well. Thus, if someone tries to change data on the 2ndblock, let's say, then he will have to change data on all the later blocks as well, otherwise the block chain will become invalid. Bitcoin is a crypto currency. It all started when this mysterious man under the name of Satoshi Nakamoto published a white-paper named Bitcoin: A Peer-to-Peer ECash System in 2009. Blockchain is a type of technology where data is stored into blocks and that blocks will be verified by the group of people called miners by computers. It reduces the risk of hacking data. This research paper attempts to solve the confusion about block chain technology, crypto currency, also finds the history of block chain by introducing bitcoin Research also proves that the tomorrow's era is full of secure systems.*

Keywords: Block Chain, Crypto Currency, Bitcoin

Introduction

Block chain technology is regarded by many IT innovators and experts as one of the most significant technological innovations in recent years in the field of digitization of secure ownership of assets. We are focusing on the question how the block chain technology works. One key difference between a typical database and a block chain is how the data is structured. A block chain collects information together in groups, known as blocks that hold sets of information. Blocks have certain storage capacities and, when filled, are closed and linked to the previously filled block, forming a chain of data known as the block chain. All new information that follows that freshly added block is compiled into a newly formed block that will then also be added to the chain once filled.

Objectives

1. To make block chain technology more familiar.
2. To find the issues that has been solved by block chain technology.

3. The goal of block chain is to allow digital information to be recorded and distributed, but not edited.
4. how the process works.

Background

Blockchain technology is still quite new. However, it has already penetrated a wide range of industries on a global level. It can potentially change the way any digital data is processed in the nearest future. As per the top block chain development companies, this technology can solve some most complicated problems the world is dealing with right now. Immutable and distributed are two fundamental block chain properties. The immutability of the ledger means you can always trust it to be accurate. Being distributed protects the block chain from network attacks.

Block chain works via a multistep process. You need to understand the how the process of block chain works. An authorized participant inputs a transaction, which must be authenticated by the technology. That action creates a block that represents that specific transaction or data. The block is sent to every computer node in the network in simple terms.

A attempting to send money to B. a new transaction is entered the transaction is then transmitted to a peer-to-peer computer scattered around the world. Then the network of computers solves equations to confirm the validity of transaction. Once the transaction legitimate transaction they are clustered together into blocks. These blocks are then chained together creating a long history of all transactions that are permanent. Hence your transaction is complete here we have seen the term peer-to-peer computers process Block chain mining is used to secure and verify bitcoin transactions. Mining involves Block chain miners who add bitcoin transaction data to Bitcoin's global public ledger of past transactions.

Methodology

This study based on pure data that has been referred from non-government institutes, various websites, books and especially forms one of my mentor who has been researching and mining as a miner by using block chain technology. While researching for block chain we have found some important information as follows:

Block chain technology is an interlinked systematic chain of blocks that contains transaction history and other user data. It works under the principle of decentralized distributed digital ledger. This technology enables cryptographically secure and anonymous financial transactions among the user nodes of the network enabling the transactions to be validated and approved by all the users in a transparent environment. It is a revolutionary technology that earned its emerging popularity through the usage of digital crypto currencies. Even though Block chain holds a promising scope of development in the online transaction system, it is prone to several security and vulnerability issues. In this paper, block chain methodology, its applications, and security issues are discussed which might shed some light on blockchain enthusiasts and researchers.

Isssues Solved by Blockchain

Data Storage

The development of artificial intelligence and machine learning, the amount of information that needs to be stored is continuously growing. Big Data challenges the capacities of modern data centres significantly. As the technologies mentioned above develop further, the data storage situation gets tougher. IDC predicts that the world will have 163 zetta bytes of data to store by 2025. Current cloud storage services do not have the potential to deal with such vast amounts of information effectively. Block chain can potentially solve the data storage issue thanks to its decentralized and distributed nature. To store the data in the block chain one will need to break it in small parts. Every part will be encrypted and uploaded to the block chain. Next, the data will be distributed in a way that will allow accessing all of it even in case a part of a network does not function. Such data handling can serve as a much better alternative to cloud storage.

Data Security

Storing data in block chain will bring vast improvement to data security. Currently, the cloud data is stored in centralized storage units, which makes it sensitive to any security breach. Block chain can enhance the safety and speed of cloud storage. The data, stored in the block chain, will be stored across the nod network. There will be no need to rely on a central entity or location in this case. Any data attack will not be potentially fatal in the block chain storage. There will be no way to tamper or steal the data, stored in the block chain. Storing data in the block chain will secure it from force-major circumstances that damage and destroy centralized databases at present (e.g., natural disasters, riots, political escalation). A distributed block chain data storage network will store redundant copies of data among different nodes so that there is no data downtime and loss no matter what. Block chain has the potential to store, process, and manage data without the need to rely on any third party.

Transactions

Currently, most of the payments in nearly every industry are made via a third-party financial institution. Block chain payments can improve the efficiency of payment procedures for many businesses. For example, when a company enables a block chain-based payment processor, it will get rid of the payment delays and the time-consuming procedures of the outdated payment system. With block chain, instant, secure transactions can be an affordable alternative for many businesses. The structure of block chain enables a real-time audit for all the transactions, securing them from any modifications. It can potentially enhance the operation of many compliance-intensive industries. Businesses can use smart contracts (applications that run precisely as programmed without allowing any third-party intervention, fraud or downtime) to establish unbreakable regulations for their financial transactions.

Supply Chains

Nowadays, supply and logistics chain management is extremely complex. Some products undergo dozens or even hundreds of steps in their supply chain journey. Processing all the invoices, payments, logistics and tax documents take a lot of time and resources. Because of this, the supply of some products can stretch to months and even years. Somewhere along the process, errors, fraud, and force-major circumstances can lead to high losses. Long supply chains can lead to more potential losses for all the sides of the deal. Block chain technology is seen as one of the most promising technologies for supply-chain management. It can improve assets recording, tracking, assigning, linking and sharing greatly. Block chain can facilitate the efficiency of supply chains significantly because it offers excellent security and transparency of the transactions. Block chain can help document the supply chain journey of every product for better protection and transparency of every step.

Voting

One of the greatest issues for many countries is the justice of elections. There are many cases of voting machine hacks, voting miscounts and forced voting. A block chain-based voting system has the potential to eliminate all these issues. When a vote is saved in the block chain, it can be tracked in real time, and it can never be changed. This technology can eliminate the possibility of tampering any election. This way, election winners can be determined most effectively. One more issue of elections is voter anonymity. By enabling block chain-based voting solutions, the government will protect the anonymity of the voter with the transparent crypto algorithms. Complex mathematical algorithms will encrypt every vote and save it to the block chain, without leaving a chance to change it or hack it. With block chain, only citizens who are legally allowed to vote will be able to fulfil their civic duty.

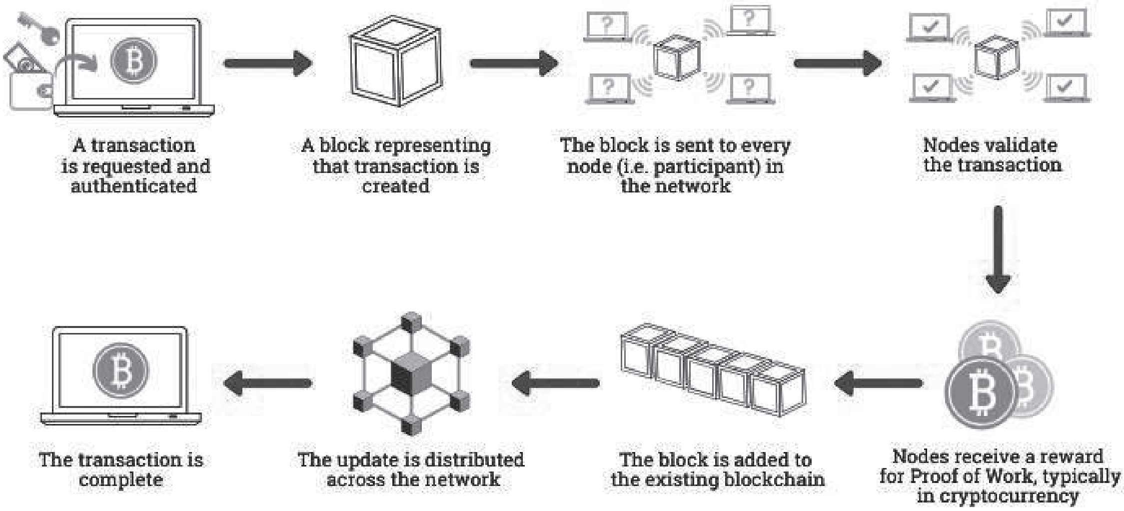
Colombia has already made the first steps by launching a block chain-powered voting platform Plebiscito Digital. This service has previously worked with the civil society organizations to give Colombian citizens living abroad an opportunity to vote remotely using the block chain-powered service.

Intellectual Property

Owners of intellectual property all over the world find it hard to protect their rights in the digital age. It seems like almost any work of art can be stolen, copied and distributed by pirates. However, some companies have already found a solution to this issue with the help of block chain technology.

For example, Mr. A created a website that helps artists protect their original images by saving them to the block chain. This way, an artist receives a certificate that proves that the picture is authentic. However, such a certificate is not a substitute for a certificate at the US copyright office. If an artist wants to win any statutory damages in a lawsuit within the US, they would still need to comply with the formalities. Speaking of any forms of intellectual property, be it an invention, a trade secret, or a song you've written, block chain can help secure it from theft. With block chain, one can create a digital trail of records of their innovation process. One can quickly obtain block chain certificates to prove their ownership over the existence and integrity of an IP asset they own.

Process of Blockchain



Block chain works via a multistep process, which in simple terms happens as follows, An authorized participant inputs a transaction, which must be authenticated by the technology. That action creates a block that represents that specific transaction or data. The block is sent to every computer node in the network.

Conclusions

Seems like, the block chain technology has a promising future in many industries. Even though many sceptics do not believe that block chain needs to penetrate some sectors and that it cannot improve their efficiency, many experts think that the future belongs to the block chain. One thing is certain now: block chain has the potential to solve the acute issues of data storage and security, transactions processing and intermediaries, supply chains, intellectual property, government operations, charity, voting, and crowd funding. Some experts say that the implementation of block chain in these spheres will have such a dramatic effect as the invention of the Internet once had. People didn't realize how inefficient they were until technology took them to the next level

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Model for Achieving Innovation: The Triple Helix Model

Pooja B. Udasi, P.W. Nimbhorkar and S.B. Kadu

Abstract: *The Triple Helix model of innovation has attracted considerable attention in both developed and developing economies as an integral policy making tool to enhance innovation and promote economic development. Specifically, it advocates the strengthening of the collaborative relationships between academia, industry and government to improve innovation. The Triple Helix indicator can be used as a measure of unrealized but technologically feasible options given a historical configuration. Different coordination mechanisms (markets, policies, knowledge) provide different perspectives on the same information and thus generate redundancy. This paper aims to contribute to the study of the Triple Helix model by investigating the main factors that influence the implementation and operationalisation of this model. The discussion begins with a description of the model, highlighting its emphasis on an evolutionary process towards developing the type of interactive collaboration which leads to all three actors achieving long term strategic goals. This study invents a Triple Helix of university-public-government for sustainable development, as a complement to the Triple Helix of university-industry-government for innovation.*

Keywords: Triple Helix Model, Interactive Collaboration, Sustainable Development

Introduction

A set of interactions between academia, i.e. the university, industry and government, to foster entrepreneurship, innovation, social development and economic growth in a knowledge-based economy is referred to as Triple Helix Model. The model emphasizes on advancing innovation for a development. It expresses the role of university to join hands with industry and government. It explains social formats for the production, transfer and application of knowledge. In innovation helical framework theory, each sector is represented by a circle (helix), with overlapping showing interactions. The framework was first conjectured by Henry Etzkowitz and Loet Leydesdorff in the 1990s, with the publication of "The Triple Helix, University-Industry-Government Relations – A laboratory for Knowledge-Based Economic Development". Interactions between universities, industries and governments have given rise to new intermediary institutions, such as technology transfer offices and science parks, and Etzkowitz and Ledersdorff theorized the relationship between the three sectors and explained the emergence of these new hybrid organizations. The triple helix innovation framework has been extensively adopted and as applied by policy makers has participated in the transformation of each sector.

Triple Helix covers the Inventive ruin – a concept coined by Joseph Schumpeter in 1942 which describes that new innovations kill the older ones. Innovation rises within each of the three spheres – university, industry and government. Inventive ruin cannot be evaded when we embrace innovation. In an economic sense, creativity can produce some destructive consequences.

What is a Triple Helix Model?

During 1930's and 40s, the triple helix model comprises three basic elements: first, a more prominent role for the university in innovation; second, a movement toward combined relationships among the three major institutional spheres in which innovation policy is increasingly an outcome of communication amongst university, industry and government; thirdly, in addition to fulfilling their traditional functions, each institutional sphere also 'takes the role of the other' operating on a y axis of their new role as well as an x axis of their traditional function. Therefore, academia is a source of firm-formation apart from its traditional role as a provider of trained persons and research. Government helps to support the new developments through changes in the regulatory environment, tax incentives and provision of public venture capital. Industry takes the role of the university in developing training and research, often at the same high level as universities.

Until the evolution of triple helix, most of the economists presumed that knowledge flow is in peculiarity and interactions are very complex and competitive. Nevertheless, numerous debates and discussions challenged the issue, very few concepts were actually able to authenticate if any interactions and networks were possible among the three institutions of government, industry and university. It was only in 1995, when two professors, Etzkowitz (Newcastle University) and Leydesdorff (University of Amsterdam) conceptualized Triple Helix Model and showed core communications are possible among the three main bodies of university, industry and government. As a significant body of knowledge, it denotes a paradigm shift from dyadic relationships between industry-government to triadic relationships among i.e., a close cooperation amongst the three nodes to foster the spirit and growth of business in knowledge-based economy.

The Triple Helix is aactive innovation process. For example, "Brain port development shows that, effective collaboration in the triple helix can deliver new initiatives and help speed up (new) cluster development on the edges of existing sectors, who cannot be identified by macro statistics". In this example, the importance of a long-term frame in evaluating results was highlighted. The triple helix as a methodology works at a macro level of a region and also at a micro level concerning specific topics such as sustainability

Three Components of Triple Helix Model

The model of innovation (Triple Helix Model) which was first conjectured by Etzkowitz and Leydesdorff, is based on the interactions among the three following elements and their related 'initial role': universities engaging in basic research, industries producing commercial goods and governments that are regulating markets. As interactions increase within this framework, each component develops to adopt some characteristics of the other institution, which formerly bring about to hybrid institutions. Bilateral interactions exist between university, industry and government.

University-Industry Interactions

Etzkowitz and Leydesdorff argue that the original role of universities is to provide education to individuals. Therefore, interactions between university and industry revolve primarily around those two elements. In a linear model of innovation, universities are supposed to provide the research on which industry will build upon to produce commercial goods. The further communications take place through the involvement of industry managers and university faculty in both sectors. According to Etzkowitz, the transfer of people between university and industry constitutes a very important transfer of knowledge. This can be a permanent move in one direction or the other, or in other cases, whole careers spent between the two spheres. He gives the example of Carl Djerassi, a research director for a pharmaceutical company who joined Stanford University while continuing his industrial activity.

However, other scholars have pointed out that consulting activities of faculty members could also have downsides, like a reduced focus on educating the students, and potential conflict of interests relating to the use of university resources for the benefit of industry. Additional transfer of knowledge between university and industry happens through informal communication, conferences or industrial interest in university publications. One more type of interaction, for example, is the creation of co-op programs like the MIT-General Electric course which aims at integrating an industry approach into the students' curricula.

University-Government Interactions

The firmness of the interactions between the government and universities rest on the government's general relationship to and its policy towards higher education. Etzkowitz and Leydesdorff's model uses a spread to define the level of these interactions. On the one hand, when higher education is largely public, as in continental western Europe, the government has a higher stimulus on universities and the research they conduct by being the main source of funding. On the other end of the spread, classically associated with the United States, universities still receive some government funding but overall have a higher degree of independence from government influence. Though, the two ends of this spread are used as ideal-types that are not essentially reflective of the reality. The fluctuatingconditions can force the government to create closer ties with academia. For example, in the United States, the Department of Defense has scrupulously funded physics research during World War II and the Cold War.

Government-Industry Interactions

The connection between governments and industry rests on the government's attitude towards the market. In liberal economies the role of the government will be constrained to preventing market failures. On the other hand, where the government is more involved in the economy, the government's role is the regulation of the industry. These are also two ends of a spread, leaving room for essential variation, based on circumstances and disciplines. For example, as pointed out by Bhaven Sampat, in the 1960s, the government created a regulation to prevent patenting by or licensing to industry of university research funded by the National Institutes of Health. One crucial role of the government in its interaction with industry is the formation of intellectual property law and its enforcement.

How Does the Model Function?

Triple Helix creates connections and synergies among technologies, industries, and regions in a knowledge economy. As a network of knowledge, it brings out three different functions of knowledge generation, transfer to the area of application and transmit to other people through education and training. Also, as a most realistic model, it demonstrates a potential for innovation and economic development through jointure of university-industry government.

As a trilateral network, the helix lines represent ever-evolving collaborations and interactions, leading to more knowledge and network transpirations.

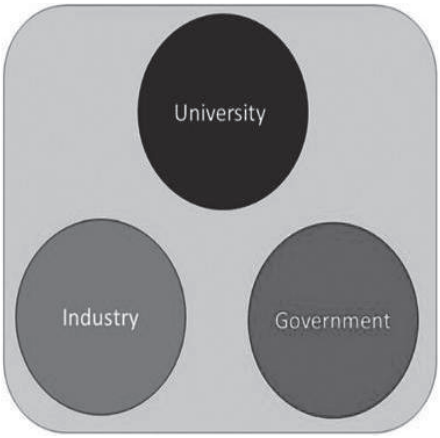
- **Industry:** Industries are boundary-spanners. They go hand-in-hand with knowledge and investment. Through an efficient knowledge and technology dissemination, many companies, as University Industry Government Knowledge + Innovation venture capitalists, foster intrapreneurships and spin-offs and elevate their technology level over time. The best outcomes of triple helix from an industrial point of view are the formation of clusters – geographic concentrations of interconnected companies and institutions in a particular field These clusters prove as a best example of collusion between governments and academic institutions.
- **Government:** Triple helix provides government, circumstances to understand evolving economic and industrial trends in new age economy and identify existing loopholes in the systems. Strategic collusion and interventions by the government lead to establishment of incubators for entrepreneurial and research activities while considering vital roles of diverse stakeholders and local regions. Through policies and programs, government can design a possible road map for innovations and economic growth of the region.
- **University:** In the age of new economy, universities have become productive ground for new industries and have established themselves as the hub of business networks. As major actors in knowledge creation and dispersion, they have achieved a paradigm shift from traditional academic orientation to enablers of knowledge and innovation. In the age of knowledge economy, universities can therefore be called as sources of interdisciplinary knowledge creation and regional economic development.

The Triple Helix Transition

The triple helix begins from different starting points: from separate institutional spheres that operate apart from each other; or from any one encompassing and directing the others. The global trend is towards a mode in which the various spheres are autonomous but overlapping, not completely distinct but not completely merged either. As this transformation takes place, there is a swing from bilateral to trilateral interactions, from single and double helixes to university-industry-government joint project

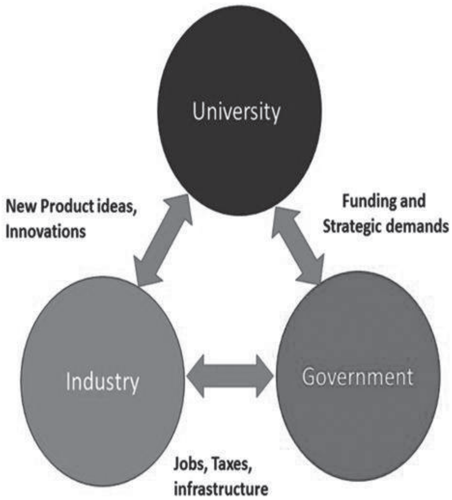
A typology of innovation systems incorporates various national perspectives.

First, there is **Triple Helix I**, a statist triple helix in which the state encompasses academia and industry and directs the relations between them.In a statist model, a strong state is driving interactions between the three components in a top-down implementation. It creates stronger ties and a more integrated model.



Triple Helix I: A Statist

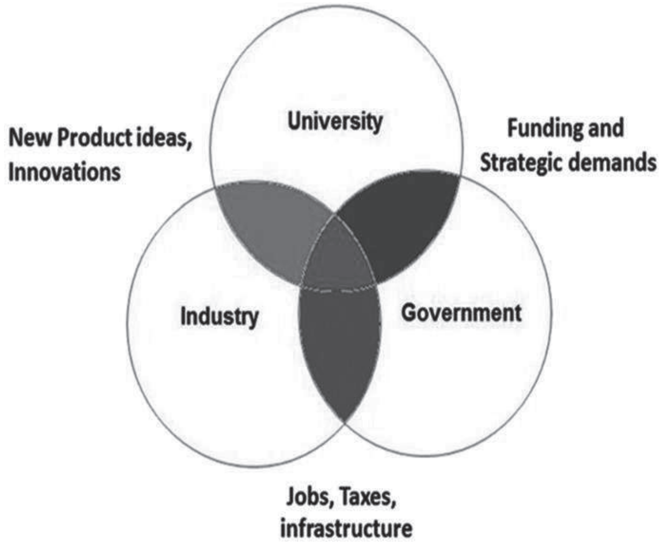
The second, **Triple Helix II**, in a laissez-faire model, in which the industry and market forces are the leading forces, the ties are weaker and each institution tends to remain very independent. A laissez-faire triple helix, comprises of separate institutional spheres,



Triple Helix II: A Laissez-Faire

where government, university and industry operate apart from each other. In this model, the university provides basic research and trained persons. It is anticipated that firms in an industry should operate completely apart from each other in competitive relationships, linked through the market. Government is limited to addressing problems that can be defined as market disappointments, with solutions that the private sector cannot or will not support.

Triple Helix III, an interactive model, consists of lapping, yet quite independent, institutional spheres. Developed and developing countries both experiment with finding improved mixes of functions and institutions in a triple helix of university-industry government relations. For example, academia plays a role as a source of firm-formation and regional development apart from its traditional role as a provider of trained persons and basic knowledge. Government helps to support the new developments through changes in the regulatory environment, tax incentives and provision of public venture capital. Industry takes the role of the university in developing training and research, often at the same high level as universities.



Triple Helix III: An Interactive Model

Strength of interactions can also vary according to the development of a country, with a silo model predominating in an underdeveloped country, moderate interactions developing in a middle-income country due to the push for economic growth on the one hand and the pull for a competitive market-driven technological progression on the other, and strong interactions developing in a developed country, for example in the form of a science park. Etzkowitz emphasized that the shift towards a knowledge-based society has given a greater role to universities. Indeed, as innovation is increasingly based on scientific knowledge, the role of universities as creators of knowledge is more valued. As a result, he argues that university, industry and government are more equal, and that no particular element is necessarily the driving force of the triple helix model of innovation.

India's Triple Helix Irruption

India is also poignant in the direction with the formation of NITI Aayog which gave great impetus to incubation and entrepreneurial university structure. The development of triple helix model in the country relies on tacit knowledge mechanism rather than codified knowledge. The economic thinking of the Narendra Modi government blended well with the concept of entrepreneurial university structure with better spinoffs to create a sustainable growth platform, resilient enough for the crisis pandemic Covid-19. The pandemic changed the theoretical perspectives of economic and public policy making. India came under stress during the initial period of the coronavirus outbreak when it lagged behind in basic necessities like antiviral products and equipment which were key to fight against the pandemic.

The pandemic changed India into an exporter of healthcare products like masks and the country spearheaded the production of vaccines with a triple helix formation involving industry start-ups, university researchers and governmental interventions. The government hassle-free production patenting, publications and other logistical developments. The transformation was so speedy that India flew into a position regarding vaccination and containment during the peak phases of the pandemic that the WHO and other world bodies praised its handling of the Covid-19 pandemic.

The industry-academia-government nexus played a vital role in accelerating the development and trial of vaccines. The results were outstanding and India started exporting vaccines to countries such as Brazil and Canada, reversing the trend of import of health technology and refining the country's international standing. The knowledge spill over from great institutions was instrumental in bringing a nationalistic flavor to the growth of the triple helix model that helped India during the Covid-19 outbreak and the resultant economic crisis.

Conclusions

The model of Triple Helix offers to study processes of exchange of knowledge and information among partners with different perspectives and other different institutional roles.

Apart from opening the innovation process to third parties, it provides a model of innovation in which the three parties are stated in terms of selection of environments and the interaction processes among them and as an effect there will be the reduction of uncertainty. Triple-Helix models facilitate us to measure the efficiency of the anticipatory mechanisms that can be exploited for technological developments and innovations. Technology-based production from high-tech industry, supported by government and universities (following the theory of the Triple Helix model) can be a powerful way to develop the knowledge economy, which in turn can increase competitive performance and the long-term economic development.

The triple helix model of innovation concept still is quite evolving post liberalisation phases post 1990 saw remarkable utility during the pandemic in India with transfer of technology and essential resource mobilisation across borders with support from national governments to fight the crisis at large. There is surely an ideal scenario created with applications of entrepreneurial university models with cross border spill overs which are quiteunique which requires substantial thought for future academic exploration on how fertile and fruitful can be the model hybridisation of government, industry and university for benefit of people at large.

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A Comparative Study on Stock Performance of the Listed Companies of New York Stock Exchange and National Stock Exchange

Shivani Agarwal and Krishnakant Dave

Abstract: *This study is carried out for investigating the stock performance through proportional Debt equity ratio, Dividend payout ratio and free cash flow to equity. There is a significant relationship between firm's market price and proportional Debt equity ratio, dividend payout ratio and free cash flow to equity. These three factors explain what proportions of debt and equity, at what proportion dividend to be paid out and what level free cash flow to equity to be maintained to finance the firm's assets. By adjusting these ratios, firm can influence their stock performance.*

The prime objective of this paper is to determine that the stock performances of companies listed in New York Stock Exchange and National Stock Exchange. Also, to discriminate important factors of companies listed in New York Stock Exchange and National Stock Exchange with respect to their value (market price) and firm's debt equity ratio, dividend payout ratio and free cash flow to equity. Sampling Method of this study is non-probability convenience sampling method and sample size, i.e. 5 listed companies (highest market capitalization) from New York Stock Exchange and 5 listed companies (highest market capitalization) from National Stock Exchange of the year 2011 to 2020. Excel and SPSS are used for analyzing the data. Multiple correlation and linear regression techniques are used in this paper. This paper is explaining valuation method appropriate with respect to firm's Debt equity ratio, Dividend payout ratio and free cash flow to equity or either new concept is required for estimation of market price. Researchers are trying to find out the concept behind stability and predictability of the market price of the firm.

Keywords: New York Stock Exchange, National Stock Exchange, Market Price of Share, Debt Equity Ratio, Dividend Payout Ratio and Free Cash Flow to Equity

Introduction

Free cash flow to equity is a measure of how much cash is available to the equity shareholders of a company after all expenses, reinvestment, and debt are paid. Free cash flow to equity (FCFE) is the cash available to the equity shareholders after meeting all obligations to the company, i.e. all the operating expenses, working capital investment, fixed capital and payment made to debt-holders including interest cost and principle amount.

Companies that have high free cash flow are likely to attract investors that look for efficient opportunities to invest their specific resources in market. Creditors and investors are willing to invest in companies that have high free cash flows because the strength of debt kickback and the definition of financial flexibility of the company are the means for assessing these companies. Addition to, cash profits and debts reduction are not possible without possession of cash paying.

The studies investigated that the relationship between FCF and the financial indicators increased in developed countries, but such studies came late in undeveloped countries that need these kinds of studies. This study examined the effect on free cash flow on the financial leverage and dividend payout in industries that are top 5-5 companies which are listed in NYSE and NSE, based on the data available for these companies in the sources.

Importance of Equity Valuation

The whole system of stock market is based on the idea of equity valuation. The stock market has a wide variety of stocks on offer, whose perceived market value changed every minute because of change in information that the market receives on a real time basis. Equity valuation therefore is the backbone of the modern financial system. It enables companies with sound business model to command a premium in the market. On the other hand, it ensures that companies whose fundamental values are weak witness a drop in their valuation. The value of equity in art and science enables that modern economic system to efficiently allocate scare capital resources amongst various market participants.

In the value of equity method, there are three types of method and these are such as Balance Sheet Method, Earning Multiple Method and Discounted Cash Flow Method.

Importance of the Study

Free cash flow is an important in stocks performance because it allows a company to pursue opportunities that enhance shareholder value. Without cash, it's tough to develop new products, make acquisitions, pay dividend and reduce debt.

Rationale of the Study

(a) This paper shows the comparison between market price of share and Free Cash Flow to Equity.
(b) Free cash flow considers all financial ratios where market value of a firm can be calculated.
(c) Free cash flow gives big picture in the estimation of valuation of the company.

Scope of the Study

Free cash flow measures the ease with which businesses can grow and pay dividends to shareholders. Even profitable businesses may have negative cash flows. Their requirement for increased financing will result in increased financing cost reducing future income.

Objectives of the Study

(a) To compare the valuation of firm listed in New York Stock Exchange and National Stock Exchange.
(b) To find out the value of firm by applying three methods Debt equity ratio, Dividend payout ratio and Free cash flow to equity.

(c) To create a model to find out the real estimated market price of the top listed companies on New York Stock Exchange and National Stock Exchange.

Review of Literature

Lizna Sebastian (December 2018), worked on "Impact on free cash flow on profitability of firms" and the objective was to study the effect of free cash flow on the profitability of firms listed in the National Stock Exchange (NSE). Outcomes of the study can be of interest to investors are concerned about the value of the firm as FCFs provides a fundamental basis for the valuation of share prices.

Yeo Hee-Jung (June 2018), researched on "Role of Free Cash Flows in Making Investment and Dividend Decisions: The Case of the Shipping Industry" investigates how cash flow influences the levels of investment and dividends in the shipping industry. The paper verifies that the agency theory can explain behavior of managers with respect to the investment strategy.

Khatik, S.K. (March 2018), worked on "Company Valuation using free cash flow technique: A case study of National Thermal Power Corporation Limited" and he took this topic to observe constant growth and multistage method for valuing free cash flow to firm and free cash flow to equity. The predicted FCFF of the company is positive which indicate the company does not have any cash problem in the future.

Achjen Lachheb (May 2017), researched on "The impact of free cash flow and agency costs on firm's performance" investigates the impact of free cash flow and agency costs on firm performance. Indeed, this study aims to re-examine the free cash flow hypothesis and the agency theory. Their results can be conducted with the help of regression and correlation statistical tool. Now the conclusion is the data of publicly listed companies on French Stock Exchange, our results show that there are positive impacts of free cash flow on agency costs. Indeed, the presence of free cash flows could increase the incentive for management to invest in destructive value projects thus leading to an increase in agency costs.

Muhammad Rizwan Kamran (2017), investigated on "Free Cash Flow Impact on Firm's Profitability: An Empirical Indication of Firms listed in KSE, Pakistan" This study determines the significance of free cash flows on the profitability of firms listed at the Karachi Stock Exchange. The study concludes that free cash flows enhance the firm performance but excess free cash flows create the agency problem due to this the conflict of interest increased between owner and management and because of such conflict firm performance decrease.

Mohammad Irfan (June 2016), investigate on "Valuation of Shariah Compliant Stocks Using the DCF Technique: Evidence from India" The main objective of this study was to estimate the valuation of Shariah compliant companies, which are listed on the S&P BSE 500 Shariah. The result explained the significant relation between intrinsic value and market value of shares. The relationship is supported to FCFE of Shariah compliant stocks.

Research Methodology

The study has used a conclusive casual method under applied method of research as it establishes a cause and effect relationship between the variables Market Price of share (MPS) with debt equity ratio, dividend payout ratio and Free cash flow to equity (FCFE). The study has taken up a mixed approach of research comprising of quantitative and qualitative data. For this study, formal causal research design is used and under this, Matching Design method is used. In this, the before and the after effect is analyzed on the same group. Here the sample is the treatment group and the treatment provided is the free cash flow over the years. Here the probability method of sampling technique is used. And the sample for the research includes a heterogeneous group of industries from National Stock Exchange and New York Stock Exchange so that the cluster represents the whole of the population. The sample size for this study was taken on the basis of prior studies. The variables of the study are as follows:

- Independent Variable – Debt Equity, Dividend Payout and Free cash flow to equity (FCFE)
- Dependent Variable – Market Price of Share (MPS)
- Mediating Variable – Financial capacity of a firm
- Extraneous Variable – Market share, Cost of production, Competition

Scope of the Paper

The paper has taken into account the FCFE, dividend payout, debt equity and market value of firm of 5-5 publically traded companies listed on the National Stock Exchange (Nifty50) and New York Stock Exchange which include:

Table 1

New York Stock Exchange	*National Stock Exchange*
Apple	Reliance Industries Limited
Alphabet	Tata Motors
Microsoft	Sun Pharmaceuticals
Face book	Hindustan Unilever Limited
Amazon	Tata Consultancy Services

National Stock Exchange

- **Reliance:** Reliance Industries Limited (RIL) is an Indian multinational conglomerate company headquartered in Mumbai, Maharashtra, India. Reliance owns businesses across India engaged in energy, petrochemicals, textiles, natural resources, retail, and telecommunications. Reliance is one of the most profitable companies in India, the largest public traded company in India by market capitalization.
- **Sun Pharmaceutical:** Sun Pharmaceutical Industries Limited is an Indian multinational pharmaceutical company headquartered in Mumbai, Maharashtra, which manufactures and sells pharmaceutical formulations and active pharmaceutical ingredients (APIs)

primarily in India and the United States. The company offers formulations in various therapeutic areas, such as cardiology, psychiatry, neurology, gastroenterology and diabetology.

- **Tata Motors:** Tata Motors Limited is an Indian multinational automotive manufacturing company headquartered in Mumbai, Maharashtra, India. It is part of Tata Group, an Indian conglomerate. Its products include passenger cars, trucks, vans, coaches, buses, sports cars, construction equipment and military vehicles. Formerly it was known as Tata Engineering and Locomotive Company (TELCO).
- **HUL:** Hindustan Unilever Limited (HUL) is an Indian consumer goods company headquartered in Mumbai, India. At present HUL's chairman and CEO is Mr. Sanjiv Mehta. HUL net revenue is Rs. 38785 crore for the financial year 19-20.
- **TCS:** Tata Consultancy Services is an Indian multinational technology company that specializes in information technology (IT) services and consulting, headquartered in Mumbai, Maharashtra, India and has its largest workforce based in Chennai, Tamil Nadu, and India. TCS revenue was Rs. 161541 crore and net income was Rs. 32340 crore at the end of financial year 2019-20. Subsidiary companies are TCS China and TRDDC.

New York Stock Exchange

- **Amazon:** Amazon.com, Inc. is an American multinational technology company which focuses on e-commerce, cloud computing, digital streaming and artificial intelligence. It is one of the big five companies in the U.S. information technology industry along with Google, Apple, Microsoft and Face book. Amazon's revenue was US$386.064 billion, operating income was US$ 22.9 billion, net income was US$ 21.331 billion and total equity was US$ 93.404 billion at the end of year 2020.
- **Microsoft:** Microsoft Corporation is an American multinational technology company which produces computer software, consumer electronics, personal computers and related services. Founders are Bill Gates and Paul Allen. Microsoft headquarters in one Microsoft way Redmond, Washington, U.S. its chairman and CEO is Satya Nadella. President and technical advisor is Brad Smith and Bill Gates respectively. Its Revenue was US$143 billion, operating income was US$53 billion, net income was US $44.3 billion and total equity was US$118.3 billion at the end of the year 2020.
- **Apple:** Apple Inc. is an American multinational technology company that specializes in consumer electronics, computer software and online services. Apple is the world's largest technology company by revenue and since January 2021, Revenue of apple was US$274.515 billion, operating income was US$66.288 billion, net income was US$57.411 billion and total equity was US$65.339 billion at the end of year 2020.
- **Facebook:** Facebook Inc. is an American multinational technology conglomerate based in Menlo Park, California U.S. it is public type company and Face book revenue was US$ 85.97 billion, Operating income was US$ 32.67 billion, net income was US$ 29.15 billion and total equity was US$128.29 billion at the end of year 2020.

- **Alphabet:** Alphabet Inc. is an American multinational conglomerate headquartered in Mountain view, California. It was created through a restructuring of Google on October 2, 2015 and became a parent company of Google and several former Google. Alphabet revenue, operating income, net income and total equity were US$182.53 billion, US$41.22 billion, US$ 40.27 billion and US$222.54 billion respectively at the end of year 2020.

Hypothesis to be Tested

H_o: There is no correlation between Market price of Share (MPS) with debt equity ratio, dividend payout ratio, Free cash flow to equity of the company.

H_a: There is correlation between Market price of Share (MPS) with debt equity ratio, dividend payout ratio, Free cash flow to equity of the company.

Sources of Information

- Primary Source, i.e. Investors
  (Researcher will first analyze and compare both the market and will try to get answer from domestic investor about know-how of international method of valuation on NYSE listed companies)
- Secondary source, i.e. Websites of NYSE and NSE.
- Other sources:
  - Journals
  - Articles
  - Financial text books
  - Research Methodology book

Data Collection Method

- Secondary Method: Data which are not originally collected but rather obtained from published or unpublished sources are known as secondary data.
- Sampling Method: Non Probability Convenience Sampling method
- Sample Size: Top 5 listed companies in New York Stock Exchange and top 5 listed companies in National Stock Exchange.
- Tools and Techniques of Research: The Data Analysis tools used for this paper comprises of Linear Regression Model and Correlation. These two tools have been employed using SPSS (Statistical Package for Social Sciences).

Sources of Data

The sample has taken from:

- https://www.nseindia.com
- https://www.nyse.com

The annual reports 5 years have been extracted from:

- https://www.moneycontrol.com
- https://www.macrotrends.net/

Expected Outcome

The expected outcome of this research paper is to prove that there is a positive impact between Debt equity ratio, Dividend payout ratio, Free cash flow to equity and Market Price of Share. This study is also aimed at establishing a negative impact of external financing of a firm's value.

Observed Data of Selected Companies

National Stock Exchange Listed Companies

Table 2.1: Reliance

Year	*Mar'11*	*Mar'12*	*Mar'13*	*Mar'14*	*Mar'15*	*Mar'16*	*Mar'17*	*Mar'18*	*Mar'19*	*Mar'20*
Debt/Equity Ratio	0.54	0.5	0.5	0.68	0.68	0.72	0.7	0.62	0.7	0.65
Dividend payout ratio	12.36	12.83	12.58	12.41	12.49	20.3	0	9.02	8.97	9.78
FCFE	27814	39353	54195	45749	40707	48226	32853	47516	59680	91723
Market Price of Share	1049	751	773	931	826	1045	1321	883	1363	1114

Table 2.2: Tata Motors

Year	*Mar'11*	*Mar'12*	*Mar'13*	*Mar'14*	*Mar'15*	*Mar'16*	*Mar'17*	*Mar'18*	*Mar'19*	*Mar'20*
Debt/Equity Ratio	1.6	1.17	1.16	0.84	1.23	0.78	1.28	0.82	1.51	1.58
Dividend payout ratio	13.74	9.47	6.52	4.63	0	0	0	0	0	0
FCFE	12664	31538	40459	56218	69465	72873	81777	75114	71458	80375
Market Price of Share	1248	271	269	397	550	387	466	327	174	71

Table 2.3: Sun Pharmaceuticals

Year	*Mar'11*	*Mar'12*	*Mar'13*	*Mar'14*	*Mar'15*	*Mar'16*	*Mar'17*	*Mar'18*	*Mar'19*	*Mar'20*
Debt/Equity Ratio	0.17	0.24	0.26	0.22	0.25	0.3	0.13	0.01	0.02	0.04
Dividend payout ratio	0.18	0.15	0.16	0.09	0.13	0.13	0.03	0.22	0.11	0.24
FCFE	23958	39223	63430	117115	129851	155900	198165	211880	210618	227327
Market Price of Share	443	570	819	575	1024	820	688	495	479	352

Table 2.4: Hindustan Unilever Limited

Year	*Mar'11*	*Mar'12*	*Mar'13*	*Mar'14*	*Mar'15*	*Mar'16*	*Mar'17*	*Mar'18*	*Mar'19*	*Mar'20*
Debt/Equity Ratio	0	0	0.01	0.01	0.01	0.03	0.04	0	0.01	0
Dividend payout ratio	61.43	58.08	104.46	71.25	74.38	81.03	79.78	74.72	75.09	77
FCFE	3590	5359	8523	11735	14253	17554	21278	26447	31480	38241
Market Price of Share	287	413	467	606	874	870	912	1333	1707	2299

Table 2.5: Tata Consultancy Services

Year	*Mar'11*	*Mar'12*	*Mar'13*	*Mar'14*	*Mar'15*	*Mar'16*	*Mar'17*	*Mar'18*	*Mar'19*	*Mar'20*
Debt/Equity Ratio	0	0	0.01	0.01	0.01	0	0	0	0	0
Dividend payout ratio	30.21	46.98	30.93	32.7	77.94	32.93	34.85	35.94	32.03	116.36
FCFE	5787	10787	19763	31387	47807	64876	88109	111314	137676	167315
Market Price of Share	1184	1165	1576	2133	2554	2520	2432	2849	2062	1826

New York Stock Exchange Listed Companies

Table 2.6: Amazon

Year	*Dec'11*	*Dec'12*	*Dec'13*	*Dec'14*	*Dec'15*	*Dec'16*	*Dec'17*	*Dec'18*	*Dec'19*	*Dec'20*
Debt/Equity Ratio	2.26	2.97	3.12	4.07	3.84	3.33	3.74	2.74	2.63	2.44
Dividend Yield	0	0	0	0	0	0	0	0	0	0
FCFE	3317	6502	7916	14291	17859	24609	42844	54485	70360	99657
Market Price of Share	173	251	399	310	676	750	1169	1502	1848	3257

Table 2.7: Facebook

Year	*Dec'11*	*Dec'12*	*Dec'13*	*Dec'14*	*Dec'15*	*Dec'16*	*Dec'17*	*Dec'18*	*Dec'19*	*Dec'20*
Debt/Equity Ratio	0.29	0.29	0.16	0.11	0.12	0.1	0.14	0.16	0.32	0.24
Dividend Yield	0	0	0	0	0	0	0	0	0	0
FCFE	239	1746	2715	7967	15645	26950	44433	59792	80452	103480
Market Price of Share	15	27	55	78	105	115	176	131	205	273

Table 2.8: Alphabet

Year	*Dec'11*	*Dec'12*	*Dec'13*	*Dec'14*	*Dec'15*	*Dec'16*	*Dec'17*	*Dec'18*	*Dec'19*	*Dec'20*
Debt/Equity Ratio	0.25	0.31	0.27	0.24	0.23	0.21	0.29	0.31	0.37	0.44
Dividend Yield	0	0	0	0	0	0	0	0	0	0
FCFE	8206	22880	33624	45671	62305	87034	110855	133626	164330	216834
Market Price of Share	324	354	561	525	759	772	1046	1036	1337	1752

Table 2.9: Microsoft

Year	*Dec'11*	*Dec'12*	*Dec'13*	*Dec'14*	*Dec'15*	*Dec'16*	*Dec'17*	*Dec'18*	*Dec'19*	*Dec'20*
Debt/Equity Ratio	0.75	0.77	0.8	0.9	1.35	2.26	2.27	1.81	1.57	1.34
Dividend Yield	2.52	3.03	2.61	2.34	2.41	2.47	1.9	1.63	0.95	0.99
FCFE	34890	64211	92324	125803	158707	194777	262577	291952	326212	365928
Market Price of Share	26	27	37	46	55	62	85	102	158	222

Table 2.10: Apple

Year	*Dec'11*	*Dec'12*	*Dec'13*	*Dec'14*	*Dec'15*	*Dec'16*	*Dec'17*	*Dec'18*	*Dec'19*	*Dec'20*
Debt/Equity Ratio	0.54	0.54	0.74	1.12	1.29	1.5	1.9	2.17	2.8	4.35
Dividend Yield	0	0.95	2.24	1.69	1.67	2.01	1.4	1.35	1.17	0.68
FCFE	28631	70085	131571	193431	290323	365977	442913	507503	564557	641384
Market Price of Share	14	19	20	27	26	29	42	39	73	133

The above table from Table 2.1 to 2.10 shows ten years of key data of the Indian companies and New York Companies listed in National Stock Exchange and New York Stock Exchange respectively. There are three popular methods for the valuation of companies, i.e. overall cost of capital, dividend payout and Free cash flow to equity (FCFE). The researcher has taken all three variables together to find out value of a company.

Data Analysis and Interpretation

Table 3.1

Model Summary									
Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Change Statistics*				
					R Square Change	*F Change*	*df1*	*df2*	*Sig. F Change*
Reliance	.751[a]	.564	.346	173.53014	.564	2.585	3	6	.149
Tata Motors	.624[a]	.389	.084	309.65072	.389	1.275	3	6	.365
Sun Pharmaceutical	.815[a]	.665	.497	147.66747	.665	3.965	3	6	.071
HUL	.990[a]	.981	.971	107.36034	.981	102.849	3	6	.000
TCS	.639[a]	.408	.112	550.45032	.408	1.378	3	6	.337

Table 3.2

		Constant	*Debt Equity Ratio*	*Dividend Payout Ratio*	*FCFE*
Reliance	Coefficient	299.038	1361.283	–18.506	0.001
	Std. Error	473.88	696.139	11.604	0.003
Tata Motors	Coefficient	169.055	75.536	40.409	.000
	Std. Error	1902.167	349.220	121.293	.026
Sun Pharmaceutical	Coefficient	167.762	1951.602	–324.248	.001
	Std. Error	299.870	684.104	885.034	.001
HUL	Coefficient	109.271	–7220.226	–.367	.055
	Std. Error	225.850	2790.851	3.091	.003
TCS	Coefficient	1662.827	52655.704	–8.263	.009
	Std. Error	405.275	43886.445	7.694	.004

Table 3.3

Company Name	*Year*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Reliance	MPS	1049	751	773	931	826	1045	1321	883	1363	1114
	Estimated MPS	836.90	786.82	808.26	1046.87	1039.68	958.11	1289.15	1029.93	1153.53	1106.77
Tata Motors	MPS	1248	271	269	397	550	387	466	327	174	71
	Estimated MPS	848.92	649.53	532.23	436.39	282.71	249.74	290.17	253.43	304.46	312.41
Sun Pharma-ceutical	MPS	443	570	819	575	1024	820	688	495	479	352
	Estimated MPS	473.41	640.29	708.66	725.53	788.25	920.89	678.42	401.07	454.56	473.92
HUL	MPS	287	413	467	606	874	870	912	1333	1707	2299
	Estimated MPS	282.80	380.65	464.23	651.87	788.26	821.72	953.38	1526.38	1728.95	2169.75
TCS	MPS	1184	1165	1576	2133	2554	2520	2432	2849	2062	1826
	Estimated MPS	1463.76	1368.87	2106.49	2193.43	1963.08	1957.61	2144.75	2338.52	2601.18	2163.32

Table 3.4

Model Summary									
Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Change Statistics*				
					R Square Change	*F Change*	*df1*	*df2*	*Sig. F Change*
Amazon	.986[a]	.973	.965	179.97217	.973	125.123	2	7	.000
Facebook	.969[a]	.939	.922	22.78335	.939	54.067	2	7	.000
Alphabet	.989[a]	.979	.972	75.27780	.979	159.722	2	7	.000
Microsoft	.970[a]	.940	.910	19.04342	.940	31.454	3	6	.000
Apple	.996[a]	.991	.987	4.18056	.991	221.104	3	6	.000

Table 3.5

		Constant	*Debt Equity Ratio*	*Dividend Payout Ratio*	*FCFE*
Amazon	Coefficient	228.014	–61.298	0	.029
	Std.Error	360.684	104.275	0	.002
Facebook	Coefficient	78.096	–189.405	0	.002
	Std.Error	19.187	93.455	0	.000
Alphabet	Coefficient	214.988	198.168	0	.006
	Std.Error	131.816	568.179	0	.001
Microsoft	Coefficient	54.655	–40.637	–12.279	.001
	Std.Error	90.519	18.743	31.148	.000
Apple	Coefficient	–6.416	48.495	2.193	.000
	Std.Error	4.186	3.741	2.569	.000

Table 3.6

Company Name	*Year*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Amazon	MPS	173	251	399	310	676	750	1169	1502	1848	3257
	Estimated MPS	186.16	235.47	267.49	395.07	513.17	741.17	1247.54	1648.14	2117.60	2983.17
Facebook	MPS	15	27	55	78	105	115	176	131	205	273
	Estimated MPS	23.70	27.06	53.84	75.00	90.20	119.16	150.51	180.91	196.61	263.03
Alphabet	MPS	324	354	561	525	759	772	1046	1036	1337	1752
	Estimated MPS	317.71	424.69	486.39	558.51	664.32	820.61	990.84	1142.36	1353.23	1707.34
Microsoft	MPS	26	27	37	46	55	62	85	102	158	222
	Estimated MPS	13.09	22.70	42.63	60.94	60.51	43.32	88.50	127.22	164.82	196.27
Apple	MPS	14	19	20	27	26	29	42	39	73	133
	Estimated MPS	16.54	13.96	19.56	29.81	27.09	29.49	38.89	44.59	68.32	133.75

This study shows that Indian market is more unstable compare to New York market. The highest correlation coefficient with Market Price of Share (MPS) in above Table 3.1 shows that the Indian firm was .990 (Hindustan Unilever Limited) and in the decreasing .815 (Sun Pharmaceuticals), .751 (Reliance), .639 (TCS) now last but not least .624 (Tata Motors). The highest correlation coefficient with Market Price of Share (MPS) in above table 3.4 shows that the New York Stock Market was .996 (Apple) and in the decreasing .989 (Alphabet), .986 (Amazon), .970 (Microsoft) now last but not least .969 (Face book). The correlation coefficients are more highly positive in New York Market.

- **Reliance:** From the correlation Table 3.1 R is 0.751 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.3 shows a comparison between observed value and estimated value of firm.
- **Tata Motors:** From the correlation Table 3.1 R is 0.624 that mean it is positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.3 shows a comparison between observed value and estimated value of firm.
- **Sun Pharmaceutical:** From the correlation Table 3.1 R is 0.851 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.3 shows a comparison between observed value and estimated value of firm.
- **HUL:** From the correlation Table 3.1 R is 0.990 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.3 shows a comparison between observed value and estimated value of firm.
- **TCS:** From the correlation Table 3.1 R is 0.639 that mean it is positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.3 shows a comparison between observed value and estimated value of firm.
- **Amazon:** From the correlation Table 3.4 R is 0.986 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share

(MPS). The Table 3.6 shows a comparison between observed value and estimated value of firm.

- **Facebook:** From the correlation Table 3.4 R is 0.969 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.6 shows a comparison between observed value and estimated value of firm.
- **Alphabet:** From the correlation Table 3.4 R is 0.989 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.6 shows a comparison between observed value and estimated value of firm.
- **Microsoft:** From the correlation Table 3.4 R is 0.970 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.6 shows a comparison between observed value and estimated value of firm.
- **Apple:** From the correlation Table 3.4 R is 0.996 that mean it is highly positive correlation of FCFE, Debt equity ratio and Dividend payout ratio with the market price of share (MPS). So we reject the null hypothesis which states that FCFE, Debt equity ratio and Dividend payout ratio are not directly correlated with the market price of share (MPS). The Table 3.6 shows a comparison between observed value and estimated value of firm.

Findings and Suggestion

This analysis of estimated Market Price of Share (MPS) is helpful to the investors, who want to know how MPS moves in the Stock Market. As it is known that valuation of company depends on Debt equity ratio (Cost of Equity), Dividend payout ratio and Free cash flow to equity (FCFE). Here it is analyze by taking these entire three variables to find out the exact valuation of company. Here researcher tried to observe the movement of market price with all three variables. By applying linear regression and pre-assuming the Market Price of Share (MPS) is dependable variable on these three variables, viz., Debt equity ratio (Cost of Equity), Dividend payout ratio and Free cash flow to equity (FCFE) for last ten years.

By applying test, results in regression coefficient in the equation, the predicted Market Price of Share (MPS) is shown in the table which shows very less residuals. The study shows that if all three variables are considered for the valuation of company, the predicted value comes at par with market price which is really beneficial for the investors to find out real Market Price of Share. It is a big achievement done by the researcher considering all three variables together Debt equity ratio (Cost of Equity), Dividend payout ratio and Free cash flow to equity (FCFE) to obtain predicted value of market price irrespective of any volatility.

By this research, company also gets benefit to increase market value and value of the firm by controlling all three variables increase or decrease in Debt equity ratio (Cost of Equity), Dividend payout ratio and Free cash flow to equity (FCFE). Top management of the company may know when to increase the value of firm by controlling all these independent variables simultaneously.

Conclusion

The whole research was conducted to shed light on to the relation between the Free Cash Flow and the firm's performance on the datasets of listed companies on National Stock Exchange and New York Stock Exchange. Here the Debt equity ratio (Cost of Equity), Dividend payout ratio and Free cash flow to equity (FCFE) were considered as the independent variable and the Market Price of Share is dependent variable for valuation of the company. There were several control variables which were constant for both of the models. The outcome of the research based on panel data linear regression and the fixed effect model of the hypothesis shows a positive relationship between the Debt equity ratio (Cost of Equity), Dividend payout ratio and Free cash flow to equity (FCFE) with Market Price of Share.

Suppose the management of Reliance wants to increase Market price of Share (valuation of firm), these implications can be help:

Debt Equity ↑	Dividend ↑	FCFE ↑	MPS ↑
Debt Equity ↓	Dividend ↓	FCFE ↓	MPS ↓
Debt Equity ↑	Dividend ↓	FCFE ↓	MPS ↑
Debt Equity ↑	Dividend ↓	FCFE ↑	MPS ↑
Debt Equity ↓	Dividend ↑	FCFE ↑	MPS ↓

This can also be a guideline for the managers to better use their resources for the ultimate betterment of the firm and the shareholders. After analyzing the result researcher concluded that the more accuracy is observed in New York Stock Exchange companies and can be predicted perfectly by taking into consideration of all these three variables Debt equity ratio (Cost of Equity), Dividend payout ratio and Free cash flow to equity (FCFE) together. New York Stock Market is more transparent and developed because it is fully controlled by regulatory bodies and more trustworthy in compare to developing countries like India.

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Shivani Agarwal is a research scholar in Pacific Academy of Higher Education and Research University, Udaipur (Rajasthan). Positive attitude and ability to work in any environment are the skills that define Shivani.

Shivani wants to pursue a dynamic and challenging career with an institute of repute, which gives value addition to the institute as well as offer an opportunity to enhance lateral thinking, demands analytical abilities and interpersonal interaction skills. Shivani holds a Master's degree in Management from St. Kabir institute of Professional Studies, Ahmedabad. Shivani has passionate about research and to enhance this skill; she has presented paper in National conference held by PAHER University in 2021 and National Youth Summit in 2016. Shivani was class and student representative in college time which indicates the ability of leadership. She was Rank holder throughout her education. Last but not the least, in spare time Shivani enjoys cooking and dancing. She can be contacted at shivaniairun@gmail.com and Mob. 9461015755

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A Review on Pose Estimation and its Recent Progress

Om Masne, Mohit Bohra, Gita Fase,
Kshitij Khillare and Amitkumar Manekar

Abstract: *Pose estimation is a challenge in computer vision field which has been researched for quite some time, reason being the richness of applications that can benefit from such technology. Pose estimation is one of the main components in problems which include the approximation of object placement and location relative to the reference frame. It is the task of using techniques such as machine learning methods to calculate the pose of a character from a video or image by approximating the spatial locations of key body joints.*

Keywords: Human Pose Estimation, Pose Estimation, Deep Learning, 2-D Pose Estimation, 3-D Pose Estimation, Multi-Person Pose Estimation

Introduction

Pose estimation is the procedure of approximating the location of the connections in some human body or other objects and subjects. It has uses in tracking the motion of a person or object, detecting gestures, analysis of changes in pose of a subject, human fall detection, etc. Pose estimation is generally of 2 types – 2-D pose estimation and 3-D pose estimation. 2-D pose estimation results in accurate position approximation in a particular plane or axis. In 3D pose estimation, the results are generated in multiple planes or axis which can be used when the results need to be used in 3D world. Pose estimation can be done by using images of a subject or by using video for input and the output can then be used in the required fashion.

Many known methods of pose estimation include Deep Cut, Regional Multi-Person Pose Estimation (Alpha Pose), Pose Net, High-Resolution Net (HR Net), Open Pose, Dense Pose. Each method has its pros and cons. Some have better results with single object estimation while some give better results when the environment is more supportive. Pose estimation has applications in human activity estimation, motion transfer between objects, training robots, detection of gestures, augmented reality, human fall detection, motion tracking for consoles, full body / sign language communication (for use in accessibility, or a traffic policemen signal understanding), a person falling or is sick.

Other applications include the analysis of basketball, volleyball, tennis, badminton, and other sports, application of posture learning for body works or exercise and fitness, applications in supervision enhancement and defence.

Litrature Survey

Pose Estimation

Pose estimation (PE) is widely explored in computer vision field. It includes approximating the structure of a subject's body segments from input data obtained by camera or other devices, in the form of images or videos. It results in statistical and movement data of the individual or creature's body. It has been used for large range of purposes (e.g., augmented reality (AR), health care, human-computer interface, motion evaluation, virtual reality (VR), etc). There has been a large amount of study with deep learning. Deep learning has thus surpassed many traditional methods such as semantic segmentation, image classification, and body detection.

Human Body Modelling

Body modelling is a crucial aspect which works with the extracted features of human pose estimation from input data. N-joints kinematic model is widely used for this purpose. A human body is made up of lots of joints and connections, these parts contain a vast amount of data for the estimation purposes. Earlier to define and extrapolate the body pose a model-based approach was used.

Major Techniques for Human Body Modelling:

1. Volumetric model – It is utilized for 3-D Human Pose Estimation.
2. Planar model – A model employed for 2-D Human Pose Estimation.
3. Kinematic model – It can be applied for 2-D/3-D Human Pose Estimation.

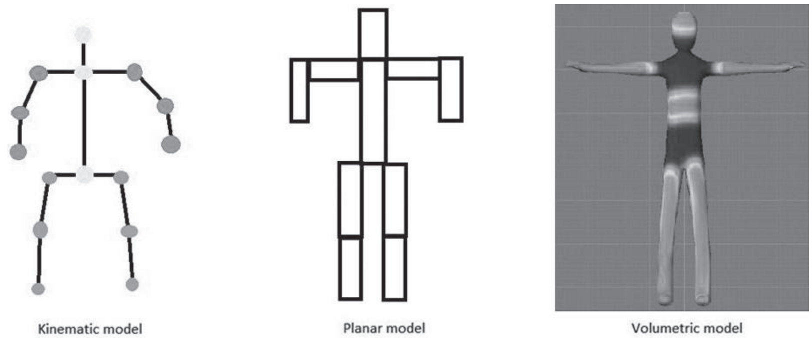

Figure 1: Body Modelling Techniques

Kinematic Model

This model uses the collection of joint locations and body parts locations and angles to characterize the human body. It is also called as kinematic chain model or skeleton-based model [4].One of the most used models is the pictorial structure model (PSM) [5]. This flexible system is utilized in 2D pose estimation and 3D pose estimation. The kinematic model has the advantage of flexible graph-representation along with its other features. The kinematic model does have some shortcomings such as failure in representing shape and texture information.

Planar Model

The planar model represents the structure and growth of a body. Rectangles are used for representing the body fragments, which resemble the human body shape. Earlier works have applied the cardboard model [6] for such estimations. Another such model that is used to capture detailed body graphs is the Active Shape Model (ASM). Principal component analysis (PCA) [7] is utilized to obtain the body deformations.

Skinned Multi-Person Linear model (SMPL)

This model can represent a large variety of human shapes [8]. It is easy to deploy with present drawing programs. Because of its high usability it is widely implemented in 3D HPE methods. It can also be modelled for demonstrating soft tissue systems using biological pose-based deformations.

Dynamic Human Shape in Motion (DYNA)

Dynamic human shape in motion has shown the ability to display accurate soft tissue actions with a variety of distinct body structures [9].Body mass index (BMI) is used to produce outputs with different shapes.

2D Human Pose Estimation

It is the approximation of the body's pose in a 2-D space. It uses spatial location of different human body features. Conventional 2D pose estimation methods used algorithmic feature extraction procedures for body parts. The traditional methods involved making a stick figure to get the global pose of the body. Newer research uses deep learning to achieve a significant improvement in the results.

2D Single Person Pose Estimation

It is limited to the results for only a single subject per frame of the input. Joint sites are identified from the input for single person. If multiple bodies are present then the input is first clipped, and the clipped segments are used for input to the system. These segmentations are obtained by simple body detectors such as the upper body detectors [10] or full body detectors [11]. This helps in approximating the position of body parts along with the joints. The output is used with heat maps data.

The 2 major types of pose estimators that use deep learning techniques are:

1. **Regression methods:** This method uses a technique to learn a correlation of the given image to human body joints. Regression methods learn a co-relation between the source image and the kinematic body model using deep learning.
2. **Body part recognition systems:** This method detects the approximate position of the body parts and joints. This method is supervised by heat maps data.

2-D Multi-Body Pose Estimation

Methods used for multi-body solutions are generally more complicated and have lower accuracy, but with the advantage of giving output for multiple subjects.

- **Top-down methods:** These methods first obtain a set of boxes (for each person) for human detection and then use single body pose estimation to obtain multi-body poses.

Top-down method have two stages:

1. Subject recognition.
2. Pose estimation around a single individual.

- **Bottom-up approaches:** These methods first locate body joints and then group them according to the targets. In the top-down method, the computing time increases with increase in the quantity of people in the input image. This approach is faster than top-down techniques. The reason for the bottom-up methods to be faster is that they do not need to detect the pose for each subject individually.

  Bottom-up methods have 2 stages:

  1. Detect the candidates key features.
  2. Gather the body-parts and join those body-parts in distinct bodies and generate separate pose interpretations.

Pose Estimation using Comparable Point Data

This method focuses on the movement and rotating relationship between the image co-ordinate system [12]. A match is determined if the rotated image position is close enough to the point position. Simple rotation and movements in the coordinate system helps in matching image position with the object's location.

This method can be used in 3-D pose estimation, 2-D pose estimation,2-D perspective projection for human pose estimation, or in 2-D perspective projection in 3-D world.

This method also has some problems like, if the signal-noise percentage gets under a certain point, the RMS error rise steeply. Other problems include if the amount of corresponding point pairs gets lower than a certain amount, the RMS error also increase rapidly. Using iterative least squares methods seems to be useful in such cases and has demonstrated to be useful for the error data.

Using Deep Neural Networks for Human Pose Estimation

This method considered here uses Deep Neural Networks (DNN) for human pose estimation. DNN based methods are implemented for body feature detection. The method uses a flow of DNN regressors which gives high precision pose points.

The use of DNN based procedure for identifying joint positions along with a pipeline of these regressors has the benefit of acquiring context and logic of the pose in a complete fashion.

This technique results in many benefits such as the reason for the pose in complete manner along with a clean and effective form.

3-D Human Pose Estimation

3-Dhuman pose estimation is used to calculate the joint's position in a 3D space. This area has been a focus point for the post few years and considerable amount of progress has also been made. There are many applications for these techniques such as in 3D movies, animation industry, virtual reality, and online 3D action estimation. Using monocular images or videos sources is quite problematic because of loss of dimension in data captures.

In comparison to most modern methods such as IMU and LiDAR, the 3D human pose estimation requires fusion of data from a lot of sources. Other problems using deep learning have a disadvantage of lack of data. While working with 2D human pose estimation obtaining datasets which are accurate can be easily obtained but obtaining precise 3D pose marks is time-consuming and labelling by hand is not sensible.

Most datasets are obtained from indoor settings and have limited activity in them. Recent works have shown poor results of models which were trained using such unfair datasets by using cross-dataset interpretation.

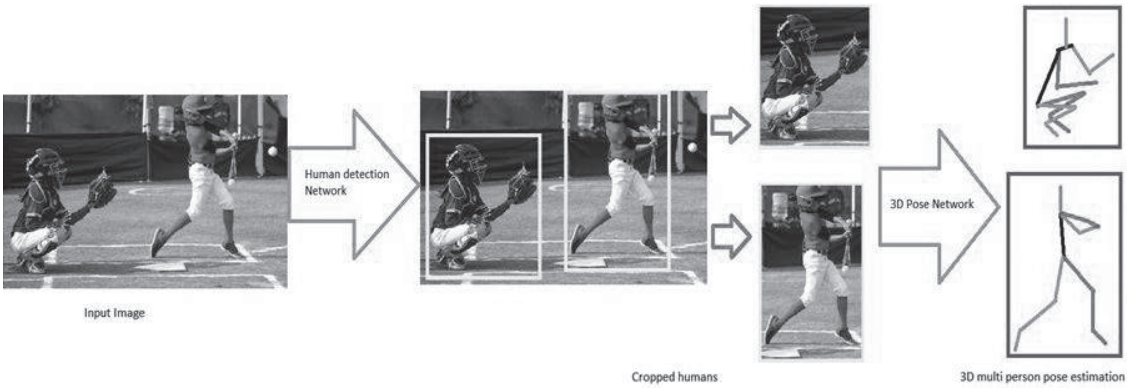

Figure 2: Multi-person 3D Pose Estimation

Single-view 3-D Pose Estimation

In the creation of 3-D human poses using only one view of monocular images and videos, the process experiences from a lot of problems like lack of training data, depth map problems, and other image related problems in image processing [14]. In the methods that use 2D joints for pose estimation, small position estimation errors of the 2-D body features can result in huge pose deformation in the 3-D space. The single person pose estimation is much simpler than the multi-person case.

1. Single network to obtain the output.
2. Use of network for intermediate representation and then conversion to 3D output.
3. A Model-based methods using parametric body models to generate high-quality 3D human model. The 3D estimates of the size, shape and the pose obtained by the network are used as input to the model regressor to rebuild 3D human mesh.

Multi-person 3-D Human Pose Estimation

1. Top-down method detects the subject's regions and then 3D pose is calculated by the network. After that, the poses are aligned to the global coordinates.
2. Bottom-Up method calculates the joints information and the depth maps. After that separate the body parts of each subject.

Regional Multi-Person Pose Estimation (RMPE)

There are mainly 2 methods using this technique, there are of the two-step framework and the part-based framework. The human bounding boxes are detected in the first step. After detecting the major parts, in the second step the pose within each box is processed independently. While using the part-based framework, the body parts are detected independently, after that, these parts are then assembles to create multiple-human poses [15].

While using the two-step structure, the identified bounding boxes determine the result's accuracy. The assembled human poses are unclear when many subjects are too close at the same time. The RMPE framework has of 3 elements.

A. Symmetric STN with parallel SPPE.
B. Pose-guided proposals generator (PGPG).
C. Parametric pose NMS.

The results show that SPPE can't handle poses which are hardly ever occurred (a person performing the 'Human Flag' position). The system can't distinguish between multiple people when they are overlapped. If the person is not detected, then the poses estimations will also be missing. Objects looking like human can fool these systems too.

3-D Pose Estimation Alongside 2-D Pose Estimation and Matching

In this approach first an Image-Based 2-D Pose Estimator is used, and the results are used with Non-parametric 3-D shape model to obtain the results. The results suggest the output to be a lot faster and more accurate while utilizing a significantly less amount of computation[4].

Modular training can be a huge advantage as they are typically larger, and their availability is high along with variety of data. Initially this 2-D data can be used and in the further stages 3-D motion captures can be utilized for creating 3-D calculation modules. It also helps in multi-body estimation systems.

Conclusion

Here we have studied some of the recent advancements and research done in the field of pose estimation. We have studied 3-D pose estimation, 2-D pose estimation, single human pose estimation, multi-person pose estimation, as well many other techniques for improving accuracy and achieving better results.

Pose estimation is an important tool in a lot of application and can be used in many situations. This technology has direct usage in a variety of tasks such as motion capture, surveillance, human-robot interaction between humans and robots, and action awareness, etc.

There is still room for a lot of progress and improvements in current technology.

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Interactive Smart Mirror Using Raspberry Pi 4

Akshay J. Agrawal, Vaishnavi S. Kanherkar, Kalyani U. Bonde, Radhika S. Jadhav and Amit S. Manekar

Abstract: *IoT is a very emerging trend in today's world it has a variety of application in our life. We are living in 21st century where all the work is done using technology and has become an integrated part of life. The internet of things which is very trending now-a-days is used in various electronic devices as we want all our work to be in fractions of a second. We come up with solutions to problems which are very familiar to everybody, as we all go to corporate offices at one time of our lifetime. As anyone go in any office for the very first time we don't know anything about that office like about the infrastructure, various departments and all. When we don't know anything we ask the receptionist for help and this is time consuming. To solve this time consuming problems Smart Mirror is introduced which will act as the information desk for new visitors, employees and clients. Also we have made our mirror multitasked more information about that is available in this paper. Moreover we have added matrix server in our mirror so that calling and chatting can also be done with this mirror. This paper contains the problem statement and detailed technology stack along with our project development idea and our results and conclusion. The internet of things, AI is used to implement this project.*

Keywords: IOT, Smart Mirror, Raspberry Pi, Voice Command, Magic Mirror, Matrix

Introduction

In this globe of fierce competition, each one needs a comfortable life and stay updated with latest technology. Modern man has proposed high tech technology to make his life at ease. People think necessary to be attached with the external world and they are willing to grab the information easily. Whether it is through the television or internet, people must have to be in contact with the present events happening all over the world. Internet of Things (IoT) is a theory where an entity having the capability to gather and transmit information over a network without the human contact to human or human to system. Due to this technology people can do their task in faster and efficient way. In this we will design and develop a smart mirror that symbolized an useful interface for glancing data in a co-operate office.

In market various smart mirrors are available that acts as a mirror which display date, time, image gallery but it is not sufficient as we can make our mirror more interactive. The main property of the mirror will be that it will totally work as a computer or we can say more than a computer. Now all will think that we have computer already then why one go for this mirror, so the reason for this will be mirror will be available at the 50% cost of the computer. Our mirror broadcast current temperature, weather details, and to-do list along with that we have added the feature of voice command. In addition to that we have added matrix to our server, which is capable to do chatting, voice and video calling. Matrix is basically a instant messaging application which is totally decentralized so the data that will be generated by chatting or calling will be in that office's server only it will not go on to third party server and this will prevent leaking of data. In this project we have developed a smart mirror with the idea of making corporate offices smarter and save the expenditure as well as time . Smart Mirror which is designed will act as the information desk for new visitors, employees and clients. IoT build up the idea of distantly keep an eye on objects through the Internet. In this project we tried out new modules to make our lives more easy and comfortable and which are low in cost and user-friendly too. This mirror is also capable to do live streaming, detail is available in this paper.

Let's take a look on the hardware and software that we used for developing our mirror.

Hardware

Raspberry Pi

The major component in magic mirror is Raspberry Pi. There are various generations of raspberry pi but we are using the latest version i.e. Raspberry Pi 4 model B. The raspberry pi 4 forms the processing unit of the smart mirror. It is simply a debit card size computer that can do various tasks. The raspberry pi 4 model B has some inbuilt facilities like Bluetooth & Wi-Fi for linking purpose also it allows 4 USB port to plugged in 4 devices. Through this plugs one can connect keyboard, mouse to the pi.

2-Way Mirror

The 2-way mirror is the one component that gives the mirror its real uniqueness. It is called as a magic mirror as it has reflective plane at one side and it is crystal clear for light from the other side. The mirror always stays at the frontage where the person can watch ourselves in the mirror at the same moment allows the light from monitor to pass through it and make accessible the user interface. It will act as a plain mirror when the power is off.

The Monitor Display

An LCD monitor is used so that the power consumption will be minimum and with utmost crispness, also to avoid the mirror glow at the time of night. The necessary information for the user will be display on the LCD monitor. The monitor is linked to Raspberry Pi 4 model B via HDMI cable and thus provide display as well as voice output.

Microphone

The microphone or mic is used to give voice command to the smart mirror. The voice command makes the system very undependable and productive in working. A simple microphone take voice command from the person and process it for the resultant input and produces valuable output.

Camera

The camera is used to take photos and also used at the time of video calling. It plays important role in live streaming.

Software

Matrix

Matrix is open source platform or software that uses its own matrix open source standard for safe, real-time communication, decentralized, and its Apache licensed reference implementation. Matrix gives the user a simple HTTP APIs and SDKs so that the user can create chat rooms, in which multiple users can chat simultaneously, direct chats and chat bots that can be automated, all the chats will be with end-to-end encryption, synchronized chat record, good formatted messages, video & voice calling, read receipts and more. In other words Matrix is a decentralized conversation that can be used as an instant messenger as well as used for calling purposes. When someone sends the message to the person through Matrix, that message is simulated to all the servers of the person who are participate in that chat. Also there is no system control as well as breakdown in a Matrix chat. The important point is that if the server goes offline, then chat can go on without any interruption until it returns online.

Raspbian OS

As we are going to use the raspberry pi in our project so to operate the raspberry pi we require the operating system called Raspbian OS. Raspbian OS previously called Raspbian. To install the operating system we require the Raspberry pi imager. Raspbian OS is easy to handle.

Raspberry Pi Imager

It is a utility which helps to install Raspbian OS in a microSD card. The utility is very simple to use. It has a speedy process.

Putty

Putty stands for Popular SSH and Telnet Client. Putty is a free open source software. It is SSH and telnet client. It helps users to interact with the multiuser operating system Raspbian OS from pc.

VNC Viewer

VNC stands for Virtual Network Computing the interface of VNC viewer. It is free for nonprofit able utilize and already install into the raspbian operating system. We can operate the raspberry pi 4 model virtually from the devices like computer, smartphone or tablet.

Magic Mirror

Magic Mirror is open source software which is essential to build the magic mirror. It is modular and contains a strong API which allows 3rd party developers to build new additional modules. Modules which are already developed can be used. If we want to design new modules then we can design.

Methodology

Conception

The conception and technological terms used while designing the architecture of the project are briefly described in this section of paper. The magic mirror is simply a mirror with the features of a pc or we can say more than that. The new modules are continuously been added as the technology reaching its top. There are many smart mirror in the market. Some of them used for safety, as a assistant, in medical sector and in sevilliance. Means this one thing has many application, we can use in home, factory, in military for various purposes. Initially the smart mirror was created for smart home and it has features like it can display date, time, weather, calendar, clock, temperature and it set remainders. Now in two three years the new modules are added by developers and creator. It has wide range of application and it is also multitasking. So, keeping this in mind we came up idea for making the smart mirror for corporate office. Which includes the modules beneficial for increasing the productivity of the office. So the problem statement of our project is as we all go to corporate offices at one time of our lifetime. As we go there we don't know anything about the office like about the infrastructure, various departments and all. When we don't know anything we ask for the help of the receptionist and this is time consuming. To get rid of these problems Smart Mirror is introduced which will act as the information desk for new visitors, employees and clients.

Implementation

The smart mirror has basic features like clock, news feed, weather forecast, current weather, maps, calendar and compliment along with advanced modules like voice assistant

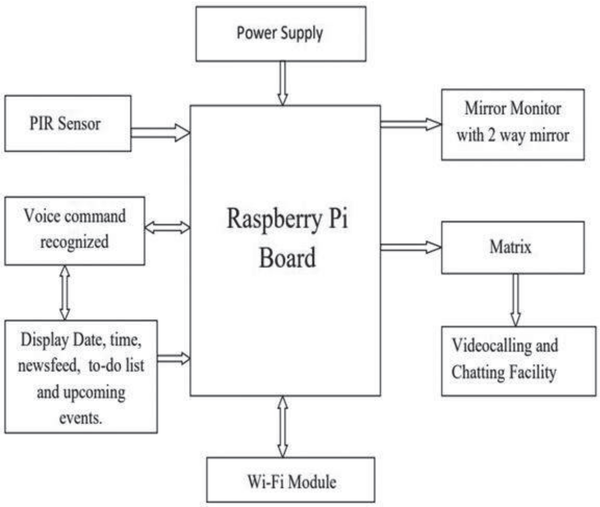

Figure 1: Basic Block Diagram of Smart Mirror

for increasing productivity, photo gallery for the advertising purpose, video and voice conferencing for meeting area. All the modules are implemented for increasing productivity and keeping the office environment cheerful and motivated. Figure 1 shows the architecture of the smart mirror. It is made from the software component like Matrix, Raspbian OS, Raspberry Pi Imager, Putty, VNC viewer, Magic Mirror as well as hardware components like Raspberry Pi, two -way mirror, monitor display, camera, microphone, etc. As mentioned earlier it will have matrix installed in it, it will be used as a medium of communications as it supports video calling, voice calling, chatting. The voice assistant that we have added will made the mirror more user-friendly and interactive.

The following are steps to start the magic mirror and how it works:

- Step 1: Start
- Step 2: Connect the Raspberry Pi.
- Step 3: Connect VNC server.
- Step 4: If there is no voice detected, then the display remains OFF.
- Step 5: If a voice is recognized, then the display turns ON
- Step 6: It displays time, date and weather forecast automatically on the mirror.
- Step 7: It intakes voice commands from the user. Wi-Fi Module Raspberry Pi Board Power Supply PIR Sensor Mirror Monitor with 2-way mirror Voice command recognized Matrix Display Date, time, newsfeed, to-do list and upcoming events. Video calling and Chatting Facility
- Step 8: The mirror displays information like date, time, newsfeed, do-to list.
- Step 9: Connect Matrix.
- Step 10: Mirror provides the video calling, voice calling and chatting facility.
- Step 11: Stop

Advantages of Smart Mirror

- It is cost effective (low cost).
- It will consume less power as compared to other devices available.
- It is mobile.
- It can be wrapped with any size of screen as per users need.
- It has raspbian OS its booting time is very less as compared to windows.

Project Input and Output

The input in our smart mirror is through the commands that are given through the keyboard and mouse, and gives results according to that commands. The tasks include setting a reminder, upcoming appointments and meeting and even it displays photos of the company and photos of the events happened in company. The output is displayed on the smart mirror in the form of voice as well as text feature. Figure 2 shows the interface of mirror display.

Figure 2: Output Mirror Display

Mainly the output contains the basic features of a smart mirror like it displays as follows:

- **Date & Time:** This module will be able to display the current date and time to the user.
- **Current Weather and Weather Forecast:** This module will able to provide the present weather report and weather forecast for the upcoming week with particular weather icon which will represent present weather condition.
- **Map:** This module will be able to show a complete office map or layout to users which will be useful to new office employees or office visitors. It acts as a guide to them.
- **Photo Gallery:** This module will able to displays images in slide show on the mirror. It will generally be able to show different events and images that were held at the office.
- **News Feed:** This module will be able to display corporate world related news to users.
- **Office Calendar:** This module will able to displays coming events or meeting schedule to users.
- **Greeting:** This module will be able to display greeting messages to the users.
- **Video Calling & Chatting:** This module will able to provide video calling and chatting facility, using this module user able to do video call and they are also able to chat.

Result and Discussion

The Smart Mirror is developed for corporate offices where it will be useful for multiple users. The concepts and methodologies implemented in the way, the user has the interaction with the mirror directly, and it is very interactive, reliable and easy to use by the users. This system is adapted to build and set up many facilities like maps, schedules etc. by gathering data and information from the internet. This Smart Mirror is useful for video calling and chatting also. It also provides a facility of live video streaming which provides feedback on the client side device. User is also able to interact with this mirror through voice command. This all facilities' data such as newsfeed, map, calendar and other information is acknowledged and is shown back to the user on the Mirror screen. Important part of this project is that it is not only useful for corporate offices, but also it is useful in colleges, schools, and many other public places. We designed this Smart Mirror by using building block form, so it is very simple to expand the project. The expansion of this project can be completed in a minute via script it as a plug in to the system and design or implement as per the user requirements. This project is extremely expandable as well as future improvements can be completed very easily. This Smart mirror project takes a typical second to begin its execution once only the command is run or executed in the terminal window of the Raspberry Pi. In the initial process, the Raspberry Pi connects with the internet to gather the data from different sites as well as at last it is shown or provides appropriate output to the user.

Conclusion

The major purpose of this project is to build a smart, classy, useful and interactive product for the corporate office, named as "Smart Mirror", which is extremely convenient for the user. This mirror can be used as an interactive system, as it is controlled by the user's voice. It provides needed facilities such as a map, newsfeeds and all to the user. It also provides live streaming facility and also can be used for video calling and chatting. This Smart Mirror can be used in many departments of the corporate office, which lets the users see themselves as well as it provides essential information and helpful functionalities to the user. This project can also be extended in the future as a commercial product, with more features that also use artificial intelligence as well as a touch screen technology and many more technologies.

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Taxonomy and Open Challenges of an Innovative Bio-Inspired PSO Algorithm for Optimization in Big Data Analytics Application

Amitkumar Manekar

Abstract: *Nature-inspired and Bio-inspired computing and artificial intelligence encompass a wide variety of contemporary computer science, mathematics, and biological disciplines. Biomimetic computer optimization techniques are indeed a brilliant way to launch innovative and effective competitiveness methodologies that are based on the concepts and inspiration of biological evolution. In recent decades, bio-inspired optimization algorithms gained popularity in machine learning for overcoming significant challenges in engineering and science. Unfortunately, these problems are frequently regressive and governed by many regressive constraints, creating numerous problems such as time limitations and high dimensionality in choosing the optimum solution. Recent advancements attempt to integrate bio-inspired optimization algorithms to solve the problems of traditional optimization algorithms, which represent a potential approach for tackling complex optimization problems. The state-of-the-art of some contemporary bio-inspired algorithms, gap analysis, and their implementations are presented in this paper.*

Keywords: Genetic Bee Colony Algorithms, Fish Swarm Algorithm, Artificial Algae Algorithm, Chicken Swarm Optimization, Grey Wolf Algorithm, Cat Swarm Optimization, Bioinspired Algorithms, Particle Swarm Optimization

Introduction

The study of optimization is associated with identifying the optimal solutions to various challenges. Day after day, we invented a lot of operations which we endeavored to refine in necessary to come at the optimal resolution; for illustration, the trip to work may be maximized based on the number of parameters such as traffic and distance. On the other hand, the introduction of smart vehicles demands an optimization with a number of goals in mind, namely reduced wind resistance, lower fuel consumption, and increased muscle potency [1]. These optimum solutions are determined by altering the algorithm's parameters to give the solution a maximum or minimum value. As a result, numerous optimization methods have been proposed in past years with the objective of boosting existing solutions [2][3].

The conveyance of data is utilized to make successful judgments for big data analytics in IoT-based smart cities. During data collection and processing from smart devices on IoT networks, information is recorded and processing on cloud servers. Additionally, to process the huge quantity of observations, automatically massively scalable cloud computing is necessary, which may enhance the system's performance [4]. Conventional cloud-based data processing systems, according the literature, are unable to achieve performance requirement of IoT applications when reduced reaction time and latency are required. Figure 1 shows basic big data processing cycle. Other causes of a long reaction speed and latency includes regional data dissemination and communication problems during data transfer [5]. Due to the continuous receipt of original information from IoT devices, cloud technology systems become bottlenecked [6]. As a conclusion, bio-inspired algorithm-based big data analytics is an alternative paradigm that provides a framework for analyzing user data economically across software applications and IoT devices [7].

A metaheuristic is a technique used in computer science to discover optimization algorithms that can solve specified complicated issues. Metaheuristics are optimization algorithms that have been utilized to identify the best solution to a problem by simulating or inspired by biological behaviors of animals or birds. A meta-heuristic is an approach for solving difficult optimization problems using heuristics [8]. A metaheuristic is a process used in mathematical programming to find a solution to an optimization issue. Metaheuristics are search aids that employ a heuristic function.

Several contemporary nature-inspired algorithms, including such GBC, FSA, CSO, WOA, AAA, ESA, CSOA, MFO, and GWO, have been introduced and selected for further analysis. Each algorithm's services and applications have been identified. All remainder of that kind of work is structured in the following manner [9]. Chapter two goes into some of the most current bioinspired algorithms have been proposed and examines them in depth through various researchers in their study. In part III, we provide an account of the bio-inspired algorithm's evolution over the previous 10 years. The services and applications of some new bio-inspired algorithms described in this article are mentioned in section IV. Section V brings this article to a close by highlighting future research.

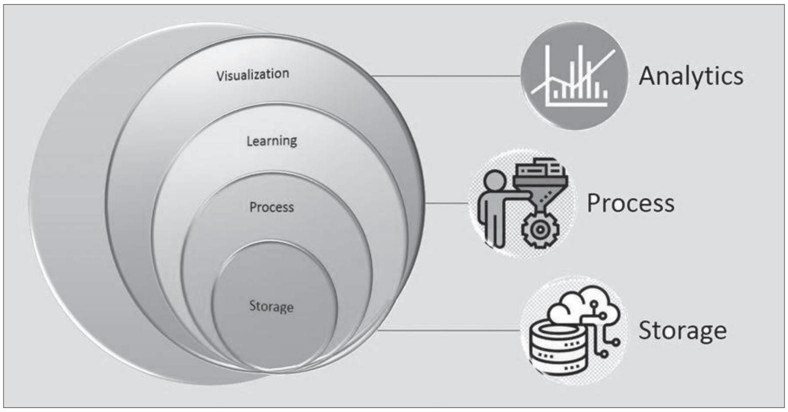

Figure 1: Big Data Processing Life Cycle

Basic Principles of PSO

In traditional information technology frameworks, bio-inspired computation might give potential solutions for the known limitations of Big Data processing in IoT and Cloud Computing contexts, such as inadequate scalability, security concerns, job allocation, fault tolerance, or low performance[10]. The flexibility of bio-inspired techniques can greatly benefit new optimization, scaling, and management approaches, especially when considering the many aspects of Big Data (volume, variety, velocity, truthfulness, and variability), which raise the complexity of the issues to be solved[11].

Genetic Algorithms

At the start of the 1960s, John Holland began his ground-breaking research on genetic algorithms. His first accomplishment was the publication of Adaptation in Biological and Artificial Systems in 1975, in which he introduced the genetic algorithm, a famous tool in the field of evolutionary computation. The representation utilised in the basic genetic algorithm is a binary sequence. The value supplied in each location in the line is supposed to be representing how that feature actually coded in the response[12].

Particle Swarm Optimization

Particle swarm optimization (PSO) is a demographically stochastic programming approach developed by Eberhart and Kennedy in 1995 and inspired by particle swarm optimization. Bird flocking or fish schooling are examples of social behaviour. Birds or fish, on the other hand, are included in the algorithm. Particles, which is a more broad abstraction, are considered. PSO has a lot of similarities to evolutionary computing approaches like the algorithm of genetics (GA). A random population solution is used to start the system. and updates generations to look for optima Unlike the GA, however, the PSO possesses There are no evolution operators like crossover or mutation. Instead, social and economic characteristics are used. Potential solutions, referred to as particles in PSO, navigate the issue search space by following the current best particles [1, 13, 16].

Genetic Bee Colony (GBC) Algorithm

GBC is a novel optimization approach that combines the benefits of Genetic Algorithms (GA) and Artificial Bee Colony (ABC) for numerical problem optimization. The colony of artificial bees is separated into three sorts of bees in the ABC algorithm suggested in Ref. [11]: employed artificial bees, bystanders' bees, and scouts artificial bees. The stages in the basic ABC are first Setting ABC parameters second Initialization of the population of solutions, third Evaluation of the population solutions, and last The employee bee [14,15].

Fish Swarm Algorithm (FSA)

Another of the important, sophisticated optimization techniques is the FSA [15,16], which has the advantages of deep and efficient search and rapid convergence speed. FSA mimics the behaviour of fish, which may hunt for food in a variety of ways [17,18]. Additionally, each fish can share information with other fish until a global optimum is achieved. The different phases of FSA are, first is Preying behaviour phase, second is the swarm behaviour phase, the third is Following behaviour phase, fourth is Random behaviour phase and last is Best behaviour phase [16].

Cat Swarm Optimization (CSO)

CSO algorithm is a modern optimization method that may mimic cat behavior [21]. CSO has been used to determine the best solution for various applications in recent years. [22] During the resting time, mode searching is used to trace mode is matching to cats, they are vigilant. The main phases for implementations are first phase is Seeking mode, second mode the tracing mode [17].

Whale Optimization Algorithm (WOA)

Whales are the world's largest mammals and spectacular creatures. Humpback, killer, blue, and finback are some of the most essential aspects of this species. Whales do not sleep since they must breathe from the seas and oceans the majority of the time. Furthermore, half of the brains are capable of solely sleeping. Wales is a country where people live alone or in groups. Some of them, such as killer whales, can spend their whole lives in a family. Humpback whales are the largest whales, and their preferred prey is tiny fish/ krill. Whales contain fundamental cells in certain areas of their brains, according to Ref. [18].

Basic cells can be found in particular areas of whales' brains. These cells are in control of human judgement, feelings, and emotions, as well as human conduct.

Whales, on the other hand, vary from humans in that they have twice as many of these cells, which is the fundamental benefit of their intelligence. Whales are intelligent in the same way that humans are, albeit at a lower level; they can learn, think, communicate, and feel emotions in the same way that humans do. Whales may also establish their own dialect. The major intriguing feature of humpback whales is their unique hunting style, which is known as bubble-net feeding [19].

Artificial Algae Algorithm (AAA)

AAA is a modern bio-inspired algorithm that mimics microalgae's living lives and behavior [25]. This programmed was created by simulating microalgal behaviors such as algal inclination, reproduction, and adaption to the surrounding environment in order to shift the dominant species. As a result, algae have three primary processes: evolution, helical movement, and adaptability. This algorithm's population is made up of algae colonies. If an algal colony receives adequate light, the algal cells will develop, and the colony will grow to a larger size [20].

Elephant Search Algorithm (ESA)

ESA is a met heuristic search optimization technique that was developed recently. The approach of this algorithm is based on a dual search mechanism, or the search agents may be separated into two groups, and it simulates the behavior and features of an elephant. [21] Elephants live in herds, and each herd is split into subgroups or clans, each led by the eldest elephant in the main herd. The ESA is designed to resemble the key traits and qualities of elephant herds. Male elephants prefer to live in solitude, whereas female elephants prefer to live in family groupings. Female elephants are in charge of spatial augmentation, while male elephants are in charge of exploring goals. In this scenario, ESA has three main characteristics as an effective search optimization algorithm: I the search process iteratively refines the solution to obtain the optimal solution; (ii) chief female elephants lead intensive local searches at locations where the best solution is expected to be found.' (iii) Male elephants are in charge of exploring outside the local optima. Elephants have a number of traits that make the process of drawing inspiration from their biological activity crucial [21]

Chicken Swarm Optimization Algorithm (CSOA)

CSOA is a new optimization method that simulates the behaviors and hierarchical order of a chicken swarm [29, 30]. Different groups of chickens make form a swarm; each group has just one rooster and a large number of chicks and hens. In this warm, there is a competition between different chickens with distinct hierarchical orders. The social life of chickens, such as flock structure, hens, chicks, and mother hens, are all influenced by the hierarchical order in this swarm. The behavior of the chicken swarm differs depending on whether it is male or female. The group's leader rooster will aggressively hunt for food and battle chicks who are in the group's search area [22].

Moth Flame Optimization (MFO) Algorithm

Moths have habits that are similar to butterflies, and one of the most distinguishing characteristics of moths is their ability to navigate at night by flying in the direction of moonlight. Moths typically travel at night using a technique known as transverse orientation. The possible solutions will be represented by moths in the mathematical model of the MFO method, and the position of moths in space will reflect the problem's variables. The moths will thereafter be able to fly in one, two, three, and even hyperdimensional space. [23]

Grey Wolf Optimization (GWO) Algorithm

A *GWO* algorithm [21] presented, which is a modern meta-heuristic method. The algorithm's major inspiration approaches are based on the hunting and social leadership of grey wolves (Canis Lupus), who are members of the Canidae family. Gray wolves live in packs, and the leader of the pack is known as the alpha. The alpha is in charge of making choices about where to sleep and hunting. Beta is their second wolf, and he assists the wolf alpha in making judgments. Omega is the third grey wolf, and he is in charge of relaying information to the other wolves. All of the surviving grey wolves are known as deltas, and they are in charge of the omega [24].

The main phases of the GWO algorithm of gray wolves are based on the following steps:

(i) Track, chase and approach the prey;
(ii) Pursue, encircle and harass the prey;
(iii) Attack toward the prey.

Relationship in Big Data and Bio-inspired Computation

Big Data is said to rely on five primary characteristics of data: volume, velocity, variety, unpredictability, and authenticity [21]. All of these qualities are important because they define the way data is managed in the environment [22]: (1) volume denotes the size of the data; (2) velocity denotes the rate at which the data is produced, received, and processed; (3) variety denotes the heterogeneity of data produced by different domains; (4) variability denotes changes in non-stationarity events that affect data, which necessitate accommodating their effects on the system and/or models over time; and (5) veracity denotes the provenance and reliability of the collected data. All five dimensions are cross-domain, if not addressed; they would stymie the implementation of data-driven standard operating procedures across a broad array of applications.

Nevertheless, nanoparticle computation may substantially assist older technologies in dealing with the obstacles posed by the foregoing attributes. Figure 2 shows challenges involved in Bio inspired big data processing. Bio-inspired optimization metaheuristics, for example, might add to the feasibility of classical data mining models for huge datasets using a variety of tactics such as instance reduction, feature selection, or model simplification [23]. Indeed, one of the reasons for the rise of largescale global optimization, a subfield of bio-inspired optimization that deals with problems of extremely high dimensionality (thousands to millions of decision variables [24]), is that the optimization problems formulated in these strategies are compatible with typical volumes of Big Data. Bio-inspired solutions have also been shown to perform very well in data integration, aggregation, and fusion [25]. as critical factors for dealing with the diversity and complexity Big data has a variety of aspects. Finally, there's the issue of speed. Data and service quality are both affected by veracity dimensions as well as issues with monitoring and security. Allied challenges are addressed through optimization methods and can be found in [21], whereas fuzzy elements can be

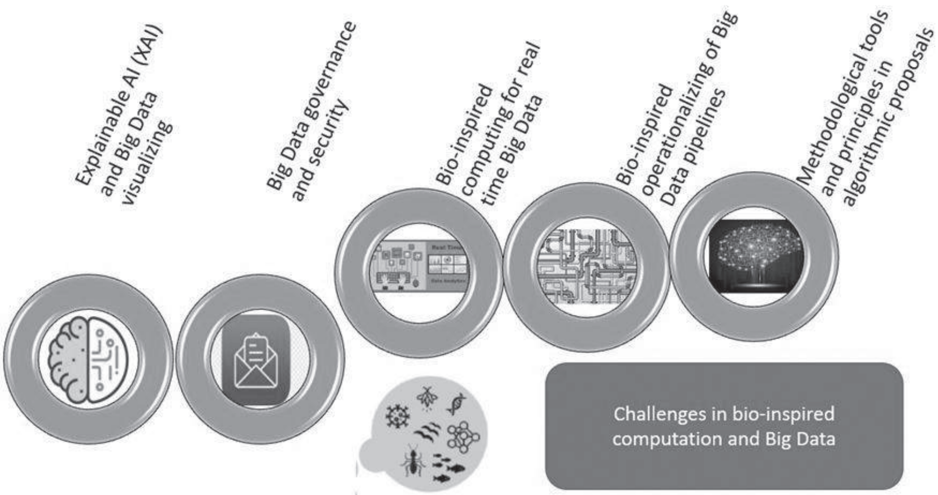

Figure 2: Challenges in Bio-inspired Big Data Processing

found in [11]. In Big Data contexts, logic has also been used. Data uncertainty exists- see [25] and references in [24] for a detailed summary.

The available literature of bio-inspired algorithms for big data analytics is presented in this section. The three types of bioinspired algorithms for big data analytics are ecological, swarm based, and evolutionary. The taxonomy of bio-inspired algorithms for big data analytics, as well as the study's focus in Kune et al. [10] introduced a data-aware family scheduling technique for big data analytics based on a genetic algorithm (GA), which focuses on bandwidth usage, processing resources, and data dependencies. Furthermore, the GA algorithm provides cloud-based data and computation services. Because the GA algorithm analyses data in parallel, the findings show that the GA method provides effective outcomes in terms of turnaround time. Gandomi et al. [11] introduced a multi-objective genetic programming (GP) algorithm-based large data mining technique, which is utilized to create the concrete creep model to offer impartial and reliable forecasts. The GP approach works with both strong and weak people.

Elsayed and Sarker [12] suggested a large data analytics solution based on the differential evolution (DE) algorithm that leverages local search to improve the DE algorithm's exploitation capacity. This method optimizes both multi- and single-objective problems in the big data 2015 benchmark tasks, although it takes a long time to compute. Kashan et al. [13] introduced an evolutionary strategy (ES) algorithm-based big data analytics approach that uses parallel scheduling of cloud resources to analyses data efficiently and correctly. Furthermore, the ES method reduces execution time by separating a group of tasks into fragmented sets, each of which is executed by the same resources. Mafarja and Mirjalili [14] presented a large data optimization strategy based on the simulated annealing (SA) algorithm that use the whale optimization algorithm (WOA) to construct multiple feature selection techniques to decrease manipulation by investigating the most competent regions. The suggested method aids in classification accuracy by selecting the most beneficial characteristics for categorization jobs. Barbu et al. [15] also suggested an approach for large data learning and computer vision called SA algorithm-based feature selection (SAFS). The SAFS method eliminates variables and tightens a sparsity constraint based on a criterion, thereby reducing the problem size throughout iterations and making it ideal for large data learning. For a stochastic dynamic facility layout-based multi-objective issue, Tayal and Singh [16] suggested big data analytics based on the FSO and SA-based hybrid (FSOSAH) approach. For clustering data, Saida et al. [17] suggested a large data analytics strategy based on the cuckoo search optimization (CO) algorithm. Additionally, other datasets from the UCI Machine Learning Repository are used to test the CO method, and these datasets perform better in terms of computing efficiency and convergence stability.

Critical Analysis, Open Challenges and Research Directions

The flurry of work in the literature is a strong indication of the recent technological developments in bioinspired computation for Big Data. Bio-inspired computation has been used in databased applications in a variety of fields, including energy [21], transportation and mobility [2], health [3], industry [14], agriculture [17], cyber-physical systems [20], social networks [22], and sensor networks [7], to name a few.

Recent global events surrounding the COVID-19 pandemic have sparked interest in Big Data and Artificial Intelligence (in many cases, using deep neural networks for CT scan-based diagnosis), but there is little evidence that the scales of studies claiming to be Big Data are actually Big Data [9].

We outline various weak and promising elements discovered at the intersection of Big Data and bio-inspired computation in this section. Following our review of the literature, we discovered that there are still many problems to be answered when combining the two paradigms. Several study niches are listed and explored in the following sections in relation to the previously reviewed literature.

List of Challenges

- Is Big Data Truly A Priority for The Community?
- Towards the Operationalization of Big Data Pipelines Using A Bio-Inspired Approach
- Big Data Visualizations with Explainable AI (XAI)
- Governance and Security of Big Data
- Resource management and effectiveness
- Elasticity in data processing
- Interconnected clouds: resilience and heterogeneity
- Learn more about sustainability and energy efficiency
- Data security and privacy protection
- Edge computing and networking based on the internet of things

Big Data Analytics Research Areas Involving Bio-inspired Algorithms

- Container as a service (CAAS)
- Serverless computing as a service (SCAAS)
- Blockchain as a service (BAAS)
- Software-defined cloud as a service (SCAAS)
- Deep learning as a service (DLAAS)
- Bitcoin as a service (BIAAS)
- Quantum computing as a service (QCAAS)

Concluding Discussion and Future Remarks

We live in a technological age, which has resulted in a huge volume of data in industries that have historically trailed behind everyone else in adopting modern information and communication technologies. As a result, essentially every company has produced various chances to produce value from data. In this sense, Big Data refers to all techniques and technologies that enable the efficient materialization of data analysis at quantities, speeds, and heterogeneity levels that traditional methods cannot handle. Corporations are rapidly adopting Big Data platforms, which use apps to manage data-driven processes, practices, and systems across the organization. Big Data platforms and the apps that run on top of them provide businesses the ability to make analytical decisions that improve productivity and competitiveness.

Despite the foregoing advantages, the demanding operating conditions that Big Data platforms face necessitate a number of skills from their underlying processes, technologies, and algorithms. Adaptability to data changes, scalability, computational efficiency, flexibility, integrability, and uncertainty modelling are among them. All of these requirements address well-known challenges that arise throughout various stages of the Big Data life cycle. In this context, we've emphasized the critical role that bio-inspired computation may play in helping Big Data technologies acquire and successfully supply such capabilities. Indeed, modelling, simulation, and optimization problems may be framed at various stages of the life cycle using biologically inspired methodologies. To appropriately inform the audience on the history of bio-inspired Big Data, we conducted a critical literature review along two axes: I the Big Data technology that benefits from the use of bio-inspired methodologies (infrastructure, NoSQL database technology, network, and parallel/distributed computing model); and ii) the Big Data life cycle phase in question (data fusion, storage, processing, learning, and visualization). Relevant references have been carefully addressed, revealing research trends and areas in the field that are still untapped. We have suggested some research options as a consequence of our rigorous review of the literature that may successfully address the primary issues in bio-inspired Big Data. Three of them stand out as deserving of more investigation in the coming years:

1. Common methodological foundations in the creation of novel bio-inspired algorithms for Big Data, including the adoption of best practices and suggestions to assure their scientific and practical usefulness.
2. An explicit consideration of complexity in the creation of new algorithms, particularly those for real-time contexts, avoiding at all costs the usage of the phrase Big Data to refer to issues and scenarios that do not fit the paradigm's intended scales.
3. A closer look at the opportunities offered by cutting-edge research fields in bio-inspired computation, such as XAI, as a key component of the Big Data life cycle's data visualization phase.

A discussion of bio-inspired algorithms for big data analytics is presented in this section. Based on taxonomy, study concentration, and acknowledged flaws, a comparative of bioinspired algorithms has already been offered. Researchers looked through the published literature on big data analytics to determine the outstanding difficulties concerning bio-inspired technologies and divided into three main groups. In furthermore, intriguing investigation recommendations for further research are suggested.

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DIGITAL FINANCE

Innovation in Finance – A Study on Cryptocurrency in India

Vaishnavi Mohandas Ingle

Abstract: *Due to the rapid development of information and communication technologies, many activities in our daily life have been merged online and they become more flexible and more effective. A huge growth in number of online users has activated virtual word concepts and created a new business phenomenon which is cryptocurrency to facilitate the financial activities such as buying, selling and trading.Crypto economy and blockchain could be the "greatest innovation" due to its automation, digitization, increased efficiency, and productivity.*

Cryptocurrencies are digital or virtual currencies underpinned by cryptographic systems. They enable secure online payments without the use of third-party intermediaries. The use of virtual currency has become widespread in many different systems in recent years. Virtual money is not fully controlled and regulated hence most of the countries have not admitted this currency in their economic activities.

The current research paper investigates about cryptocurrency in detail, its present status in India, legality as well as future government moves regarding these currencies. The paper also analyses investment risks in Bitcoin countries have responded in terms of regulations & legislations towards crypto currencies to develop a clear picture of its impact on various laws in India in order to regulate it.

Keywords: Bitcoin, Cryptocurrency, Challenges in Cryptocurrency, Government Future Move on Cryptocurrency, Uses of Cryptocurrency, Legality

Introduction

Today's economies are all money economies, because all economies have accepted certain currencies (money) as medium of exchange. The money supply causes inflation as well as deflation in economies by its excess supply and contraction in money supply, hence currencies of different countries regulated by government in order to combat inflation or deflation situations. Now a day's many countries in the world have focusing towards digital currency and transactions. Even some one doesn't want to regulate their currencies and transactions. This brought greater innovation in new currency that is cryptocurrency, one of the most advanced, ambiguities, regulation free currency. India One of the most popular terms used by the world is "Cryptocurrency".

A Cryptocurrency is defined as "a digital asset designed to work as a medium of exchange using cryptography to secure the transaction and to control the creation of additional units of the currency". Cryptocurrency was first ever used in the year 2010 22nd May by Laszlo Hanycez, Florida. In 2017, the popularity of the use of Cryptocurrency increased rapidly, People started to invest a large sum of money that had no history of producing revenue. Crores of money was invested into more than 1000 new digital coins. As E-Commerce becoming the most integral part, internet sales are booming with more Techno-Indian customers. Bitcoin came into existence in later 2009 as a medium of online transactions. The gap between buyer and the seller was bridged by the financial institutions. They served as a trusted third party to process E-Payments. Even though the gap was bridged effectively, there was always a dependency factor for trading activities of the buyers and sellers. This dependency turns to be a factor responsible for the invention of Cryptocurrency.

The instruments used as exchange instruments to make the trade transactions as easy as possible according to the market needs have experienced a huge development and change. Those instruments used to intermediate the exchange of goods are known as money. Money as something that serves as a medium of exchange, an unit of accounting, and a store of value. Money is a medium of exchange in the sense that we all agree to accept it in making transactions. Merchants agree to accept money in exchange for their goods; employees agree to accept money in exchange for their labor. As a unit of accounting, money provides a simple device for identifying and communicating value. Money serves as a store of value in that it allows us to store the rewards of our labor or business in a convenient tool. From the era of barter to commodity money, metal and coins, to gold and silver, continuing by modern monetary systems and checks and ending with the latest global currency developments, such as introduction of cryptocurrencies known as Bitcoin and Ethereum and a like. The introduction of cryptocurrencies has revolutionized the international payment system in a scale that just few years ago were unimaginable. A cryptocurrency is a digital or virtual currency that uses cryptography for security. In 1983, the American cryptographer David Chaum conceived an action and to control the creation of additional units of the currency". Later, in 1995, he implemented it through Digicash, an early form of cryptographic electronic payments which required user software in order to withdraw notes from a bank and designate specific encrypted keys before it can be sent to a recipient. This allowed the digital currency to be untraceable by the issuing bank, the government, or any third party. A cryptocurrency is difficult to counterfeit because of its security feature. A defining feature of a cryptocurrency is that it is not issued by any central authority. It is completely decentralized.

What is Bitcoin?

Bitcoin is a decentralized digital currency, without a central bank or single administrator, that can be sent from user to user on the peer-to-peerbitcoin network without the need for intermediaries.Transactions are verified by network nodes through cryptography and recorded in a public distributed ledger called a blockchain. The cryptocurrency was invented in 2008 by an unknown person or group of people using the name SatoshiNakamoto. The currency began use in 2009 when its implementation was released as open-source software.

What is Bitcoin Trading?

Bitcoin trading is how you can speculate on movements in the cryptocurrency's price. While this has traditionally involved buying bitcoin through an exchange, hoping that its price will rise in time, cryptocurrency traders are increasingly using derivatives to speculate on both rising and falling prices – in order to make the most of bitcoin's volatility. With IG, you can take a position on the price of bitcoin with financial derivatives like CFDs. This product can enable you to take advantage of price movements in either direction without taking ownership of the underlying coins – meaning you won't need to take responsibility for the security of any bitcoin tokens.

Is Bitcoin Approved in India?

According to RBI (Regulatory Authority) Circular, directed to the banks and other financial institutions, trading Cryptocurrency including Bitcoin is prohibited. This has resulted in zero dealing between the buyer and seller through any kind of dealing with cryptocurrency or crypto assets. Further, the authorities have also highlighted with the risk associated with virtual currencies.

Challenges of Bitcoin in India

- **Government regulation:** Indian government stand towards Bitcoin is the prime challenge for its growth. The future of cryptocurrency is doubtful in India for now. Currently in 2019 RBI announced that cryptocurrency will not be considered as a legal tender. Because it is completely decentralized.
- **Security threat:** Hackers and malicious users can create as much as they want from virtual currency if they break the system and know the method of virtual currency creations. This will lead to the ability to create fake virtual currency or steal virtual currency by just changing the accounts balances.
- **Negative impact on Indian monetary system:** Cryptocurrency like Bitcoin help users to purchase virtual and real goods and services with virtual currency in some platforms may reduce the demands on real money. Users will no longer depend on real money to buy what they want and they will use virtual money instead. On the other hand, some platforms enable users to exchange their virtual currency with real currency and this will increase the demands on real world currency. This demand-supply fluctuation will negatively affect the real monetary systems.
- **Using for alleged activities:** Several incidences have occurred stating that Bitcoins have been used for illicit and illegal activities around the globe like money laundering, black marketing, tax evasion etc.
- **No ombudsman:** There is no forum, where a user can possibly reach out for any help or grievance, as a result of which Indian consumers are being exposed to transactional and informative risks.

- **Upcoming entry of India's own Cryptocurrency:** As per business standard report the Indian government is going to introduce its own Cryptocurrency similar to Bitcoin called "Lakshmi". The discussion is going on.
- **Deep embedment on local currency:** EY's Global Innovation Leader Paul Brody has indicated that Bitcoin and other cryptocurrency lack any concrete practical use in the country, given that local currency is deeply embedded in the economy.
- **Human mismanagement in online exchanges:** The people running unregulated online exchanges that trade cash for Bitcoins can be dishonest or incompetent. The only difference is that conventional banking losses are partially insured for the bank users, while Bitcoin exchanges have no insurance coverage for users.

Opportunities of Bitcoin in India

- Entrepreneurs within the country are seeing this as a natural opportunity for the proliferation of Bitcoin and other cryptocurrencies within the country. It's reported that India currently has around 30,000 Bitcoin owners in the country, and that number is expected to grow.
- For consumers, it is a payment system which does not require to private credentials.
- For emigrants it is an instrument to send remittances without charges

Need of Cryptocurrency

The most trending word used by media, young Generation, Investors, and IT Employees is Bitcoin. Is the time arrived for India to go cashless? – If yes! Is the usage of Bitcoin a positive step to enable India to attain this big dream?

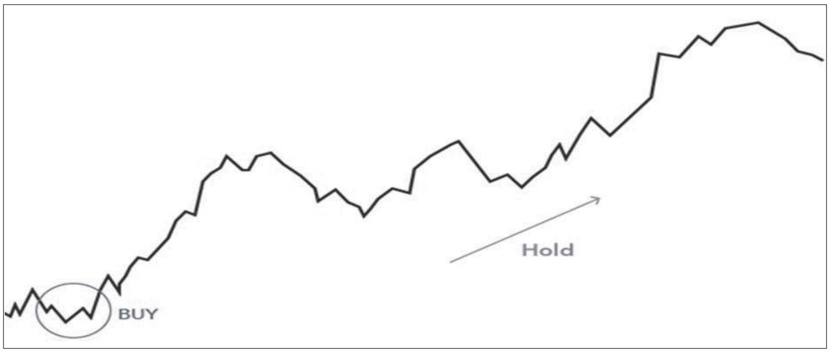
Strategies of Cryptocurrency (Bitcoin)

- **Day trading strategy:** Day trading bitcoin means that you'll open and close a position within one single trading day – so you won't have any bitcoin market exposure overnight. This means that you'll avoid overnight funding charges on your position. This strategy could be for you if you're looking to profit from bitcoin's short-term price movements, and it can enable you to make the most of daily volatility in bitcoin's price.

- **Trend tradingstrategy:** Trend trading reflects taking a position which matches the current trend. For example, if the market is in a bullish trend, you'd go long and if the trend was bearish, you'd go short. If this trend started to slow or reverse, you may close your position and open a new one to match the emerging trend.

- **Hedging strategy:** Hedging bitcoin means mitigating your exposure to risk by taking an opposing position to one you already have opened. You'd do this if you were concerned about the market moving against you. For example, if you owned some bitcoins but were concerned about a short-term drop in their value, you could open a short position on bitcoin with CFDs. If the market price of bitcoin falls, the gains on your short position would offset some or all of the losses on the coins you own.

- **HODL strategy:** The 'HODL' bitcoin strategy involves buying and holding bitcoin. Its name derives from a misspelling of 'hold' on a popular cryptocurrency forum, and it is now often said to stand for 'hold on for dear life'. However, this phrase shouldn't be taken too seriously – you should only buy and hold bitcoin if you've got a positive outlook on its long-term price. If your research or trading plan indicates that you should sell your positions to take profit or limit loss, you should – or you could set stop losses to close your positions automatically.



Innovative Approaches to Research Tools

Legality of Cryptocurrency in India

According to the latest development, the government is planning to impose Cryptocurrency and Regulation of Official Digital Currency Bill, 2021 which plans to impose a complete ban on private cryptocurrencies but also keeping in mind the grey areas will also provide a framework as to the regulation of cryptocurrency and will provide certain exceptions as to the transactions that can take place via cryptocurrencies. India with the help of the Ministry of Corporate Affairs has managed the use to some extent but still, there is a long way to cover in near future and therefore is planning to introduce the new bill.

In March 2021, the government has issued new guidelines to businesses that before the start of the new financial year they have to disclose their income from cryptocurrencies which were undertaken in the previous financial year.

The Rise of Cryptocurrency in India

Failed Government Policy: Due to the outbreak of the covid 19 pandemic, people suffered a big amount of monetary loss and somehow the government policies failed to provide a big relief to the investor. Hence people aim to invest at places where they can expect higher returns and returns of bitcoin, etc., are high as compared to the interest provided by Indian financial Banks.

Disillusionment with the banking system: Lower Interest rate, loan waivers, public sector banks bailing out with public's money creates a question on the working of public sector banks. Crypto banks on the other hand do provide a loan with less interest rate.

Case Studies

Case Study: Bitcoin

Since the introduction of Bitcoin in 2009 it has been constantly updated and evolved to an asset class that is worth more than $140 billion by today (Coinmarketcap, 2018b, p. 1). It is important to note that this research paper points out the most important events that lead to the development of Bitcoin as we know it today and therefore not all events ever occurred will be shown.

Bitcoin 2014–2017

The year 2014 started out quite well for Bitcoin with its price at around $750. At the beginning of the February Apple banned all Bitcoin apps from their App Store, which resulted in protests again that policy (CCN, 2015, p. 1). A few days later the exchange Mt. Gox suspended all withdrawals, which marked the beginning of the collapse of the exchange.

On February 19th, 2014, all trading was suspended and the exchange went offline. Within a few days, an internal document surfaced that claimed hackers had raided the exchange and stole 744.408 BTC belonging to the customers as well as additional 100.000 BTC of Mt.

Gox holdings. In March Mt. Gox reported that it had found 200.000 BTC on an old wallet. The confidence in the market dropped to a new low resulting in a Bitcoin price in April of $460 (CCN, 2015, p. 2). In the meantime, the software version 0.9.0 of the Bitcoin code was released using the name “Bitcoin Core” rather than “Bitcoin-Qt”. This was done in order to reduce the confusion between Bitcoin the network and Bitcoin the software (BitcoinCore, 2014, p. 1). Starting 2016 a 1 BTC was priced at around $430 with a total market capitalization of $6.5 billion (Coinmarketcap, 2018c, p. 7). On January 25th, 2016 the Bitcoin network exceeded the power of one Exa Hash/s. This can be translated into 10.8 ZettaFLOPS per second, making the Bitcoin network the most powerful network on earth. In comparison to the world`s fasted supercomputer Tianhe-2, which is able to do 34 PetaFLOPS, the Bitcoin network is roughly three hundred thousand times more powerful. Having this network metric was a very important achievement for Bitcoin because it showed the underlying health of the distributed currency and its network.

The year 2017 was a very good one for Bitcoin, especially for the price development. It started in January at $1.000 and climbed it way up to $3.000 but the uncertainty in regard to the upcoming hard fork in August dropped the price down to approximately $1.900. Before the China announcement described above the Bitcoin price was able to reach its all-time high of $5.000 before crashing down to $3.200. Shortly afterward Bitcoin picked up hitting $5.000 by October 13th. The price decrease was partly due to the announcement of the South Korean government that it would impose further measures to regulate speculations in cryptocurrency trading within the country. By that time South Korea developed into an important player in the Bitcoin and cryptocurrency markets. This announcement would unleash a negative impact on the Bitcoin price across the globe (Reuters, 2017, p. 1). This was one of the first announcements of many that would come the following months. That resulted in such a high market uncertainty in combination with regulatory uncertainty and with other factors, the price of Bitcoin crashed to $10.000 and that would mark the start of a long bearish market period in 2018 (Reuters, 2018, p. 1).

Case Study: Ethereum

Ethereum is an open source software platform based on the blockchain technology. The platform uses its own currency called Ether (ETH) in order to pay its transaction costs. It is designed in a manner where developers can use the programming languages C++, Go, Python, Java, JavaScript and others in order to create Apps for the Ethereum ecosystem. An example here can be wallet applications, decentralized exchanges or smart contracts based dApps. One feature of Ethereum with which it can distinguish itself from Bitcoin is the ability to write and execute smart contracts (Buterin, 2013, pp. 11-13).

Ethereum 2015–2017

The journey started when 19-year-old Russian-Canadian programmer Vitalik Buterin had the idea that led to the development of Ethereum. Unlike Bitcoin, Ethereum has a real name attached to it. Buterin came in contact with Bitcoin in 2011 and was previously known as a co-founder of the Bitcoin magazine. Instead of going to university he decided to create Ethereum full time after he received the Thiel fellowship (Adams, 2018, p. 1). The Ethereum project was officially announced by Buterin in January 2014 at the North American Bitcoin Conference in Miami. He was soon joined by Dr. Gavin Wood who published the Ethereum Yellow Paper in April that was used to describe the technical specification of the Ethereum Virtual Machine (EVM) (Gerring, 2017, p. 1).

In July 2015 the first version of Ethereum was released under the name Frontier. It was a test network that enables developers to create smart contracts and dApps. This enabled exchanges for the first time to display ETH as a cryptocurrency. In February 2017 the formation of the Enterprise Ethereum Alliance (EEA) was announced. The EEA has the aim that companies join forces to enhance Ethereum and the systems that surround for enterprisegrade application solutions. The first members of the alliance included Thomson Reuter, Intel, Microsoft and BP (SingularDTV, 2017, p. 1). By July the EEA had grown to a 150-member organization, which made it to the largest open source blockchain initiative. Big announcements also came from the Ethereum Dev Team in 2017. Throughout the year the planned move from Homestead to the new update Metropolis started its first updates.

Conclusion

The Indian Government should step up in this era of cryptocurrency as it can bring a huge leap in technological innovation in India. It is estimated that the tax imposed on cryptocurrency will add up to a whopping amount of direct tax to the Income Tax Department which can give a major push to the economy's overall development.

Rather than putting a blanket ban, the Indian Govt. should take steps to regulate cryptocurrency, making it safer, transparent, and more trustworthy. The more aware the citizens will be towards the functioning of cryptocurrency, the more investment is expected, especially in a developing economy like India with the second largest population. The future that cryptocurrency holds is encouraging with regards to e-business, e investments, and e payments.It is important that the laws have to be made relating to cryptocurrency keeping in mind the various financial, legal, aspects of the country aiming towards a more secure and consumer-friendly system to deal with crypto.

Limitations of Cryptocurrency

- Crypto currencies are not accepted everywhere and have limited value elsewhere.
- The almost hidden nature of cryptocurrency transactions makes them easy to be the focus of illegal activities such as money laundering, tax-evasion and possibly even terror-financing.
- Payments are not irreversible.
- There is a concern that crypto currencies like Bitcoin are not rooted in any material goods. Some research, however, has identified that the cost of producing a Bitcoin, which requires an increasingly large amount of energy, is directly related to its market price.

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A Study of Different Investment Parameters

Tushar A. Wankhede

Introduction

In ancient times, people saved money for their future purpose. People invested their savings in gold, land, the main interest of asset was land people who have a land could be a rich one's. Temples and the Temple priests were often the banks and bankers of their day before bank established. The reasons of this investment may be lack of financial institution, technological reform and awareness between people.

In modern times, people save money and invest money in gold, realestate, insurance, stock market etc. In modern times, they want to invest their funds for long term as well as short term. So, people have the best option to invest money in stock market because it gives good return and Stock Market investors can take advantage of economic growth and development. When an economy grows, investors get benefits because corporate earnings increase.

So, we have to focus on investment strategies in the stock market which give a path to achieve our desired result within time bound. Long term as well as short term. We want to grow our wealth in stock market so we need to follow some strategies.

Objective of Study

1. To understand the innovative way of investment parameters on security in the stock market.
2. To know about the best security and allied outcomes.
3. To create preference on the basis of scoring by security.
4. To create ranking or preference in security.

What is an Investment?

An investment means a person purchases assets because he thinks the price of assets will increase in future due to inflation, increase in demand, decrease in supply etc. From it, a person buys an asset at a lower price and sells an asset at a higher price. Making a large profit from assets is called an investment.

What is Meant by Parameter?

A set of facts or a fixed limit that establishes or limits how something can or must happen or be done.

What is Meant by Investment Parameters?

Creating a filter that contains measures, quantitative aspects, scores, ratings, etc., to pass the investment is called as investment parameter.

About Parameters

There are many parameters of investment in the stock market. Each parameter has individual importance while choosing a share. We did not depend upon a single parameter. We studied all parameters. This gives good quality share & gives maximum return on it.

Parameters Considered

Sequence of Parameters

1. Net profit margin: Net profit margin means net profit dividing by total revenue to know about profit in percentage of current year.

   $$\text{Net Profit margin} = \frac{\text{Net Profit}}{\text{Total revenue}} \times 100$$

2. Operating Profit Margin: Operating Profit Margin means operating profit dividing by net sales to know about operating profit in percentage.

   $$\text{Operating Margin Formula} = \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100$$

3. Debt to Equity Ratio: Debt to Equity Ratio means total liability dividing by total shareholder equity to known about debt in company of current year.

   $$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Shareholders' Equity}}$$

4. Interest coverage ratio: The interest coverage ratio means EBITDA dividing by Interest Expense to know about company can cover interest of debtof current year.

   $$\text{Interest Coverage Ratio} = \frac{\text{EBITDA}}{\text{Interest Expense}}$$

5. PEG Ratio: Price Earnings to Growth ratio means growth capacity of the company's income.

   PEG = Earnings per share

   $$\frac{\text{Share Price}}{\text{Earnings per Share growth rate}}$$

6. Return on equity: Return on equity means net income dividing by average shareholder equity to know about strong position of owners in company of current year.

   $$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Average Shareholders' Equity}} \times 100$$

7. Return on Assets: The term return on assets means net income dividing by total assets to know about assets giving benefits or not.

   $$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}} \times 100$$

Research Methodology

The data for study was collected through well designed, structured Questionnaires from urban and rural areas. Mostly collected data reflected the young people. Young people have knowledge about stock market, specifically if the person is from a different profession. Data was also collected data from mutual fund websites.

Type and Sources of Data

Collection of data reflected both, primary source as well as secondary source. In primary source, information was collected by investors investing in stock market. In secondary source, Mutual Fund Companies were used to pick up security and rating by through parameters.

Actual Analysis

After collection of data from primary sources and secondary sources, the result is that people want to invest money in security on the basis of safety and maximum return in minimum risk. In the context of investment of money on the basis of various parameters, people largely used securities and also by mutual fund companies. So, the study merged all the parameter on one place and introduced new innovative ways to invest money in security on the basis of various parameters.

Practical Implications

Scaling of Parameters

Scale of Parameters	*Total Scale*	*Scale*
1. Net profit margin	1 to 9	1 to 10 11 to 20 20 to 30 30 to 40 2 4 7 9
2. Operating Profit Margin	1 to 9	0 10 20 30 40 1 3 5 9
3. Debt to Equity Ratio	1 to 9	0 0.50 1 1.5 2 9 5 3 1
4. Interest coverage ratio	1 to 9	0 0.50 1 2 3 1 3 5 9
5. PEG Ratio	1 to 9	0 0.25 0.50 1 1.25 9 5 3 1
6. Return on equity	1 to 9	0 10 20 30 40 1 3 5 9
7. Return on Assets	1 to 9	0 10 15 20 25 1 3 5 9

A scaling parameter contains seven parameters and has a high level of weightage; it contains a total scale from 1 to 9. Each parameter has a different kind of scale.

Pick Up the Security

Pick up the security from various sectors like; Finance, IT, Manufacturing, Automobile, Oil & Natural gas, etc.

Sector	*Security*
Finance	Bajaj Finance Ltd.
IT	Infosys Ltd.
Manufacturing	Hindustan Unilever Ltd.
Automobile	Tata Motors Ltd.
Oil & Natural gas	Reliance industries ltd

Choosing a different sector is essential because it contains diversification. Diversification reduces risk. The above mentioned organizations/ companies are selected considering their impact.

Application of Parameter on Security

Security	*Net Profit Margin*	*Operating Profit Margin*	*Debt to Equity Ratio*	*Interest Coverage Ratio*	*PEG Ratio*	*Return on Equity*	*Return on Assets*	*Total Scored*	*Preference*
1. Bajaj Finance Ltd	4	9	1	5	9	3	1	32	2
2. Infosys Ltd	4	5	9	9	1	5	5	38	1
3. Hindustan Unilever Ltd	4	5	9	3	1	3	3	28	3
4. Tata Motors Ltd	2	1	1	1	1	1	1	8	5
5. Reliance Industries Ltd	4	3	5	1	1	1	1	16	4

After applying the parameters on the security, result is achieved. Result of security which has a maximum total score is the best for investment. From above schedule, Infosys Company has maximum total score. So, Infosys is the best for investment. TATA motors happen to be lowest in total score so it is not good for investment.

Conclusion

People are interested in making money in the short and long term. So, they invest in security without any knowledge. People invest in security on certain parameters. So, collection of all these parameters or set of parameters and passing security by these parameters and thereby showing strength of security matters a lot. High preference and high scored security get selected. In practicing this novel way, deep corrections are necessary from year to year. The related minutes must be given a serious thought.

Suggestion

Choosing security on the basis of net profit margin is a good solace. Securities with maximum scale can make the picture clearer. Choosing security on the basis of operating profit margin reflects skill, for example, Bajaj Finance Ltd. has maximum scale among all the different securities. Selection of securities on the basis of debt equity ratio also matters, for example, Infosys and Hindustan Unilever Company have low debt equity ratio. Selection of security on the basis of PEG ratio, for example, Bajaj Finance Company has a maximum scale peg ratio so it is good for investment.

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Ad e-Rupi: A Financial Innovation for Transparent Delivery of Welfare Schemes

Prasad Khanzode and Deepeshkumar Zamad

Abstract: *The government has introduced Direct Benefit Transfer or DBT in order to bring transparency in delivery of welfare schemes. Its an attempt for transferring subsidies directly to the beneficiary through their bank accounts. But the current DBT mechanism is unable to track that whether the money provided was used to avail the benefits for which it was intended or not. To deal with this problem the National Payments Corporation of India on its UPI platform developed e-Rupi. e-Rupi is an end to end a cashless and contactless one-time digital payment mechanism. Under it e-voucher in form of QR-code or SMS string will be delivered to the beneficiaries' mobile number, and this voucher can be redeemed only at specific centre's having specific purpose code. The mechanism of e-Rupi is intended in making direct benefit transfer more effective as it will ensure the money given is used for the same work for which it was given. This will ensure quick, safe, transparent and leak proof delivery of welfare schemes. This paper is intended to study the merits and limitations of the e-Rupi mechanism as well as its extended use by private sector for their employee welfare and Corporate Social Responsibility (CSR) programmes.*

Keywords: Direct Benefit Transfer, Cashless, Contactless, Corporate Social Responsibility

The government of India introduced Direct Benefit Transfer or DBT. DBT was started by the government in January 2013 to bring transparency in delivery of welfare schemes and to change the mechanism of transferring cash subsidies and cash benefits directly to the masses using **JAM** that is **J**an-dhan bank accounts linked with **A**adhaar and **M**obile numbers.This change was done to eliminate corruption and leakages in schemes important in ensuring complete transparency.

Approximately Rs.36,000 crore has been transferred by using DBT in the Bank accounts of 16.01 crore beneficiaries during COVID-19 lockdown under various welfare and relief schemes.

But the current DBT mechanism is unable to track that whether the money provided was used to avail the benefits for which it was intended or not. To deal with this problem e-Rupi was developed by NPCI- National Payments Corporation of India on its UPI platform.

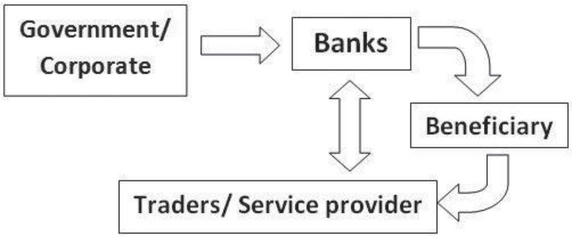
e-Rupi is an end to end contactless and cashless one-time digital payment mechanism. Under it e-voucher in form of QR-code or SMS string will be delivered to the beneficiaries' mobile number, and this voucher can be redeemed only at specific centre's having specific purpose code. It was first launched by PM Narendra Modi on 2 August 2021.

The mechanism of e-Rupi is intended in making direct benefit transfer more effective as it will ensure the money given is used for the same work for which it was given. This will ensure safe, transparent and leak proof delivery of welfare schemes.

Detailed Mechanism of e-Rupi System

The e-Rupi Mechanism involves following entities:

1. **Sponsor:** They include the Union and state government or corporate who are interested in sponsoring any scheme. They will request bank for creation of e-Rupi.
2. **Issuer Bank:** The banks authorized by RBI will initiate the request to issue e-rupi Voucher.
3. **Beneficiary:** The person to whom the e-Rupi voucher is issued in form of a QR-code or SMS string. He may not be a bank account holder, and no smart phone or internet connection is required, but should possess a basic feature phone at least.
4. **Designated/Authorized Merchant:** These are the traders or service providers authorized as specific voucher acceptance points where e-Rupi can be redeemed/ used. Like Hospital, chemist, Agri-goods suppliers etc.
5. **Acquiring Bank:** These bank authorized by RBI shall provide facility to the merchants to accept the e-Rupi for redemption.



Working

1. The sponsor, viz., Union and state government or corporate approaches the issuer bank for issuance of e-Rupi prepaid voucher from their respective bank accounts with specific purpose code. The voucher is in form of a QR code or a SMS string.
2. The QR code or a SMS string is then sent to the beneficiary mobile number as specified by the sponsor. This voucher is for one time use only and it is non-transferable and non-relodable.
3. Now the beneficiary having the e-Rupi voucher for a specific purpose can approach the Merchant for purchase of goods or services but most important condition here is he can redeem the voucher only at a designated merchant with valid Merchant Category Code (M.C.C.).
4. The purpose with which the voucher was issued when matches with the M.C.C. then only it can be redeemed.
5. The designated merchant scans QR code or SMS string shown by beneficiary, with help of facility provided by the Acquiring Bank. A One Time Password (OTP) is sent on the beneficiary mobile number for final confirmation, once approved the transaction gets completed.

6. Funds gets transferred from the Issuer bank to the merchants account at the Acquiring bank.

Advantages of e-Rupi System

1. **Transparent Implementation of Government Schemes:** The Indian government has launched various Push model schemes for citizens, namely, Ayushman Bharat, PM Gramin Awaas Yojana, including many other women and child welfare schemes and various subsidy schemes for farmers. The e-RUPI platform can play key role in the context of 'push model welfare schemes', particularly to strengthen the Direct Benefit Transfers by making them more targeted, transparent, leakage-proof and cost-effective.
2. **Quick Disbursal:** e-Rupi system will ensure Quick Disbursal and receipt of the funds by the intended beneficiaries at the last mile, with limited intermediaries as the system is based on a prepaid model. And this is most important aspect because late disbursal is biggest flaw in various government schemes till date.
3. **e-Rupi System is Exclusive (Purpose oriented):** eRUPI voucher will work between the selected beneficiary and the benefactor. For e.g., if one receives an e-Rupi voucher for vaccine, then he can use it to pay vaccine bills only and not for any other purpose. The voucher can only work once it matches the QR code issued by the NPCI. Hence the system ensures safe use of funds.
4. **Easy Monitoring:** With the e-Rupi system, the issuer can easily track how, when & where their funds are utilized with complete electronic record. Ordinary people as well as government employees can be restricted from misusing government funds.
5. **Advantages of e-Rupi in the Private Sector:** Private sector can also use this platform solution to offer targeted benefits to its employees as well as for (CSR) initiatives. The distribution of services will be quick, Safer, and contactless. The issuer can track the voucher redemption whenever the employees use it.
6. **Financial Inclusion:** The e-Rupi solution fulfills the policy objectives of the Government of India for financial inclusion. The aim appears is to reach out to remotest areas, the under-banked population, and non-smart phone users across India.

Limitations of e-RUPI System

Even though the NPCI has made the e-Rupi system highly advanced and secures, still there are some limitations. Some of them are:

1. **Limited Number of Banks:** The system is associated with 17 Issuer Banks in India, that means large number of banks are in waitlist until the platform succeeds nationwide.
2. **Many Users Still don't have Mobile Phones:** Many government schemes are meant for disadvantaged and economically weaker sections. Still access to mobile phones is not 100 percent. This means such people cannot be benefitted by above system as mobile is basic requirement in above system.

3. **Expiration:** The e-Rupi is a prepaid service, if a user doesn't redeem it within a specific period, the e-Voucher will expire. This again is an important limitation.
4. **Anyone with a User's Phone and Details can Use e-Rupi:** Since users don't need to link their bank account or register elsewhere to redeem the voucher, the system works entirely through mobile phones. The government still has no provisions to check if the consumer with a registered mobile number exists or not. In this case, anyone in possession of a consumer's mobile can go to the service providers to redeem the e-Voucher.
5. **Technical Limitations:** The e-Rupi system works in completely electronic way. Technological issues are unpredictable and may come forth at any point of time.

Scope for Future Use

Currently the pilot of e-Rupi system has been initiated for providing covid-19 relief in form of vaccine dispensation at private hospitals. The Merchant Category Code (M.C.C.). 8493 is provided to issue the e-Rupi voucher to the beneficiary.

e-RUPI can be used in future for delivery of various 'push model welfare schemes', and subsidies linked to education, ration, healthcare, and fertilizers as well to relief efforts during natural calamities by different government, non-profit and corporate entities. It can also be used in donations and scholarship programs.

One such initiative is by the government of Karnataka which has partnered with the National Payments Corporation of India (NPCI) and State Bank of India (SBI) for enabling and implementing 'e-Rupi', for its scholarship programs. Inspired by the successful implementation of this pilot project, the state government is planning to use of e-RUPI Voucher in other schemes such as seed distribution, fertilizer distribution, micro irrigation schemes, and Imparting skilled training, etc.

Another most important use of e-Rupi is for the effective and transparent way of spending their corporate social responsibility (CSR).

Indian companies spend huge amount on CSR activities. As per MCA in FY-2018-19 it amounted to Rs. 20163 crores, FY-2019-20 it was 24864 crores and in FY-2020-21 it was Rs. 20360 crores.

But the main limitation is lack of transparency in these spending, as per report by EY-Forensic & Integrity Services, lack of due diligence on implementation partners and limited management involvement are contributing to ethical lapses and frauds in CSR programs.

Here the e-Rupi system may prove to be a revolutionary step if properly implemented, this system can bring transparency in complete CSR spending by corporate.

Corporate can enable well-being of their employees by distributing the e-Rupi Prepaid Vouchers. As it is an end to end digital transaction and doesn't require any physical issuance (card/voucher) hence leading to cost reduction. Moreover voucher redemption can be tracked by the issuer.

The Employees can be benefited from e-Rupi as they can avail of Medical and CSR services. The distribution of services will be quick, Safer, and contactless. The issuer can track the voucher redemption whenever the employees use it.

Some Suggestions

1. **Safety and Security:** Although the e-Rupi system designed by NPCI is safe and secure but stil there are chances of vouchers misuse and to deal with Safeguards must also be put in place so that the risk of any misuse of the e-RUPI solution at the point of redemption is addressed, including where the SMS-string or QR code is shared with another person and accordingly does not get utilized by the rightful beneficiary.

   Timely audit and strict actions are required to be put in place to deal with the misuse of the system especially by the at the point of redemption.
2. **Increase in Number of Banks:** Currently only 17 banks are authorized by RBI to issue e-Rupi vouchers, more banks should be allowed and enabled to issue the vouchers so that volume of transaction can be increased at a faster rate.
3. **Increase Limit:** Till January 2022 the cap on e-Rupi was Rs. 10,000 but from February 2022, the Reserve Bank of India (RBI) increased the cap on e-Rupi vouchers issued by the government to Rs. 1 lakh per voucher.
4. **Multiple Times Use of Single Voucher:** Earlier the voucher once issued was used one time only but in a latest change, the multiple use of single voucher is allowed till the benefit in is exhausted. Such multiple times use was much needed.
5. **Awareness programs:** A targeted awareness program is much needed to ensure success of the system, making aware the masses regarding safe use of voucher as well as training to designated traders will ensure success of the system.
6. **Promoting Private Players to Use the system:** In addition to vouchers issued by the government, private players should also be motivated and incentivized to use e-Rupi platform.

Conclusion

e-RUPI is a revolutionary step in the direction of ensuring a leak-proof delivery of welfare services. It will provide atmost transparent and targeted way of transferring benefits of the central and state government schemes to the beneficiaries. It will strengthen the current direct benefit transfer (DBT) system.

And most importantly non-requirement of beneficiaries bank account & smartphones and not even an internet connection makes it more effective and easy to implement.

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Changing Face of Rural India through Digitalization of Self-Help Groups: A Review

Shradha Chourasia and S.B. Kadu

Abstract: *Time is changing faster than expected. The needs and wants of society are also increasing. In the present time lifestyle of people has changed, even the one who is living in a rural area, their life is affected as well. Self – Help Group is one of the best concepts for those who are not able to survive. In yesteryear idea of Self – Help Group recognized its importance. The government of India as well as RBI took initiative to promote SHGs in society. Many women benefited from SHGs. It is found that Self – Help Group required modification in the form of technology. It is observed that SHGs are too much away from the use of digitalization. Now, it is the need of the hour to make digital the SHGs. No doubts that many challenges will have to be encountered in the process of digitalization. In the long term, it can be solved. This paper focused on innovation through digitalization in SHGs. Data is collected from the secondary source.*

Keywords: Technological Transformation, Innovation, Self-Help Group

Introduction

Destitution is multi-layered peculiarity. It is frequently appeared with low utilization, unhealthiness, ignorance, frailty, deadbeat hope, feebleness and low confidence.The helpless miss the mark on conveniences like channeled water supply, disinfection and power. Theiradmittance to credit, data sources and innovation is seriously restricted and certain imperatives, like needof data about business sectors, absence of business and arranging experience and absence ofaggregate association deny them of the important ability to cooperate on equivalent conditions withthe other, for the most part bigger and more grounded, market middle people. Social and social distancefurthermore segregation are different variables that may likewise in some measure halfway prohibit the poor frommarkets.

The seriousness of destitution is higher all the time for ladies and they face incredible difficulties in lifting themselves (and their youngsters) out of destitution trap. Because of orientation predisposition, ladies have fewer open doors than men, including inconsistent open doors for accessto instruction, business and resource possession.

The issue of destitution can be handled by giving manageable job open doors toladies who are its fundamental casualties. Female headed families have, truly, a higherlevel of the least fortunate families in the country. They are the most awful casualties ofhardship and desperation. In this manner, each program for destitution easing should focus onworking on the living climate of the womenfolk. It is through the making of businessopen doors for them, that ladies can be engaged. For this, the miniature credit and self-help bunches are compelling means through which their everyday environments can be moved along.Status of ladies in the nation is exceptionally lamentable. It is incongruity that ladies are barely givenany credit. They can't get advance from the banks first and foremost on the grounds that they are 'women' andfurthermore they are poor. In India, ladies don't have any say over method for creation. Thisbrings about their less interest in monetary undertakings.

Objectives

1. To identify the problems faced by self-help groups in India.
2. To know the technology available for the betterment of self-help group.
3. To know the ways for digitalizing self-help group.
4. To suggest ways to digitalize self-help group.

Review of Literature

1. **M. Prabu, R. Manoov (2013):** His paper reports patterns of web development in both Urban and Rural India and mostly centers around Internet sway in rustic regions. This examination observed rustic regions had lower level of web access, contrasted with their partners. Relationship investigation was done to observe the impact of specific boundaries which influences web development in provincial India. Our investigation additionally observes the connection with the metropolitan web access through remote and wired mode. Web development rate is firmly connected with the membership rate through wired narrowband, broadband and remote mode.
2. **Sonia Bhatt (2020):** Computerized upset has set out various open doors in India. Web entrance rate is extremely high in India which thusly has made the necessity of making India carefully dynamic. Indian government is chipping away at vital undertakings like Smart City, Make in India and Digital India. The web infiltration rate is expanding in rustic regions yet this augmentation is not exactly metropolitan regions' web entrance rate. The motivation behind this paper is to comprehend the arrangements sent off by the public authority of India to build the web self-adequacy level of individuals in rustic regions. The paper investigates the Digital town plot and Digital Village 2.0 mission and its effect on residents after its application in chose towns. There is a solid need to confer digitalization information to provincial India for making balance between metropolitan India and rustic India and its prosperity persuades the public authority for making the following stride for upgrading digitalization in country India.
3. **Souresh Cornet, Saswat Barpanda (2020):** Social development (SI) has been advanced by policymakers for tending to a wide range of social issues with regards to lessening government assets. It is, be that as it may, hard to evaluate the productivity of SI-based public approaches, as the course of SI itself remains generally amorphous. The reason for this paper is to more readily comprehend this cycle with an attention on its beginning phase, until the purpose in recognizing a socially inventive thought and with regards to impeded provincial networks in India.

4. **Arjun. Y. Pangannavar (2012):** Self Help Group (SHG) program is a logical way to deal with destroy destitution. It is started as an independent work program in the language of neediness destruction measures as well as strengthening program in the country. The SHG program was started in Belgaum District of Karnataka State in 2000 by the Govt. with the end goal of bring more helpless ladies under this program to make them engaged strategically, socially and financially. Be that as it may, the improvement of Women Self Help Groups (WSHGs) is exceptionally delayed as far as its number, participation, collection of assets and size of payment of assets among recipients. There is a desperate need of powerful endeavors from all sides to make the advancement interaction of WSHGs solid and manageable in the locale.
6. **Shweta Singh, Guido Ruivenkamp and Joost Jongerden (2011):** This paper considers the methodologies of self-help group for miniature endeavor advancement in country regions. It looks to respond to whether or not and under which conditions self-help group are a viable vehicle for getting sorted out and addressing neighborhood individuals in the advancement of local area-based miniature undertakings. Zeroing in especially on models from India with regards to food as a nearby asset, unique consideration is paid to progress and disappointment variables of self-help group. While self-help group techniques have been applied in the past as a visually impaired replication of achievement models disregarding the complexities associated with bunch arrangement, accomplishment of self-help group depends on an intensive comprehension of nearby conditions and potential outcomes to mediate.

Online Meetings

With virtual gatherings, how much booking and strategic faff encompassing a gathering will in general be fundamentally lower than with in-person gatherings.

Online Training

It permits to go to classes from any area of their decision. It additionally permits mentors to contact a broader organization of ladies', rather than being confined by topographical limits. Also, online talks can be recorded, chronicled, and shared for future reference. This permits understudies to get to the learning material during a period of their solace.

Online Payments

Your meeting saves time on regulatory undertakings when SHG members can pay on the web. It lessens the general responsibility of gathering installments. Electronic gateways make it simpler to oversee cash, particularly when it lessens the requirement for money or check. Since individuals save time with this strategy, they're less inclined to postpone taking care of their month-to-month commitment. Even if the members can't attend periodic meet they can still contribute. If an individual is an owner of a business, then it can be helpful for their business.

Better Ways of Investment

Recuring deposit, fixed deposit, bankrecuring deposit,mutual fund, national pension scheme is prominent.The key investment can be the investment of money in their own micro enterprise. They can either start a new business or expand the existing one.While cash is without a doubt more secure than shares, it's probably not going to develop a lot, or track down potential chances to develop, over the long haul. For your investment funds to fill in genuine terms over the long haul, they need to acquire a pace of return after charge that is more prominent than the pace of expansion. Assuming you're resigned or moving toward retirement, you'll likely be searching for something can give you a customary pay to cover everyday costs.

Better Market Reach

Use statistical surveying to acquire a superior point of view and comprehension of your market or interest group and guarantee that your firm stays in front of the opposition. It helps in spotting arising patterns. It helps organizations to remain in front of the opposition. It assists with considering the accomplishment of a business in contrast to benchmarks.

Challenges for the Application

1. **Internet:** Web is Power India currently has in excess of a billion group. It has, nonetheless, just 40 million phones and 3,000,000 Internet associations. Further, as these are generally gathered in the metropolitan regions, the rustic regions are getting left behind as the world races towards a data drove worldwide economy.
2. **Lack of Education and Unawareness:** When the people don't have the essential proficiency abilities of perusing, composing and number juggling and know nothing about specific viewpoints, especially the ones, which are expected to support better livelihoods, then, at that point, they experience destitution. Absence of proficiency abilities are viewed as significant hindrances inside the course of taking up any work or business. At the point when the people are ignorant and uninformed, then, at that point, they would encounter obstructions in showcasing their items. Thus, when they can't get occupied with any occupation, because of ignorance and ignorance, then, at that point, they at last experience neediness.
3. **Transportation Problems:** In provincial regions, generally skill centers are situated a ways off from home. Whenever the understudies experience issues in moving to skill centers, then, at that point, they areincapable to seek after scholarly objectives. It has been investigated upon that young girl regularly experience issues in moving to skill centers and are relied on their relatives. On account of transportation issues, guardians are vested with the obligation of taking their kids to skill center and bringing them back home. Whenever they can complete their obligations in a proper way, then, at that point, youngsters can gain training. While, when they don't have relatives to give them help with

terms of transportation, then, at that point, they can't gain skill centering. Subsequently, they either get deterred from getting signed up for skill centers or quitter, before their instructive abilities are sharpened.

4. **Lack of Teachers/Trainers:** The essential work obligation of the educators' center after making arrangement of scholarly information and data to the understudied. Aside from scholastic information, they need to create mindfulness& skill education among understudies as far as different angles to work with their powerful development and advancement. In country skill centers, deficiency of instructors is the serious issue that is additionally an essential worry in the improvement of the arrangement of training. Whenever the skill centers won't enroll qualified and experienced instructors, then, at that point, positively there would be event of obstacles in the accomplishment of scholarly objectives. At the point when there is lack of instructors in skill centers, then, at that point, it additionally prompts a decrease in the enrolment of understudies.

Future

Individuals' support in self improvement associations isn't new, however a technique spread across numerous nations and executed in different area explicit ways. In the space of metropolitan turn of events and lodging, self improvement appears as neighborhood gatherings, inhabitant gatherings and ghetto advancement boards, while in provincial turn of events, SHGs center more around the foundation of credit gatherings, advancement panels and explicit client gatherings. Summed up as Rotating Savings and Credit Associations (ROSCA), the SHG capacity of privately given, coordinated material help – or, casual banking – has been viewed as a "midlung being developed", generally contextualized by laborer social construction (Geertz 1962). In re-penny times, be that as it may, it has been given another rent of existence with the idea of microcredit, the ex-strain of little credits to help the innovative aspirations of poor people, those most un-ready to get close enough to capital. The particular SHG type of microcredit bunches have been set up in various nations in the South at this point. The Grameen bunches in Bangladesh are the most notable illustration of this peculiarity, and different microcredit bunches have likewise been shaped in different nations in the district, for example, in Thailand, Nepal and Sri Lanka, as well as in India where SHG's have been assisting with setting up miniature ventures for in cogeneration.

Research Methodology

Research Method

Descriptive method was used for research in this paper. As the area of research is vast and wide spread it is hard to collect data so survey method is adopted for this study.This research was carried out using primary data as observations and secondary data as previous research on similar topic.

Secondary Data

Secondary data is that data which is already available in the form of magazine, research journal, books, etc. For this research paper secondary data was collected from internet and research papers.

Findings

1. It is found that SHGs are too far away from the use of technology.
2. Due to lack of industrial touch, they are not aware about the merits of digital technology.
3. Absence of adequate internet facility in rural areas create obstacles in the implementation of technology.
4. Illiterate and semi-literate women are associated with self-help groups therefore, theredo not know use of digitalization.
5. Digital literacy is not sufficient in SHGs.
6. In present SHG market is limited, if online digital platform is provided to their products, then it can greatly benefit their livelihood.
7. It is found that technological literacy will help the women to gain empowerment in all dimensions.
8. It is observed that compelling and proficient utilization of information technology like web can help in acclimatizing data about assortment, reach and nature of items, exposure and promoting of items and administrations. Aside from being utilized as a device of data and correspondence and business, utilization of ICT has made roads for women strengthening. It was demonstrated on account of SHG ladies business people who are involving ICT in promoting their items are acquiring more incentives and they have become financially engaged.

Suggestions

1. Government should collaborate with professionals who can provide digital literacy to self-help groups.
2. Online education can help in training SHG in remote places of India where there is lack of experts.
3. Education system can contribute by assigning students to help out and solve problems faced by self-help groups.
4. Use of technology will improve more transparency in the members of SHGs.
5. IT services have broken the limitations of market and provided new trends for the market such as E-commerce, E-learning, Etc. With the help of this trend, women can acquire information about new trends, their usage and knowledge. They can explore to sell or develop their products/services by using new trends of E-commerce.
6. Women at SHG felt they were lagging behind in product marketing due to the limitations of active sales promotion in the absence of vehicles and other logistics facilities. It is

said SHG was ready to expand the product line if given the opportunity. This is where technology helps SHG market their product.

Conclusions

If the government or non-governmental organizations create awareness about the importance of technology and its usage by giving training for them in digital marketing then it will strengthen the activities of SHG women entrepreneurs. The knowledge of internet for processing different services online will prove highly beneficial for the SHGs. Digitization of self-help groups can create employment opportunities, increase the standard of living, ease the work and increase the knowledge regarding internet.

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Innovation in Finance – A Study of Bond ETF Market with Special Reference to Bharat Bond ETF

Anuja Vilasrao Thakare

Abstract: *Today, there are lots of investment avenues available in the financial market for an investor with an investable surplus. For example, fix Deposit, shares, bond gold, debentures, real estate, G-sec.etc. Investors put their money in bank fixed deposits primarily because they offer a declared rate of fixed investment horizon (maturity date) and safety of capital (less risk) compared with other capital market instruments such as equities which are high risk products. Considering pros and cons of all investment avenues, Bharat bond (ETF) can be considered as innovative instrument which take the benefits of all investment avenues. Here researcher has studied risk return growth as well as SWOT analysis of Bharat bond ETF. Researcher collected information through sources such as a primary data as well as, secondary data. The current research paper focuses on the concept of ETF, its growth, awareness in Indian market with special reference to Bharat Bond ETF. Also, it compares ETF with other investment avenues available in market.*

Keywords: Exchange Traded Fund, ETF, and Investment Avenue

Introduction

The economic development of a nation largely depends upon its effective and efficient utilization of scarce resources. One such scarce resource is capital. Capital creation is made possible through accumulation of savings. The surplus entities in the economy save and invest their surplus in various financial assets which in turn are utilized by the deficit entities for investing in various real assets leading to value creation. An efficient financial system should provide its investors a range of investment alternatives to suit their investment objectives. This includes alternatives with varying maturities and varying risk – return characteristics. In other words, the financial system should enable creation of risk capital on one end and risk less capital on the other. Their views towards stock market are negative. In short, they feel that it's very risky investment avenue. Indian citizens are illiterate about stock market.

What is Bond?

The bond is a debt security, under which the issuer owes the holders a debt and (depending on the terms of the bond) is obliged to pay them interest (the coupon) and to repay the principal at a later date, termed the maturity date. Interest is usually payable at fixed intervals (semi annual, annual, sometimes monthly). Very often the bond is negotiable. The most common types of bonds include municipal bonds and corporate bonds. The market value of a bond can change over time.

What is ETF?

An ETF is a mode of investment which comprises a basket of stocks or bonds that are traded, similar to individual stocks, on an exchange during regular trading hours. An ETF is comparable with an index fund; an ETF tracks the underlying benchmark index, such as the S&P BSE Sensex and Nifty 50, to which the ETF is pegged. The trading value of ETFs is based on the net asset value (NAV) of the underlying stocks/bonds it represents.

Bond Market in India

Sometimes, the unavailability of funds becomes one of the major problems for the large organizations, public or private. The bond market in India plays an important role in fund raising for developmental ventures. Bonds are issued and sold to the public for funds. Bonds are interest bearing debt certificates.

What is the Bharat Bond ETF?

The introduction of Corporate Bond ETFs through the launch of BHARAT Bond ETF, as announced by the Honourable Finance Minister, Smt. Nirmala Sitharaman, could be a game changer in India's fixed-income investment milieu. Conceptualized by the Department of Investment and Public Asset Management (DIPAM), BHARAT Bond ETF will track the Nifty BHARAT Bond Index series. The Nifty BHARAT Bond Index series will track performance of public sector bonds with AAA credit ratings and maturing in a specific year. The BHARAT Bond ETF which is a Target Maturity Exchange Traded Bond Fund will be predominantly investing in the constituents of Nifty BHARAT Bond Index. Target Maturity ETF will have a fixed maturity period and at maturity investors will get back their investment proceeds along with returns. It is a Government of India initiative to cater to the borrowing requirements of central public sector enterprises by pooling investment from retail and institutional investors. Edelweiss Asset Management has been given the mandate to manage this ETF programme. Fund manager of these funds is Mr.Dhawal Dalal and Mr. Gautam Kaul.

1st Tranche

Edelweise Asset Management had launched 1st tranche December 2019. The issue got opened for subscription during period was 12th Dec 2019 to 13th Dec 2019 mopping up about Rs. 12500 Cr. There are 2 maturity periods – ETF, BHARAT Bond ETF. This is long duration debt fund investing mainly in bonds maturing in more than seven years. There is no exit load. But there is one condition that exit load with 0.10% for redemption within 30 day from the date of allotment. Risk of this fund is moderate. This plan is suitable for those investors who are seeking income over the Target Maturity period.

Portfolio

The following are the portfolios of the index for both the funds, i.e. 2023 and 2030 series.

Nifty BHARAT Bond Index – April 2023 – Constituents NSE Symbol (EBBETF0423)

Issuer Name	*Outstanding Bond Issuance (Rs. in Cr)*	*Weight*	*Yield*	*Residual Maturity*
REC Limited	19,715	15.00%	7.08%	2.96
National Bank for Agriculture and Rural Development	18,530	15.00%	6.70%	2.85
Power Finance Corporation Limited	17,384	15.00%	7.01%	2.81
Housing and Urban Development Corporation Limited	7,295	11.84%	6.71%	2.72
Export-Import Bank of India	4,927	8.00%	6.35%	2.78
Power Grid Corporation of India Limited	4,463	7.24%	6.42%	3.00
Small Industries Development Bank of India	4,315	7.00%	6.50%	2.61
NTPC Limited	4,109	6.67%	6.37%	2.58
Hindustan Petroleum Corporation Limited	3,000	4.87%	6.55%	3.03
National Highways Authority of India	2,375	3.85%	6.35%	2.65
Nuclear Power Corporation of India Limited	1,500	2.43%	6.57%	3.28
Indian Railway Finance Corporation Limited	1,160	1.88%	6.50%	3.25
NHPC Limited	748	1.21%	6.47%	2.91

Portfolio Aggregates

Particular	*Fund*	*1Y High*	*1Y Low*	*Category*
Number of Securities	28	30	26	37
Modified Duration (yrs)	1.12	1.94	1.12	2.76
Average Maturity (yrs)	1.25	2.16	1.25	3.36
Yield to Maturity (%)	4.85	5.20	4.41	5.71
Avg Credit Rating	AAA	–	–	–

Risk Measures (%)

Particular	*Mean*	*Std Dev*	*Sharpe*	*Sortino*	*Beta*	*Alpha*
VR Bond*	5.74	2.02	1.00	1.37	--	--
Debt: Medium Duration*	5.18	4.84	0.76	1.10	0.46	0.53

Nifty BHARAT Bond Index - April 2030 – Constituents NSE Symbol (EBBETF0430)

Issuer Name	*Outstanding Bond Issuance (Rs. in Cr)*	*Weight*	*Yield*	*Residual Maturity*
National Highways Authority of India	21,026	15.00%	7.65%	9.60
Indian Railway Finance Corporation Limited	11,138	15.00%	7.55%	9.73
Power Grid Corporation of India Limited	6,737	15.00%	7.35%	9.80
REC Limited	4,769	12.72%	8.08%	9.47
NTPC Limited	4,362	11.63%	7.38%	9.62

Issuer Name	*Outstanding Bond Issuance (Rs. in Cr)*	*Weight*	*Yield*	*Residual Maturity*
Indian Oil Corporation Limited	3,000	7.40%	9.88	8.00%
Nuclear Power Corporation of India Limited	2,480	6.61%	7.37%	10.02
Power Finance Corporation Limited	2,442	6.51%	8.05%	9.52
NLC India Limited	1,475	3.93%	7.37%	9.48
Export-Import Bank of India	1,065	2.84%	7.50%	10.01
National Bank for Agriculture and Rural Development	555	1.48%	7.55%	9.62
NHPC Limited	478	1.27%	7.39%	9.80
Grand Total		100%		

Portfolio Aggregates

Particular	*Fund*	*1Y High*	*1Y Low*	*Category*
Number of Securities	45	45	34	7
Modified Duration (yrs)	5.71	6.32	5.71	7.14
Average Maturity (yrs)	8.07	8.98	8.07	11.44
Yield to Maturity (%)	6.86	7.14	6.64	6.87
Avg Credit Rating	AAA	–	–	–

Risk Measures (%)

Particular	*Mean*	*Std Dev*	*Sharpe*	*Sortino*	*Beta*	*Alpha*
VR Bond*	5.74	2.02	1.00	1.37	–	–
Debt: Long Duration*	8.13	5.50	0.80	1.27	4.55	7.14

2nd Tranche

After the successful launch of the initial series of exchange-traded funds (ETFs) in December 2019, Edelweiss Asset Management in July 2020 launched the second tranche of Bharat Bond ETF (exchange traded fund) was over-subscribed 3.7 times, collecting Rs 10,992 Cr. Bharat Bond ETF was launched on July 14 and closed on July 17. The base issue size was Rs 3,000 Cr. with a green-shoe option of Rs 12,000 Cr., taking the total size to Rs 15,000 Cr. Bharat Bond Funds of Funds will invest in two ETFs, one will mature after five years in April 2025 while the other after 11 years in April 2031. Bharat Bond ETFs invest in high-quality AAA-rated bonds of public sector companies. The 2025 Bharat Bond index consists of 12 companies in which Power Finance Corporation, REC Ltd, Power Grid Corporation of India and National Housing Bank account for 56 per cent of the index, according to a presentation released by Edelweiss AMC. On the other hand, the 2031 index consists of eight PSUs where Power Finance Corporation, REC Ltd, Power Grid Corporation of India and National Highways Authority of India (NHAI) make up for 60 per cent of the index. According to Edelweiss AMC, 25 per cent of investment quota will be reserved for retail investors, and the rest will be offered to retirement funds, QIBs (institutional investors) and non-institutional investors. An individual retail investor can invest a minimum of Rs 1,001 and in multiples of Re 1 thereafter, subject to a maximum investment amount of Rs 2 lakh. For non-institutional investors, retirement funds and QIBs, it is to an extent of Rs 2 lakh and in multiples of Re 1 thereafter.

Nifty BHARAT Bond Index – April 2025 – Constituents NSE Symbol (EBBETF0425)

Company	*Instrument*	*1Y Range*	*% Assets*
5.40% Indian Oil Corporation 2025	Debenture	7.76–10.09	8.56
5.36% Hindustan Petroleum Corporation 2025	Debenture	8.42–12.37	8.42
5.90% REC 31/03/2025	Debenture	7.27–8.90	7.27
5.47% National Bank Agr. Rur. Devp 2025	Debenture	6.70–7.65	6.70
5.77% Power Finance Corporation 2025	Debenture	6.58–9.90	6.58
5.23% National Bank Agr. Rur. Devp 31/01/2025	Non Convertible Debenture	0.00–6.12	6.12
5.35% Housing & Urban Development Corporation 2025	Debenture	5.47–8.27	5.47
6.88% National Housing Bank 21/01/2025	Bonds/NCDs	4.27–6.60	5.33
6.35% Export-Import Bank 18/02/2025	Debenture	4.31–5.91	4.78
5.25% Oil & Natural Gas Corporation 2025	Debenture	4.18–6.11	4.18
5.34% NLC India 2025	Debenture	3.97–6.01	3.97
6.18% GOI 2024	GOI Securities	1.61–13.39	3.79
6.39% Indian Oil Corporation 2025	Debenture	3.26–4.61	3.53
7.42% Power Finance Corporation 19/11/2024	Non Convertible Debenture	0.00–3.71	3.45
8.40% GOI 28/07/2024	Central Government Loan	0.00–2.73	2.73
7.05% National Housing Bank 18/12/2024	Non Convertible Debenture	2.19–2.90	2.28
6.99% Indian Railway Finance Corporation 19/03/2025	Non Convertible Debenture	0.25–1.87	1.80
6.88% REC 20/03/2025	Debenture	1.46–1.82	1.46
7.40% REC 26/11/2024	Bonds/NCDs	0.83–1.64	1.33
9.18% Nuclear Power Corpn. 23/01/2025	Bonds	0.00–1.40	1.12
8.65% Power Finance Corporation 28/12/2024	Bonds	0.75–1.30	1.04
8.57% REC 21/12/2024	Bonds	0.20–1.03	0.93
5.27% National Bank Agr. Rur. Devp 23/07/2024	Non Convertible Debenture	0.00–0.84	0.71
7.69% National Bank Agr. Rur. Devp 29/05/2024	Non Convertible Debenture	0.00–0.69	0.69
6.85% Power Grid CORP	Non Convertible Debt	0.31–0.85	0.68

Portfolio Aggregates

Particular	*Fund*	*1Y High*	*1Y Low*	*Category*
Number of Securities	44	44	31	37
Modified Duration (yrs)	2.72	3.45	2.72	2.76
Average Maturity (yrs)	3.14	4.07	3.14	3.36
Yield to Maturity (%)	5.64	6.05	5.40	5.71
Avg Credit Rating	AAA	–	–	–

Risk Measures (%)

Particular	*Mean*	*Std Dev*	*Sharpe*	*Sortino*	*Beta*	*Alpha*
VR Bond*	5.74	2.02	1.00	1.37	–	–
Debt: Medium Duration*	5.18	4.84	0.76	1.10	0.46	0.53

Nifty BHARAT Bond Index – April 2031 – Constituents NSE Symbol (EBBETF0431)

Company	*Instrument*	*1Y Range*	*% Assets*
6.41% Indian Railway Finance Corporation 2031	Debenture	9.15–12.96	9.15
6.90% REC 31/03/2031	Debenture	9.15–12.65	9.15
6.45% National Bank Agr. Rur. Devp 2031	Debenture	9.14–12.23	9.15
6.88% Power Finance Corporation 2031	Debenture	8.95–12.39	8.95
6.80% Nuclear Power Corporation 21/03/2031	Debenture	0.00–10.09	8.94
6.50% Nat. Highways Authority 2031	Debenture	8.83–12.32	8.85
6.40% Oil & Natural Gas Corporation 2031	Debenture	7.49–10.50	7.52
6.29% NTPC 2031	Debenture	7.10–9.96	7.10
6.63% Hindustan Petroleum Corporation 2031	Debenture	0.00–6.05	5.98
6.65% Food Corporation of India 23/10/2030	Debenture	2.63–5.82	5.78
7.61% GOI 2030	GOI Securities	0.00–6.14	4.26
6.28% Power Grid Corporation 2031	Debenture	3.46–4.89	3.46
7.05% Power Finance Corporation 2030	Debenture	0.00–2.19	2.09
7.04% Power Finance Corporation 16/12/2030	Debenture	1.10–1.77	1.71
6.90% REC 31/01/2031	Debenture	0.15–1.09	1.08
7.79% REC 21/05/2030	Debenture	0.50–0.69	0.50
7.75% Power Finance Corporation 2030	Non Convertible Debenture	0.00–0.52	0.49
7.55% REC 2030	Debenture	0.00–0.39	0.39
8.32% Power Grid Corporation 23/12/2030	Bonds	0.00–0.31	0.29
8.13% Nuclear Power Corporation 28/03/2031	Debenture	0.16–0.26	0.26
7.68% Power Finance Corporation 15/07/2030	Non Convertible Debenture	0.00–0.35	0.25
6.43% NTPC 27/01/2031	Debenture	0.00–0.25	0.23
8.13% Power Grid Corporation 25/04/2030	Debenture	0.00–0.21	0.20
6.80% REC 20/12/2030	Non Convertible Debenture	0.16–0.20	0.19
7.79% Power Finance Corporation 22/07/2030	Non Convertible Debenture	0.00–0.15	0.15

Portfolio Aggregates

Particular	*Fund*	*1Y High*	*1Y Low*	*Category*
Number of Securities	29	30	16	7
Modified Duration (yrs)	6.43	6.99	6.43	7.14
Average Maturity (yrs)	9.14	10.12	9.14	11.44
Yield to Maturity (%)	6.88	7.12	6.67	6.87
Avg Credit Rating	AAA	–	–	–

Risk Measures (%)

Particular	*Mean*	*Std Dev*	*Sharpe*	*Sortino*	*Beta*	*Alpha*
VR Bond*	5.74	2.02	1.00	1.37	–	–
Debt: Long Duration*	8.13	5.50	0.80	1.27	4.55	7.14

3rd Tranche NSE Symbol (EBBETF0432)

The Government has come out with the third tranche of its flagship Bharat Bond ETF the new fund offer had end on December 9, 2021. The NFO will have a base issue size of 1,000 Cr. with an open green shoe option. The new ETF, referred to as Bharat Bond ETF April 2032, is a 10-year product maturing in April 2032. The bond ETF will enjoy tax advantage in the form of indexation benefit similar to debt mutual funds (20% with indexation). While the actual tax implication depends on future inflation index, indicative after tax yield could be ~6.4%," said ICICI Securities in a note. Recommending to Subscribe, ICICI Securities said that a corporate bond fund (exposure to AAA-rated papers) is currently offering a yield (net of expenses) of less than 5.0%. Therefore, the 2.0% higher yield offered by Bharat Bond ETF is an "excellent investment opportunity in the current environment even after considering any rise in interest rates, going forward."

Company	*Instrument*	*1Y Range*	*% Assets*
6.74% NTPC 14/04/2032	Debenture	14.45–14.45	14.45
7.48% MRPL 14/04/2032	Debenture	13.94–13.94	13.94
6.87% Nat. Highways Authority 14/04/2032	Debenture	13.84–13.84	13.84
6.92% Power Finance Corporation 14/04/2032	Debenture	13.80–13.80	13.80
6.87% Indian Railway Finance Corporation 14/04/2032	Debenture	13.79–13.79	13.79
6.92% REC 20/03/2032	Debenture	13.74–13.74	13.74
6.85% National Bank Agr. Rur. Devp 14/04/2032	Debenture	7.82–7.82	7.82
6.85% NLC India 13/04/2032	Debenture	5.98–5.98	5.98
6.10% GOI 2031	GOI Securities	0.85–0.85	0.85
6.92% Indian Railway Finance Corporation 31/08/2031	Non Convertible Debenture	0.79–0.79	0.79
7.38% National Bank Agr. Rur. Devp 20/10/2031	Bonds	0.41–0.41	0.41
Others	CBLO	–	0.51

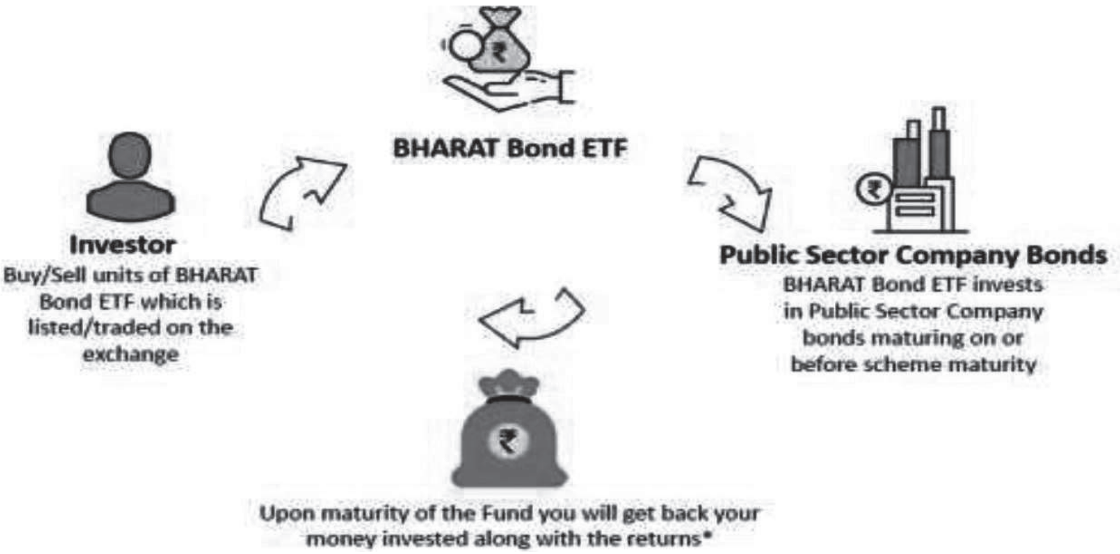
Portfolio Aggregates

Particular	*Fund*	*1Y High*	*1Y Low*	*Category*
Number of Securities	11	11	11	7
Modified Duration (yrs)	7.11	7.11	7.11	–
Average Maturity (yrs)	10.23	10.23	10.23	–
Yield to Maturity (%)	6.99	6.99	6.99	–
Avg Credit Rating	AAA	–	–	–

Risk Measures (%)

Particular	*Mean*	*Std Dev*	*Sharpe*	*Sortino*	*Beta*	*Alpha*
VR Bond*	5.50	2.08	0.87	1.22	–	–

How does Bharat Bond ETF Work?



Tranche	*1st Tranche*		*2nd Tranche*		*3rd Tranche*
Detail Based on Portfolio	*April 2023 Index*	*April 2030 Index*	*April 2025 Index*	*April 2031 Index*	*April 2032 Index*
No of Issuers	13	12	10	14	11
Average yield	6.69%	7.58%	5.64	6.88	6.99
Average maturity (years)	2.84	9.69	3.14	9.14	10.23
Modified duration	2.40	6.64	2.72	6.43	7.11

Nifty BHARAT Bond Index Series

The Nifty BHARAT Bond Indices are first of its kind following a unique target maturity structure where the index matures in a particular year. Each such index captures performance of portfolio of public sector bonds with high credit rating and maturing in a specific year.

BHARAT Bond ETF will be the first corporate bond ETF to track these indices. BHARAT Bond ETF tracking these indices will give investors an experience somewhat similar to investing in a bond with a specific maturity date and gives back the redemption money to investors on that date. Target Maturity Structure based ETFs provide reasonable predictability of returns if held till maturity.

Index Methodology

Since the BHARAT Bond ETF will be tracking Nifty BHARAT Bond Index, it is important to understand index methodology as shown in below. The selection of bond in BHARAT Bond ETF will be done as per index methodology. Apart from scheduled review, bonds of existing issuers to be excluded from the index if they are downgraded below AAA rating.

Section	• AAA bonds issued by public sector companies • Bonds maturing within 12 months to the maturity of the index
Weights	• Weights will be based on the total outstanding amount of the respective bonds • Weight of each issuer in index capped at 15%
Rebalancing	• Quarterly rebalancing of index constituents.

Benefits of Bharat Bond ETF

- **Accessibility:** BHARAT Bond ETF makes bond market more accessible to retail investors they can invest from Rs.1000 instead off other bond Rs.10, 00,000 by reducing the ticket size and providing exposure to a diversified basket of issuers. The BHARAT Bond ETF also has a small unit size of 1000.
- **Tax Efficiency:** Traditional measures of debt instruments such as fixed deposits are taxed as per investors' marginal tax rate. Unlike these, BHARAT Bond ETF offers the benefit of indexation for long term capital gains when investments are held for three years or longer terms.

Particulars	*Bharat Bond ETF*	*Traditional Investment*
Investment amount	Rs. 1,00,000	Rs. 1,00,000
Assumed rate of return	7.52%	7.52%
Indexation**	11	NA
Value on Maturity	Rs. 2,12,000	Rs. 2,12,000
Indexation value	Rs. 1,54,000	–
Taxable amount	Rs. 58,310	Rs. 1,12,000
Applicable tax*	Rs. 11,662	Rs. 33,677
Post tax value	Rs. 2,01,000	Rs. 1,79,000
Net post tax return	6.94%	5.74%

- **Transparency:** Portfolio holdings of ETFs are disclosed daily as opposed to monthly disclosures by debt mutual funds. The availability of live-traded prices on exchanges continuously updates investors about the investment value of their portfolio.

- **Liquidity:** Just like a stock, Corporate Bond ETFs are traded on exchanges.

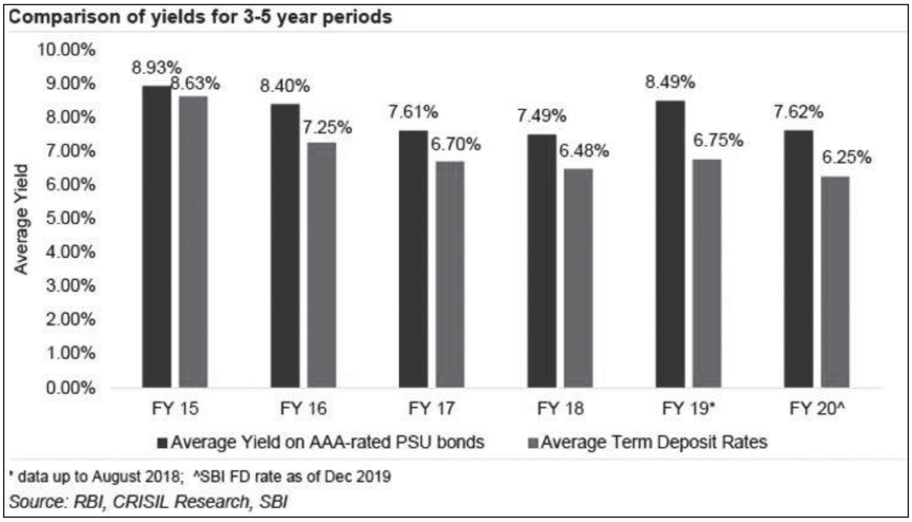
- **Low Cost:** A very low cost of 0.0005% p.a. (up to 10,000 Cr.–0.0005% p.a.; Next 10,000 Cr. to 20,000 Cr.-0.0004% per year over 20,000 Cr.-0.0001%)
- **High Safety:** Investment in Public Sector Bonds of high quality with AAA rating, credit risk is relatively low.

Scheme-Specific Risk Factors

Risk associated with Fixed income Instruments

- **Interest rate risk:** Price of a fixed income instrument falls when the interest rates move up and vice-versa, which will affect the NAV accordingly
- **Spread risk:** Investments in corporate bonds are exposed to the risk of widening of the spread between corporate bonds and gilts. Prices of corporate bonds tend to fall if this spread widens which will affect the NAV of the Scheme accordingly.
- **Credit risk or default risk:** Credit risk is the risk that the issuer of a debenture/ bond or a money market instrument may default on interest &/or principal payment obligations.
- **Liquidity:** The Risk of non-execution of sale/purchase order due to low volumes is liquidity risk.
- **Reinvestment risk:** Interest rates may vary from time to time. The rate at which intermediate cash flows are reinvested may differ from the original interest rates on the security, which can affect the total earnings from the security.
- **Performance risk:** Performance of the Scheme may be impacted with changes in factors, which affect the capital market and in particular the debt market.
- **Market risk:** Lower rated or unrated securities are more likely to react to developments affecting the market as they tend to be more sensitive to changes in economic conditions than higher rated securities.

Comparison of AAA Rated PSU Bonds vs Fixed Deposits



Comparison of Bharat Bond ETFs v/s Other Debt Products

Particulars	*Bharat Bond ETF*	*Fixed Maturity Plans*	*Open-Ended Debt MFs*	*Individual Bonds (Listed)*	*Bank FDs*	*Small Saving Schemes*
Returns	6.69%–7.58%	6.75–7.50%	7.00–8.25%	7.5–8.20%	6.25–7.00%	7.4–7.90%
Tenure	3 year and 10 year	3 to 5 year generally	No minimum tenure, subject to exit load	Usually 3–15 years	Fixed (varying maturities)	Higher lock-in period
Liquidity	High	Very Low	Very High	Moderate	Low	Very Low
Return Predictability	Yes, as it matches the duration of securities with the fund and holds till maturity	Yes, as it matches the duration of securities with the fund and holds till maturity	No	Yes	Yes	Yes
Fixed Distribution at Maturity	Yes	Yes	No	Yes	Yes	Yes
Taxation	STCG – 30%, LTCG tax – 20% with indexation after 3 years	STCG – 30%, LTCG tax – 20% with indexation after 3 years	STCG – 30%, LTCG tax – 20% with indexation after 3 years	Interest: As per slab rates, STCG (1 year) – slab rates, LTCG – 10% (without indexation)	Interest: As per slab rates	Tax free

Who can Invest?

- Resident adult individuals, either singly or jointly (not exceeding three) or on anyone or survivor basis.
- Non-Resident Indians (NRIs)/Persons of Indian origin residing abroad (POI) on repatriation or non-repatriation basis minors through parents/lawful guardian.
- Karta of Hindu Undivided Family (HUF in the name of Karta); Partnership firms.
- Companies, bodies corporate, societies, association of persons, body of individuals, clubs and public sector undertakings registered in India if authorized and permitted to invest under applicable Laws and regulations.
- Banks, including Scheduled Bank, Regional Rural Bank, Co-Operative Bank etc. & Financial Institutions.
- Mutual Funds registered with SEBI. Trustee, the AMC, their Shareholders or Sponsor, their associates, affiliates, group companies may subscribe to Units under the Scheme.
- Special Purpose Vehicles (SPV) approved by appropriate authority Religious and Charitable Trusts, Wakfs or endowments of private trusts and Private trusts (subject to receipt of necessary approvals as required & who are authorized to invest in Mutual Fund schemes under their trust deeds);
- Foreign Portfolio Investors (FPIs) subject to the applicable Regulations;
- Provident/Pension/Gratuity/superannuation, such other retirement and employee benefit and such other funds to the extent they are permitted to invest;
- Army, Air Force, Navy and other para- military units and bodies created by such institutions;
- Scientific and Industrial Research Organizations;
- Multilateral Funding Agencies/Bodies Corporate incorporated outside India with the permission of Government of India/Reserve Bank of India;
- Overseas financial organizations which have entered into an arrangement for investment in India, inter-alia with a mutual fund registered with SEBI and which arrangement is approved by Government of India.
- Insurers, insurance companies/corporations registered with the Insurance Regulatory Development Authority (subject to IRDA Circulars)
- Any other category of individuals/institutions/body corporate, etc., so long as wherever applicable they are in conformity with SEBI
- Regulations/other applicable Regulations/ the constituent documents of the applicants.

Who cannot Invest?

- Overseas Corporate Bodies pursuant to RBI A.P. (DIR Series) Circular No. 14 dated September 16, 2003.
- Non-Resident Indians residing in the Financial Action Task Force (FATF) declared Non-Compliant Countries or Territories (NCCTs)

- United States Person (US Person) as defined under the extant laws of the United States of America, except where such US Person is an
- NRI/PIO, he/she shall be permitted to make an investment in the Scheme.
- Persons residing in Canada
- Any other categories as deemed fit by the fund.

Conclusion

Since India's bond market is underdeveloped, organizations are expected to rely on banks for funding. Other consumers' interest rates will spike as a result of this. A well-developed bond market would assist businesses in turning to the public for funding, and banks will have more resources to sell lower-cost loans. If you are looking out to diversify your portfolio with a good balance between debt and equity, it is definitely a good choice. Regardless of whether the Edelweiss Bharat Bond ETF succeeds, this move would be historic because it calls for the expansion of the bond industry.

- Bharat Bond ETF will comprise a basket of bonds issued by the CPSEs, CPSUs, CPFIs, and other government organization, with initially all AAA-rated bonds.
- The ETF will have a fixed maturity period, like close-ended mutual funds and the units will be listed on stock exchanges.
- High credit quality (AAA rated bonds), low ticket size (Rs. 1,000), low expense ratio (0.0005%), tax efficiency, along with a good safety, transparency and liquidity makes the Bond ETF a effective option for debt investors
- Thus, Bond ETF would be a good option for fixed income investors worried about the ongoing credit risk in the debt mutual fund space.

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Biography of Author

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DIGITAL LEARNING AND EDICATION

Transformational Leadership, Knowledge Management, and Educational Innovation in Higher Educational Institutes of Jodhpur

Nidhi Jain and Puja Gehlot

Abstract: *Innovation is very important for sustainability in today's competitive world. Innovation in the field of education is the need of the hour for students especially in developing countries like India. Information and communication technology (ICT) plays an important role in developing innovative teaching methods. In this case, we take the sample of students of some higher educational institutes of Jodhpur. The present study aims to show if the transformational leadership of educators and knowledge management contribute to educational innovation in some or another way. To find the relationship, we assisted the use of quasi-experimental research methodology, with a control and experimental group and the application of post-test. The sample is comprised of 120 students from different higher education institutes of Jodhpur. The results of the study showed that knowledge management with the transformational leadership of the faculty members contributes significantly and positively to educational innovation. A positive direct impact is found between transformational leadership and educational innovation. Knowledge management acts as an intervening variable in this research. Transformational leadership is leadership that does not focus on rewards and punishments, it aims at the overall growth of the students.*

Keywords: Knowledge Management, Transformational Leadership, Knowledge Management, Information and Communication Technology (ICT).

Introduction

In this era of Information and Communication Technology (ICT) importance of unique and innovative teaching methods is increasing day by day. With the help of technology, we can apply innovative teaching methodologies for the enhancement of multiple skills in students. The role of leadership cannot be ignored in the knowledge management and innovation systems in higher educational institutions. Nowadays we are focusing on the overall development of the students instead of just providing them with the degree. There is a lack of research conducted explaining the link between transformational leadership, knowledge management, and innovation specifically in higher education. The direct and positive impact of transformational leadership is found on innovation. Sharing of knowledge is taken as mediating variable. There should be an alliance between the government and the universities to promote innovation-centric entrepreneurship education in higher educational institutes. Our avenue of education should be designed in a way that develops the problem-solving critical thinking of students. For the development of students, we should design our theoretical education in such a way where participation of students is required, for this we should focus on project-based learning in which students participate and they try to apply their theoretical knowledge in a practical real-life situation. In higher education, we as an educator should concentrate on knowledge management (KM). KM is the process of collecting information that gives us some sort of knowledge in the present or future, accumulating them, distributing them among all, and effectively managing that information, knowledge, and experience of our educators so that it can contribute to the development of our students in future. Innovation and novelty are the need of the hour in today's scenario of education for increasing value to society. Knowledge-oriented leadership influences innovation in higher educational institutes. Knowledge-oriented leadership impacts organizational performance in a very significant positive way. Higher education should now focus on skill development to create more novel employment generation ideas in the minds of the students. We can reduce our expenses if some work can be shifted to machines and our workforce should be engaged in more productive work. The use of Information and communication technology enhances the teaching and learning outcomes, especially in higher education students. It has advantages as well as disadvantages also. Five main streams of technology-enhanced learning development were identified namely adoption, critique, social media, podcasting, and most importantly blended learning. In blended learning, we combine traditional teaching with some digital learning tools. In this method of learning, the student attends his or her classes in the real classroom environment and also completes his or her lessons with the use of digital technology.

Review of Literature

1. As per the study done by Moreno-Guerrero, A., Rodríguez-Jiménez, C., Gómez-García, G. and Ramos Navas-Parejo, M., 2020. Role-playing in the classroom helps in obtaining better scores in the exams, increasing motivation to study, and developing creativity in the students. The use of innovative teaching tools in the classroom helps in increasing the productivity of the students.
2. According to the study done by Al-Husseini, S., El Beltagi, I., and Moizer, J., 2019. Transformational leadership directly impacts innovation in higher education with the intervening role of knowledge sharing.
3. As per the study done by Mok, K., Welch, A., and Kang, Y., 2019.There is a very important role of the government in promoting innovation-centric entrepreneurship. The findings of the study showed that there should be proper coordination between the government and the higher education systems of a country for promoting the spirit of entrepreneurship in education.
4. As per the study done by Syakur, A., Musyarofah, L., Sulistiyaningsih, S. and Wike, W., 2020.Project-based learning is very helpful in building the capacity of innovation on learning outcomes of English in higher education.
5. According to the study done by Rehman, U. and Iqbal, A., 2020. Knowledge-oriented leadership significantly and positively affects organizational performance with an indirect and mediating effect of knowledge management processes and innovation.

6. As per the study of Jung, J., 2019. There are several challenges in South Korean education including the need for some fundamental changes in the higher education systems.
7. According to the study done by Shen, C. and Ho, J., 2020. Technology-enhanced learning has five main streams namely adoption, critique, social media, podcasting, and mainly blended learning. Blended learning is the combination of traditional and face-to-face learning and it is the best approach for higher education students.
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20. As per the study done by Renz, A. and Hilbig, R., 2020. There is a diametrical relationship between traditional ideal education and futuristic education and knowledge transfer.

Research Objectives

- The main objective of this paper is to analyze the impact of transformational leadership on educational innovation in higher educational institutes of Rajasthan.
- The secondary objective of this paper is to analyze the role of knowledge management on educational innovation in higher educational institutes of Rajasthan.

Research Hypotheses

Based on the review of literature done by us on the above-mentioned topic of the study, we constructed the following hypotheses.

- Transformational leadership significantly and positively impacts educational innovation in higher education.
- Knowledge management contributes more in developing the capability of innovation in higher education students of Rajasthan.

Research Methodology

The research methodology used in this paper is as follows:

To find the relationship, we assisted the use of quasi-experimental research methodology, with a control and experimental group and the application of post-test. The sample is comprised of 120 students from different higher education institutes of Jodhpur.

- **Data source**: We have collected data from the students of the four most reputed higher educational institutes in Rajasthan. We have selected 120 students studying in these four higher educational institutes in Rajasthan.

- **Sampling method:** The sampling technique used in the study is the random sampling method. This is the type of probability-based sampling technique. We have selected students on a random basis.
- **Sample-size:** We have selected 120 students on a random basis for the collection of data.
- **Research-Design:** We have followed the quasi-experimental research design to analyze the impact of transformational leadership and knowledge management on educational innovation in higher educational institutes of Rajasthan.
- We divided the population into two groups one is the experimental group and the other is the control group. An experimental group provided with the transformational leadership and the knowledge management process and the control group is not given any treatment.
- **Variables:** Two main variables were used in the study. One is the Independent Variable and the other is the dependent variable.
- **Independent variable (IV):** There were two main independent variables used in this research. One is the transformational leadership and the other is the knowledge management process in the higher educational institutions.
- **Dependent variable (DV):** The dependent variable used in the research was the educational innovation on which effect of the transformational leadership and knowledge-management was analyzed.
- **Analysis of the data:** We analyzed the data through the application of post-test analysis. We did a proper comparison and testing of both the groups experimental and control groups of the study.

Conclusions of the Study

With the above research we can conclude that transformational leadership significantly and positively affects educational innovation in higher educational institutions. Knowledge-management helps in increasing knowledge of the academicians, research scholars, and students in the higher educational institutions which ultimately helps in increasing educational innovation. We can also conclude that with transformational leadership and knowledge management, the environment of the institutions also plays a significant role in increasing educational innovation. Innovation is very essential to survive in this competitive world, full of opportunities. Students need to increase their creativity, innovativeness, and ability to generate employment.

Limitations of the Study

The limitation of the research lies in the selection of sample size as we have collected data from 120 students who are studying in the four most reputed higher educational institutions of Rajasthan. Future research is suggested by taking a larger sample size and from different higher educational institutions of different states. The effect of some mediating variables should also be analyzed.

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Farmers Empowerment through Innovations

Pallavi M. Kandalkar

Abstract: *Agriculture is the only means of living for almost two-thirds of the employed class. From ages, agriculture has been related with the production of essential food crops. High-input driven farming, excess use of natural resource, causing deforestation, ground water depletions, lowering soil quality and greenhouse gas emissions, unable to deliver sustainable food and agricultural production. Present need is to develop innovative systems that protect and improve the natural resource base while increasing productivity. Present paper addresses the issue of developing innovative systems that protect and improve the natural resource base while increasing agricultural productivity by empowering peasants.*

Keywords: Farmers, Empowerment, Agricultural Innovations, Technology, Poverty

Introduction

Agriculture plays a vital role in a given economy. The share of agriculture sector in total GVA of the economy has a long-term trend of around 18 per cent. The share of the agriculture & allied sector in total GVA, contributes to 20.2 per cent in the year 2020-21 and 18.8 per cent in 2021-22. Agriculture is the only means of living for almost two-thirds of the employed class. Working as a farmer, harvester, technician for farm equipment, people who make agro supplies scientist, and so on, agriculture gives ample of job and research opportunities. This sector estimates to approximately 52 percent of the total number of jobs available in India.

https://agcensus.nic.in/images/slider-01.jpg, dt:12/02/2020.

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From ages, agriculture has been related with the production of essential food crops. These days, agriculture exclusively includes forestry, dairy, horticulture, fruit and vegetables cultivation, poultry, mushroom cultivation, apiculture, etc. Processing, marketing, and distribution of crops and livestock products, etc., had become integral part of present agriculture. Thus, agriculture can be seen as the production, processing, promotion and distribution activity as a whole.

High-input driven farming, excess use of natural resource, causing deforestation, ground water depletions, lowering soil quality and greenhouse gas emissions, unable to deliver sustainable food and agricultural production. Present need is to develop innovative systems that protect and improve the natural resource base while increasing productivity. Needed is a transformative approach, such as agro ecology, agro-forestry, climate-sensitive agriculture and conservation agriculture. Agriculture possesses power to heal. When farmers practice biodiversity on their land, it benefits the earth. More biodiversity results in healthier soil, less erosion, better water conservation, and healthier pollinators.

Suitable weather and soil conditions, high demand for food, untapped opportunities, various incentives available for inputs, production infrastructure, availability of cheap credit facilities and for marketing and export promotion are attracting many educated young individuals, big companies, startups and entrepreneurial ventures interested in investments on innovations, inventions, research and development of this sector. Along with this, the information technology revolution in India, new technologies in agriculture, private investments especially on research and development, government efforts to rejuvenate the cooperative movement to address the problems of small holdings and small produce etc are changing face of agriculture in India.

Case Study

Shailesh Nathe, a professional with Masters in Agriculture and years of experience is working for farmers and rural development. He has a close observation about problem faced by farmers in villages. He lives in Amravati district of Maharashtra, and is a owner of Green Plants Farmer Producer Co. Ltd. He has also worked under government projects which undertook farmer's betterment and rural development. Along with this, he also develops his own land with many innovative solutions. He also formed farmer's societies for shared benefits schemes. And try to make farming especially for small landholders a profitable occupation. This paper, has addressed prominent issues and measures taken for overcoming them.

Amravati falls in Vidhrabha region of Maharashtra. It receives a moderate rainfall during the monsoon season with the long summers being hot and moderate winters. Soil types are deep black soil, medium deep black soils and shallow black soils. Major field crops are Soybean, Cotton, Pigeon pea, Sorghum, Green gram, Chickpea, Wheat. Horticulture fruit crops are Mandarin (Santra), Mango Mosambi, Kagzi lime Banana, Guava, Amla, Pomegranate, Custard apple, Sapota, Tamarind, Papaya and horticulture vegetables crops are

Tomato, Brinjal, Cabbage, Cauliflower 0.22 Cluster bean, Lady's finger, Spinach, Fenugreek, Ridge gourd, Cucumber Bitter gourd and onion.

Following are some of the major challenges faced by farmers of this region and innovative initiatives adopted are discussed below:

Alternate Water Resources Creation

This region is suffering from heat stress in summers. Temperatures rise to 45-47 degrees. High temperature affects plant growth, including rolling of leaves, root and shoot growth inhibition as well as seed germination reduction, fruit discoloration, decrease in pollen viability and decrease in yield. The rivers and ponds are dry in this region and poor rainfall adds to it. Excessive draining of underground water has depleted water level tremendously.

To overcome this problem he formed a farmer's society and creates a farm pond. It is of 40*40*9 meters in dimensions. It contains one Cr. litters of water. It is filled by rain waters and ground waters using pumps in off season. Thus, peak four summer months are well managed. Also, 35-40 acres of orange orchard and onion crops are easily irrigated using drip irrigation. Also, in odd seasons from June to December, fish farming is facilitated by this arrangement. This will create additional income to farmers. This work is appreciated by district Collector Mr. Shailesh Naval (December, 2019) during his visit on villages.

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जिल्हाधिकाऱ्यांकडून कुष्टा गावात शेततळ्याची पाहणी

लोकमत न्यूज नेटवर्क

हरिदास नाथे यांच्या शेतात उभारण्यात आलेले शेततळे.

Lokmat Marathi Newspaper, December 2019

Use of Renewable Source of Energy:

The second major issue was interrupted power supply. Farming activities need many mechanical activities like irrigation, harvesting, sowing, spraying, sorting, grading, storing, cropping etc that require electricity. In absence of smooth power supply the whole process suffered a lot. Also to pay heavy electricity bills for small landholders is a concern.

To manage this problem, he installed solar to generate electricity in his farm under government schemes. Solar energy can be used in small-scale farming and more extensive agricultural irrigation. As water scarcity and intense droughts have become a severe problem in many regions over the past years, more and more farmers are turning towards solar innovations to fulfill their energy requirements.

The renewable sources of energy are being used. The solar water pump systems have an inbuilt inverter and energy storage to ensure a regular water supply every 24 hours. Solar water pumps can also provide a steady water supply for livestock and be useful for daily living. It can be used to power water pumps, lights and electric fences. Using solar energy is cheaper than using fossil fuels in the long run. Agricultural professionals can also sell excess of electricity to the grid and develop a form of additional income.

Resource Management through the Use of Technology

He also looks for technological up gradation every now and then. He also visits and facilitates many agricultural exhibitions in places like Pune, Aurangabad, Nasik, Nagpur, and Amravati. Recently, many new inventions on technological fronts are happening to facilitate activities to save time, labor and resources.

Use of “Rain gun machines” for irrigation is one such initiative. This machine is able to do 8-9 hours of work in an hour/acre. It will save nearly 70% of the power consumption and increase the life of motor/pump. In surface irrigation, more than 75% of the water goes as deep beyond root zone, but in rain gun irrigation, the percolation loss is negligible. The adjustable jet breaker allows droplet size & impact adjustment facility for delicate crops. The extent of area irrigated per day was nearly doubled. The machine can be rented out and this creates passive income to farmers.

Likewise, inconvenience in switching on water pump installed in a remote farm is a common problem faced by farmers. Many circuits have been developed to solve this problem. They turn out to be expensive and microcontroller based. Use of cell phone based water pump remote controller is useful. By calling the cell phone attached to the controller, the water pump can be directly activated. It reduces lots of efforts and it helps to control pump from long distances and odd timings.

Setting Up Soil Testing Laboratory

For working more on this front, Shailesh has also setup a soil and water testing laboratory. This is one among the two labs in the district. Here, soil and water samples are collected/ tested and reports are generated according to the findings.

Soil tests are used to determine the soil’s nutrient level and pH content. This is essential because fertile soils are necessary to grow healthy crops. Soil test leads to minimization of fertilizer use and thus expenditure. It helps us to know the exact deficiency of soil and thus can be treated accordingly.

A fertility management program based on soil testing benefits the farmer a lot. Improved yields and profitability from providing needed nutrients for the crop. Increased uniformity of nutrient availability across a field, and enhances output.

Likewise, water testing is important. If the quality of irrigation water is compromised it might end up having a negative effect on the soil and even the crops. The yield will be substantially reduced, and the soil will be eventually ripped off its nutrients and microorganisms. The loss of these nutrients and microorganisms will further lead to a stunted crop.

माटीपरीक्षण शाला को जिलाधिकारी शैलेश नवल ने दी भेंट

कुष्ठा के किसान हरिदास नाथे के खेत में तालाब का किया निरीक्षण

प्रतिनिधि द्वारा दि.३०

अचलपुर- अचलपूर तहसील के ग्राम कुष्ठा यहां के प्रयोगशील किसान हरिदास नाथे इनके खेत में शासन द्वारा आयोजित योजनेअंतर्गत खेत तालाब का आधुनिक पद्धती से निर्माणकार्य किया गया है और इसमें बारिश का पानी भी संग्रहित कर रखा है. प्रयोगशील पद्धती से इस तालाब का पानी खेत में सिंचाई के लिए उपयोग में लाया जाता है. इस पद्धती के बारे में बता चलते ही तहसील के किसान नाथे इनके खेत में जिल्हाधिकारी शैलेश नवल इन्होने हाल ही में भेंट दी और तालाब का निरीक्षण किया. इसके साथ ही उन्होंने गाव के माटी परीक्षण प्रयोगशाला में भी भेंट दी है.

इस अवसर पर जिलाधिकारी शैलेश नवल इन्होंने परिसर के फसलों का भी अवलोकन किया और इसकी जानकारी कृषी सहाय्यक सतीश फत्तेपूर से भी ली तथा गांव की जानकारी सरपंच जितेंद्र पलसपगार से प्राप्त की. इस समय उनके साथ मंडलाधिकारी पुरी, पटवारी कालपांडे, शेतकरी नितीन खलोकार, सुनील सदाशीव, आशिष हगवणे, ग्रा. प. सदस्य किंदरले सहीत गांव के अनेक नागरिक बडी संख्या में उपस्थित थे. जिलाधिकारी नवल इन्होंने अचलपूर दौरे के दौरान सावलापूर के रोहयो पगडंडी रास्ते पर बन रहे निर्माणकार्य का भी अवलोकन किया.

Pratidin Newspaper, 30/12/2019

Training/Counseling to Farmer

Being an agriculture professional, he also counsels farmers about the better use of fertilizers, types of crop, methods and techniques. Along with this, he conducts training sessions to educate farmers and make them more aware.

Smallholder farmers could access information, knowledge about weather, rainfall or market conditions, allowing them to grow and harvest food more efficiently using digital platforms.

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Farmers will be more aware and feel more connected with the stakeholders. Government is be making wide use of digital technology for generating awareness among farmers, information sharing, schemes using digital technology for direct transfers of money.

New Crops for More Profits

Along with overcoming challenges, Shailesh also cultivated newer crops, which are suitable to environment and has low maintenance. These crops are able to fetch more prices than traditional crops.

- Basils, Long Pepper, Satavari, Ashwagandha and drumsticks. For such medicinal crops companies like Dabur, Patanjali assure the minimum price and buyback also. This will enhance farmers' income considerably. He also creates awareness to take up such new crops through farmers meetings and demonstrations.

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- Teripod is another medicinal plant. The plant grows tall in short time and has spine full leaves and stem. Along with the medicinal use, it can well be used for fencing purpose.
- Likewise, he cultivates oyster mushrooms. They are rare variety and in demand for their health benefits. The companies itself facilitates the whole process and assures buyback also. One can even buy it by own. In this regard, Shailesh also initiated the packaging and branding activities which gets good response in the market.

Both the Images are Made Available by the Owner

- Use of insecticides and pesticides is necessary to maintaining good health of crops. But they are costly too. Here, creating some of the measures at home and its implementations is shown. This kind of initiative is also a part of training to farmers.

Tapping New Markets

After the harvest, farm produce needs to be stored and sell in the market. Selling at a profitable rate is big deal for farmers. Because the APMC nearby are still under developed. Fees of

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trading are also high. Even after imposing and collecting high fees, the infrastructure of the APMC was inadequate and lead to a high wastage of produce, lack of transparent system, poor storage facilities etc major issues. Also, selling some newer variety faces poor demand.

It is a bad plight for farmers that after putting lots of time and money to grow a crop, sometimes they are even not able to recover the cost. For small land holders, managing living, paying loans and bills become hard. Not only growing quality produce is important but to get profitable rate is equally important.

This particular region has majority of fruits, orchards, sweet lime, oranges, bananas grow in this soil type. In the year 2015-16, the rates of fruits fall very low in markets. At this time he takes an initiative (under a project) to sell oranges collectively to other cities.

He facilitates all the processes from packing, transportation and making it available to PUNE and Bangalore fruit markets. There they were able to fetch ₹60 per kg instead of ₹20 kg. Selling in large quantities covers transportation cost well.

Post Harvest Management

As he travels a lot, visits newer regions for getting better ideas, he encounters one more very crucial area to increase the farmers income. The reason why farmers are not able to manage profitable income is most of the farm produce has a very short shelf life. In absence of storing facilities and reaching to better markets, their crops get poor rates. Horticultural crops typically have high moisture content, tender texture and are inclined toward getting perished.

If not handled properly, a high value nutritious product can get damaged and rotten in days or hours. Post harvest handling is the stage followed immediately after the harvest, including cooling, cleaning, sorting and packing. Post harvest treatment determines final quality, whether a crop is sold for fresh consumption, or used as an ingredient in a processed food product.

Steps towards Making Production Marketable/Value Addition

While studying the market conditions, product types and pricing, he observes that prices at farm level/APMC platform and retail prices have huge difference. Though farmers are not able to sort, grade, package the produce for retailing by his own but still some of the activities can be performed at farm level to convert the perishables into long life.

And the semi finished product can be sold. This can be done with simple machines, minimum and semi skilled labor at farm level also. There will be more of niche marketers in operations, area, and crop specific small equipments which will make operations even at small farms easier and efficient.

Retailing in agriculture is becoming hugely digitalized specially post COVID. Many players have already taking conventional kirana stores to the door steps of consumers like Amazon and Jio Mart.

Value addition: The fruit and vegetables which are left from selling in the fresh market can be utilized for preparation of different value added products. The value added

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products include juice, concentrated, fruit based carbonated juices, canning, pulp extraction, pickling, chutney and sauce making, preserves candies, beverages etc from different fruits and vegetables. Innovative equipments and technologies for various primary processing include farm level fruit and vegetable washing machine, basket centrifuge, shrink packaging of fruits and vegetables and hydro cooler-cum-washer for fruits and vegetables, vegetable dryer, pomegranate aril remover cumin cleaner-cum grader, turmeric washing and polishing machine etc. This will lead to less food wastage and better use of byproducts. It regulates farm price by using the excess produce in value addition to provide additional income to the farmers.

Conclusion

In this way, Shailesh has tried to overcome relevant challenges at remote level. He has introduced new methods, induced technology, and cultivated newer varieties. He has taken efforts in training and awareness programs. With innovation efforts to widen the exposure of local level farmers and making agriculture a sustainable occupation, farmers must be empowered with suitable training programs, better technologies and resources.

Economic development is largely influenced by a country's agriculture sector. When trade, revenue, and employment are combined positively, a country experiences reduced poverty and boosted economic growth.

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The Experience of Students from Online Learning with Reference to Amravati City – A Study

Sakshi V. Deshmukh

Introduction

For thousands of years, education and training that displayed within a triangle of college-teacher-student have now utilized new, multifaceted, multi-channel alternatives with the help of technologies in the education system. One of them is "online learning."The online learning activities are important for the development of any country. In modern era everybody is thinking about growth. If it is planned properly then proper results bloom. Online education is learning, utilizing electronic technologies to access educational curriculum outside of a traditional classroom. The entire education system has been changed by improved access to information, interactive learning methods, easy information retention, and expanded data storage. Technology has changed the way we live, affecting practically every area of our lives today, including schooling. The internet's broad reach and the pervasiveness of intelligent gadgets have paved the way for a new era in education, accessible from any time and location.

The term "online learning" is used in this paper to refer to online learning happening via online mode. The term not only encompasses full-fledged formal online courses, the so-called Massively Open Online Courses (MOOCs), but also supplementation of regular classroom learning with online content dissemination and interaction, the so-called flipped classroom or blended mode. Online learning is a core component of our strife towards achieving quality education. While "quality education" itself is abstract and it has many meanings facilitating effective teaching-learning through online mode has become ever more relevant in post-COVID-19 pandemic era. The response from educational research pertaining to e-learning is expected to be a key component of UN 2030 agenda for sustainable development.

Perception of students towards online learning is vital because a leading factor contributing in loss of student motivation and persistence is negative perception about online learning in general. Previous studies have identified several critical factors influencing online learning from a student's perspective, including having a computer at home, regular instructions and feedback from teachers, sense of belonging to the learning community, family support, and time management skills, course content and design characteristics and overall perception of quality. All these factors contribute to the retention rate of MOOCs-fraction of initial registrants who complete the course-as student's perception is the primary determinant behind drop-outs. While men, in general, were more receptive to computers, a recent survey conducted in India revealed a higher prevalence of smart phone use in female students than in male students. However, no data available on which primary digital device (phone vs. computer) students use to access online courses. With the help of Virtual learning environment (VLE), a student can sit in front of the screen and attend meetings, read documents, operate equipment, access computers, or view an assembly line. A student's experience in the classroom or lecture depends on how well the teaching style fits with their individual learning style. The same issues exist with virtual systems and a variety of resources is needed in order to provide adequately for all learning styles. In the older times one of the biggest problems which students used to face was understanding the concepts and logics in the topics of subjects like Physics, Chemistry and Biology. For students it used to become boring as they were not able to imagine and connect with the teachers and topics. The concentration and enthusiasm levels of students decrease over time. The virtual learning environment has a deep effect on aiding effective learning through controlling stress levels and increasing enthusiasm. Many students wouldn't have access to course materials. E Learning and virtual classes make it possible for students around the globe to learn online and attend establishments that may have previously been out of reach. Another major reason that eLearning has become vital is resilience. The COVID-19 pandemic has shown businesses and educational institutions the need for online learning in the face of a crisis. For educational establishments, eLearning allows educators to carry on teaching the curriculum without interruption.

With the fast development and utilization of modern communication and information tools, students adapting to partly/fully online classes, there is a transition from the traditional classroom to online teaching. The scope of higher education in providing diverse opportunities in the field of various programs to the students, there is a rise in the demand for online teaching. For satisfying a large student population, online teaching provides an exciting prospect in making classes more accessible to the students. To address this challenge there is a need to train and develop the faculty members in developing and teaching online instruction accessible to a large number of students.

The technological innovation is constantly and pervasively altering the way in which work is done, which, in turn requires that workplace learning and training to occur on a just-in-time, just-what-needed and just-where-it-needed basis. E-learning is becoming a norm for corporate training. While there is a lot of learner-related information, limited studies have explored required trainers' roles and skills in an e-learning scenario In the pandemic, there were various options for taking online learning i.e., Zoom, Moodle, Webex, etc.

Zoom is an application that allows users to make free video calls with an individual or group of people. They refer to video calls as "meetings". For instance, Zoom can enable a user to participate in an in-person gathering being held at a distant location, like an information session or support group. Using a personal laptop, tablet or smart phone, and a connection to the Internet at home, anyone can get a Zoom account. Like many applications, Zoom requires new users to sign-up with an existing email address and to establish a strong, unique password. A confirmation email from Zoom will be sent to the address provided, so when signing-up, one has to be sure to have access to the email account.

Moodle is free software, a learning management system providing a platform for e-learning and it helps the various educators considerably in conceptualizing the various courses, course structures and curriculum thus facilitating interaction with online students. Moodle was devised by Martin Dougiamas and since its inception, its primary agenda has been to contribute suitably to the system of e-learning and facilitate online education and attainment of online degrees. **Moodle stands for Modular Object-Oriented Dynamic Learning Environment** and statistics reveal that about 14 million consumers are engaged in about 1.4 million courses propagated by this learning management system.

Webex Meeting is Cisco's cloud-based web and video conferencing service that enables global and virtual teams to collaborate on mobile devices and standards-based video systems in real time. Webex Meeting includes features such as screen sharing, meeting recording, customizable layouts as well as meeting broadcasting.

The various factors should be identified which directly or indirectly affect online teaching, to overcome the various problems and threats in order to achieve teachers' success in online teaching platforms. Lastly, online learning tools make it easier to measure the impact of education. Learning platforms collect quantitative data that make it clear how successful the learning experience has been for students.

Literature Review

The literature shows a profound investigation into the relationship between technology and education. Virtual learning Environment elucidates a form of Information and communication technology learning. This method of learning facilitates the distribution of content. This method of learning facilitates the distribution of content. This allows students to exchange opinions and information via ICT, regardless of time limits or geographical limits. The literature does, however, show little empirical evidence for the effectiveness of VLEs in the outcome of a learner. Wilson & Simons found that somehow learners are heavily influenced by the belief of a good teaching environment and are mindful of deep teaching environments which have direct and indirect impacts on learning outcomes.

According to Shivangi Dhawan (2020) has discussed about SWOC analysis of online teaching in the covid-19. The article includes the importance of online learning and Strengths, Weaknesses, Opportunities, & Challenges (SWOC) analysis of e-learning modes in the time of crisis. This article also puts some light on the growth of EdTech Start-ups during the time of pandemic and natural disasters and includes suggestions for academic institutions of how to deal with challenges associated with online learning.

According to Anand Rimmi (2012), the attributes of E-Learning are the flexibility of accessing information and resources. It refers to the access the use of information and resources at any time, place or pace according to one's convenience. Learner is not bound with the constraints of attending the lectures on fixed time or fixed location which may be far off from the residence. Another attribute is access of multimedia based resources; it means that different type of media like text, audio, video, animation, graphics, picture is supported by the network and communication technology, which makes possible the accessing of information by not only text or pictures but it also supports animations, videos, presentations, audio etc. which makes learning more interesting and effective.

According to Deepali Pande et al. (2016), poor quality procurement practices (in all sectors but especially in the public sector) are a barrier to growth and adoption. So it is necessary to make a thorough evaluation when it comes to choose e learning software for education in order to improve the knowledge of learners, the learning outcomes, the performance outcomes, the business, policy impact and in order to value the money spent.

Hardik Patel, et al. (2014) implies that Using E-Learning Tools you can tremendously improve learning process and earn learn in very easy hassles free environment. Another major benefit of the ELearning is that you can make learning always ON. ELearning is not restricted to any place and environment; you just need to connect with group or community, then you will receive all updates.

Deep shikha Aggarwal (2009) says that the social implications of online learning revolve around one primary requirement that students need to feel a part of the class, regardless of where they are located physically or geographically. The missing of connection to the other students in the class and with the institution can impact the success of an online student. Bottom line: the Indian market is still young, but it will continue to adopt the concept of e learning in order to meet its communication needs and seize business opportunities.

Objectives

1. To study the behaviour and challenges of students during online teaching-learning process.
2. To study current status and future of online education.
3. To determine the impact of e-learning of the college.
4. Develop the quality of learning and teaching by Online Education.

Research Methodology

The study is descriptive and tries to understand the importance of online learning in the period of a crisis and pandemics such as the Covid-19. The problems associated with online learning and possible solutions were also identified based on previous studies. The study incorporated extensive primary and secondary research conducted by the research team. Secondary research was be conducted to renew the available data. The SWOC analysis was conducted to understand various strengths, weaknesses, opportunities, and challenges associated with online mode of learning during this critical situation. The research tool used for analyzing the data which amassed from different sources for this study is a content analysis and the research method is descriptive research.

Research Problem

- The use of best-in-class content, real-time learning and feedback methods, and personalised instructions has encouraged online learning.

- People are stepping towards digital learning as the Edutech firms are providing them the comfort of 'live and interactive' anywhere learning in digital format, through its online programmes. These online courses are affordable and easily accessible.
- Digital learning aims to break the numerous barriers that are preventing people from receiving quality education in the physically bound classrooms

Research Design

A research design is the arrangement of condition or collecting and analysis of data in manner that aims to provide relevance to the research purpose with economy in producer. A research design specifies the method and procedure for concluding a particular study. Research design was be grouped into three categories- exploratory research, descriptive research and hypothesis testing.

Data Source and Methods

The study was based on both primary data and secondary data. The primary data was be collected by using a questionnaire and the secondary data was be collected from both magazines and the internet.

Data Sources

Primary Data

Data collected by the investigator himself/ herself for a specific purpose. Primary data was be collected through,

- Personal interviews
- Observation
- Questionnaires

The primary was collected through questionnaires using Google forms,

Secondary Data

Secondary data refers to data that was collected by someone other than the user. Common sources of secondary data for social science including censuses; information collected by government departments, organizational records and data that was originally collected for other research purposes.

Secondary data is collected through,

- Internet
- Journals
- Websites

Sampling Procedure

Sampling means it consists of what is sampling unit, sample size and sampling technique. The sampling is the basic unit of containing the elements of population to be sampled.

Universe

The universe of this study of online education in PRMIT & R, BADNERA.

Sampling Elements

Sampling elements for online education were college students.

Sampling Method

Random sampling

Sample Size

For the research of study sample size was 50 students.

Data Analysis and Interpretation

The statistical tools used for the purpose of the analysis of this study were simple percentage technique and ranking techniques. After the collection of through the questionnaire, editing was done carefully. Based on the responses of the samples, tables were prepared.

Utility of the Research

This research developed new resource for the researcher and proved to be useful for students also.

Finding

1. Do you prefer online classes or offline classes?
   41.5% of the students responded for offline classes and 58.5% of the students wanted online classes.
2. What two things that can improve the classes most?
   32% of the students wanted extracurricular activities in class, 12% of the students wanted improve teaching method, 27% of students wanted other things, 29% of the students wanted take extra time to complete chapter.
3. What are the challenges you are facing while virtual learning/classes?
   45% of the students respondents with slow internet connection, 20% of the students were not able to properly communicate with teachers, 22.5% of the students faced concentration problem, 13% of the students faced other problems.

Current Status

Most of the students want online classes due to pandemic.

Conclusion

E-learning is not just a change of technology. It is part of a redefinition of how we as a species transmit knowledge, skills, and values to younger generations of workers and students. Online learning environments can offer learners opportunities for flexibility, interaction and collaboration distinctly different from face-to-face learning environments. However, the integration of educational technologies also presents challenges and concerns in relation to students' learning. Though online learning has several challenges such as lack of feedback from students and lack of the proper technology to effectively conduct online learning, these limitations can be overcome by upgrading the E-Leaning systems and the use of online discussion forums and new web based software. In conclusion, online learning is beneficial to the students, tutors and the institution offering these courses. I would therefore recommend that online learning be implemented on all learning institutions and research on how to improve this learning process should be carried out.

Limitations

A learning limitation is defined as difficulty in learning because of a condition, such as attention problems. Students said that through online learning modalities they were unable to teach and learn practical work. They could only teach and assess knowledge component. Due to lack of immediate feedback, teachers were unable to assess students' understanding during online lecturing. The students also reported limited attention span and resource intensive nature of online learning as a limitation. Some teachers also mentioned that during online study, students misbehaved and tried to access online resources during assessments.

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Innovation for Education in India

P.W. Nimbhorkar and P.B. Udasi

Abstract: *The term "Innovation" is very significant for India. It means doing something uncommon out of the common way, which is having quality and productivity. The main intention in the field of education innovation should be on teaching and related things and practices. Innovation in education is very essential factor. It will add some significant value in the field of education. Innovation is always acting important role for society and it is useful for society. Innovation can give to supremacy education for endorsing equal and successful education culture. In today's humanity only education is not sufficient. Innovation helps educators to understand the ins and outs of the teaching- learning phenomenon by initiating augmentations. This paper proves to be an enquiry into efforts of endorsing innovations by colleges, institutions, and universities and barriers to innovations some of technological support, etc. It is thus important to replace the old education system by new innovation in education in India.*

Keywords: Innovation in Education, Technologies, Society

Introduction

India is a developing country. Innovation in education is very important as it leads to growth in education which further leads to growth of the social order. Education proves to be very important part of the society. It should not only be sustainable and excellent but also continuously change according to unpredictable globalized world. India holds a significant place in the worldwide education field. India is one of the advanced education fields, in the humankind but there is a lot of potential for extra growth and progress in educational field. The investigators, professors, and administrators are anticipated to do innovation in the area of teaching learning procedures and make certain the excellent preparations of all studentss considering their life and work. So this paper is presenting the systematic review of innovation along with its barrier potentials and directions. It illustrates status of innovation in India and how innovation is taking place in colleges and measures to boost the level of innovation in our education field.

Innovation in Education

Innovation in education field is a very controversial issue. Discussing about education ministers, one rapidly gets the idea that education system in common is very unwilling to innovation, and that there is strong confrontation to change amongst teachers.

But interactions with the teachers provided one reverse thought – that there are lots of changes required in them. In some countries, innovative change has been useful without the care and thoroughness wanted or the suitable prior testing, experimentation and evaluation. There are very serious problems which, if not solved could result in big risks not only for education itself but also for prospective economic growth, social growth and happiness. Since the mid-20th century, education field has prolonged incredibly and human populations have not at all been more highly educated than these days. The difficulties being facets in the education sector are- output and efficiency. Here, efficiency means the sense of balance between resources invested and the outcomes in terms of students' performance and fairness.

Innovations mean looking further than what we are at present doing and then develop a new and novel idea that helps us to do job in fresh way. The reason behind innovation is to create something novel from what we have been doing and it should be in superiority and in good number. Innovation is usually understood as "the winning introduction of new belongings or techniques" (Brewer Tierney, 2012, p. 15). This requires three key steps as mentioned – Ideas, execution, and the result.

In our education, innovation can come with new pedagogy theory, procedural approach, teaching method, instrumental tools, learning procedures, institutional arrangements. It produces a significant change in teaching learning process. This leads to improved student learning. So innovation in education is planned to raise output and efficiency of learning.

Evolutionary innovation leads to increment of development and enquired permanence. Revolutionary education brings about total change to completely replace the old.

Defining Innovation in Education

Even though the terms are frequently used alternately, it is most important to differentiate innovation from restructuring and modification. The majority of the literature defines innovation as the execution not just of new-fangled ideas, knowledge and practices but in addition of enhanced ideas, knowledge and practices (Kostoff, 2003; Mitchell, 2003). Innovation is thus diverse from restructuring or change, which does not essentially mean the application of a little novel, nor do they involve the application of enhanced ideas or information (King and Anderson, 2002). According to Huerta Melchor (2008) reform is only one way of producing a change. It implies a particular approach to solve the difficulties. From time to time, changes in organization are key part of restructuring but other reforms may create small or no modifications. Change may be an intentional or unintentional occurrence, while reform is a structured and mindful procedure of producing change irrespective of its extent. Reforms can arise in political, financial, societal and managerial domains and hold ideas about troubles and solutions and are normally understood as initiative driven as of the peak of a scheme or association.

Why Innovation in Education Matters

Do we always question about innovation in the case of education? Initially all, educational innovations can result in improved knowledge, outcomes and the excellence of education condition. Fresh trends depend a lot on latest ways of organization in schools and the utilization of technological tools. Education is apparent inthe majority countries because resources that fail to enhance fairness and equal opportunities. Innovations could help out improve fairness in the admission to and utilization of learning, as well as fairness in knowledge outcome. Lastly, education is supposed to stay applicable in the face of fast change to humanity and the national economy (Barrett, 1998: 288). The learning division tends to be hypothetical to consequently initiate the changes. It requires to get used to social requirements. For case in point, education field requires to accept teaching, learning or organizational practice that contains advanced “skills for innovation” (Dumont et al., 2010; Schleicher, 2012; Winner et al., 2013).

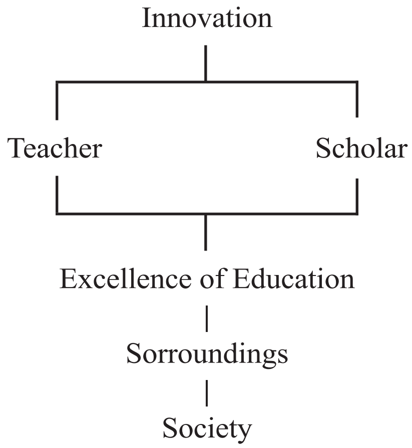
Trend In global Mathematics and Science Study (TIMSS), growth in worldwide Reading Literacy Study (PIRLS) and the OECD survey on Adult Skills point to the requirement for novelty to improve consequences in literacy, numeracy or systematic literacy in many countries. In, amid Corona virus (COVID 19) pandemic, the year 2020 offered a room for innovation intended for teachers and students as they modified unique ways of learning. In 2020, the ed-tech firms happened to witness a vast development. The more than ten-month-long lockdown stimulated education stakeholders to obtain innovative ways of making children study in the biggest possible excellent/ extraordinary way. Many students could not register for the online classes for the reason that they did not have contact to smart phones and computers as they resided in the countryside arena/ villages from corners of the country. From Haryana to Jharkhand to Maharashtra to Kerala, teachers experimented the innovate ways to pass on education to students besides all challenges. The knowledge acted as an enormous enabler to link the space between country and town students.

Barrier to Innovation

Society is very important factor in innovation of education, if the society supports to the innovation inside teaching, the diffusion of innovation can become faster through the igniting role of the opinion leaders or innovators. Thus, the positive catalysts are very crucial this context. “Innovation is linked to creativity, risk-taking, and experimentation” (Brewer Tierney 2012p.15). While we attempt the process of innovation in education, we frequently eliminate its essence i.e. students out of the education. We do not innovate the attributes related to students learning like their mind, attitude, behavior, nature and work morals. Productive innovation in education requires researches that are capable to be accomplished in terms of smartness and utility (Meek, Teichler and Kearney). Unfortunately, innovative skills of teacher are hard to define and be able to barely be in a straight line pragmatic. This is almost certainly the cause why innovative abilities are never calculated.

What is Possible Solution

Educator societal position is one of the determined factors of the educator excellence. “We need to change the role of the teachers. Lack of good measures has severely limited the degree to which market forces can discipline the provision of the educational quality” (Massy, 2012). Teaching requires a burly and well-organized arrangement of knowledge formation and distribution, extended from systematic investigate into teaching and learning, to the additional functional body of knowledge in the education career and information entity in the system. At the same time, as innovation inside education is not the same through the opening of digital technology, innovation plan be supposed to comprise the smart completion and utilization of technology in a methodical manner that jump on to students' potential for improved education and knowledge practice. Efficient innovation strategy in teaching ought to consist of a suitable authority form- identification of the types of agent of change and prospective champions, exploration of the role of stakeholders, tackling pockets of confrontation, and conceiving useful approaches for scale and dissemination of innovations. Communal support intended for modern schooling and building up a novel customs of educational preeminence's together within the education field and about it is dominance intended for its achievement need to be boosted. Innovation can be accessible as a representation of framework of its consequence on the excellence of teaching and learning inside an educational atmosphere which is allowed by experts and social culture.



Conclusion

Indian education system d esperately needs efficient innovation of scale that can help create far above the ground excellence knowledge results across the organization and for each and every student. Through humanizing the effectiveness and excellence of teaching and learning premise and practice as well as the part of the students, teachers, parents, community, the social order and societies' culture be supposed to be the main center of these changes. All technical function can be seen as necessary considering systematic investigation and sound pedagogy to add to competence and decrease probable side effects. So, the solution to a wealthy, inventive society is an all-round approach to renovate the educational field consequently so that it breeds student's self-sufficiency, self-efficiency, critical thinking, and creativity and move on common conventions that maintain innovation in teaching. Rising outstanding subject-based knowledge is certainly significant for aninnovative culture. Development of critical thoughts, inventiveness, and behavioral and social skills should be viewed as a central constituents for schools, colleges and universities.

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Comparative Analysis in Lead Recycling Sector: Gravita India Ltd. vs Nile Ltd.

Akash Navkar, Anita Mali, Deval Gawande,
Swati Ingle and Vaishali Indure

Introduction

India is Asia's largest lead consuming market after China where Growth is largely dependent on the demand from the automotive sector and the industrial sector. That's why in this research we compare top two listed companies from lead recycling sector Gravita ltd and Nile ltd. In this research the main objective is to compare both companies on the basis of their strategies to increase growth rate of company and on other hand to show this sector has the ability to generate many opportunities. In this research, the comparison is not only done on quality data but also on quantitative data like Cash flow ratio and Cash conversion Cycle Ratio of both Companies. Businesses use comparative analysis as a way to identify their competitive positions and operating results over a defined period for the bright future of business. Larger organizations may often comprise the resources to perform financial comparative analysis monthly or quarterly, but it is recommended to perform an annual financial comparison analysis at a minimum waste and maximum use and again recycle it. One of the most effective ways to compare two businesses is to perform a ratio analysis on each company's financial statements. A ratio analysis looks at various numbers in the financial statements such as net profit or total expenses to arrive at a relationship between each number.

Gravita India Ltd

Gravita India limited which is an established lead acid battery recycling company and they are getting ready for lithium-ion battery recycling from electric vehicles. Gravita India Limited is one of the largest lead producers and battery recycling company in India established in the year 1992 at Jaipur. Rajat Agrawal, a first generation entrepreneur, has over 24 years of rich experience in the manufacturing sector. Gravita is anchored by around 250 forward looking professionals and employees more than 1000 people. Gravita, today has diversified into Manufacturing, International Trade, Turnkey Solutions in nonferrous metals, Plastics industry and in Information Technology. It has its offices and plants in India, USA, Singapore, Netherland, Sri Lanka, Ghana, Mozambique, Senegal, Tanzania, Jamaica, Mali, Mauritania, and Nicaragua. The Group at present has 8 Lead smelting facilities in operation, of which, 4 are in Asia and 4 in Africa. Besides, the Group is engaged in the trading of Lead Scrap, ore, concentrates, and battery scrap and allied Lead products globally. The Group also provides technical consultancy and support for the establishment of eco-friendly recycling units. Gravita is managed by a team of high calibre professionals who set their own goals and are committed to providing low cost–high quality Lead and its allied products. The Group is extremely versatile and maintains stringent ethical standards. They are committed to the preservation and protection of our natural resources and the environment. They have the ISO 9001 certification from BVQI (VKAS) and conform very strictly to ISO – 14000 guidelines. 21 years of experience in the Lead industry have made us pioneers in the field.

Nile India Ltd

Incorporated in 1984, Hyderabad-based Nile is promoted by V Ramesh (chairman and managing director). The company commenced commercial glass-lined equipment production in 1987. In 1995, it installed a 2MW wind farm in Ramagiri, Andhra Pradesh. In 1999, it established a non-ferrous division for the secondary manufacture of lead and lead alloys from used batteries and other lead-bearing scrap. The glass-lined equipment division was transferred to De Dietrich Process Systems India Private Limited on 21 June 2012. Lead recycling plants are in Andhra Pradesh, one each in Choutuppal and Tirupati. Early 2000s the lead recycling capacity was 3,000 TPA which currently stands at 82,000 TPA. The windmill division clocks very less revenue. So they will be mostly focusing on lead recycling business. Nile has been able to establish quality conscious clientele consisting of manufactures of lead Acid batteries, PVC stabilizers and Lead-Oxide. Nile's 2MW wind farm is located at Ramagiri, Ananthapur district, Andhra Pradesh.

Literature Review

Shashi Kala, A. Mishra studied "Battery recycling opportunity and challenges in India" and concluded that the battery waste generation and environmental issues may negatively affect India's target to become 100% EV country.

Sandhya Prajapati, studied "Lead Acid Battery Recycling In India" and concluded that to import the lead again and again because recycling is not done in effective way as it should be to utilize the existing lead material.

Hence for the sustainable development of automobile sector in India battery recycling companies are going to play a critical role in the coming years. For this paper we are going to study lead recycling sector in India by doing comparative analysis of two major companies –Gravita India Pvt Ltd and Nile Ltd.

Objectives

1. To compare both companies on qualitative data as well as quantitative data.
2. To compare both companies on basis of SWOT Analysis.
3. To compare both companies on Cash Conversion Cycle and Cash Flow.

Capacity, Production and Products Gravita

Gravita India Ltd, a company engaged in the manufacturing of lead metal, announced today that its step-down subsidiary-Recyclers Ghana Limited, has scaled up the production capacity of its existing lead recycling plant from 12,000 MTPA to 16,200 MTPA. For this expansion, the group had made an investment of Rs 10 Cr. It expects to earn revenue of Rs 200 Cr. in FY22 along with a gross margin of around 15 per cent. Apart from this, owing to a rise in domestic procurement the company has fast-tracked the process of establishing a new unit at Mundra, Gujarat. This establishment is expected to get completed by August 2021. This will help the company in saving the inward and outward logistics cost as the above-mentioned facility is closer to the port. This will bring down the working capital requirement of the company and increase the share of business from overseas market; thereby resulting in higher margins.

1. **Pure Lead Ingot –** Pure Lead Ingot is being produced from Raw Lead Bullion/Re-melted and Secondary Lead Ingots/Lead Scraps through Pyro-metallurgical process. Their refining process produces pure lead ingots with a minimum purity level of 99.97% by weight but achieves purity level of 99.985% in most of cases.
2. **Lead Alloying –** Their alloying plant is capable to produce all kind of Lead Alloys as per the customer requirement like Anti- monial, Calcium, Selenium, Copper, Tin, Arsenic, etc. They have alloying kettle of various capacities ranging from 10–30 tonnes per batch accompanied by high efficiency furnace oil burners equipped with preheating arrangements.
3. **Litharge –** Litharge is a yellowish or reddish, odourless, heavy, earthy, water–insoluble, solid, PbO, used chiefly in the manufacture of Lead Stabilizers, pottery, Lead glass, paints, enamels, and inks. It is also called Lead Monoxide, Lead Oxide, Plumbous Oxide. Other use of Litharge is as intermediate used in a variety of industries like lubricants and greases, insecticides, inorganic pigments, Lead soaps, petroleum refining, rubber and PVC, etc.
4. **Red Lead –** It is bright red to orange–red powder, used in Lead glass, and red pigments; paint made with Red Lead which is commonly used to protect iron and steel from rusting. Chemically, Red Lead is Lead tetra oxide, Pb_3O_4, a water–insoluble compound that is prepared by the oxidation of metallic Lead or of litharge (Lead monoxide); the commercial product sometimes contains litharge as an impurity. It is one of the oldest and most commonly used anti–corrosion pigments applied to metal surfaces.
5. **Lead Sub–Oxide –** It is also commercially known as Grey Oxide/Battery Oxide and is used on an extensive scale for preparation of plates in Lead Acid Batteries which requires production to strict specifications.

Capacity, Production and Products by Nile India

Nile has added some equipment at its Choutuppal Lead recycling plant, and increased the capacity from 22,000 tonnes per annum to 32,000 tons per annum. The company, on February 14, 2017, received consent for operation from Telangana State Pollution Control Board to operate the plant at this increased capacity. The expansion was funded from internal accruals of the company. The total Lead recycling capacity of Nile is now 82,000 tons per annum (50,000 tons at Gajulamandyam and 32,000 tons at Choutuppal).

Nile established its Non-ferrous division with facilities for secondary manufacturing of Lead and Lead Alloys. The first lead recycling plant, with an annual capacity of 32000 TPA, is located at Choutuppal, 60km from Hyderabad, and is equipped with state of the art recycling and testing facilities to ensure product quality. A second, larger, unit with an installed capacity of 65,000 TPA has been established near Quality Management system of Nile's Non-Ferrous division has been assessed and approved in accordance with the requirements of the ISO 9001:2015 with respect to manufacture and supply of lead and lead alloys.

Product Range

Pure Lead 99.97% purity
Lead Antimony alloys
Lead Calcium alloys
Lead Tin alloys
All products are customized to meet specific composition requirements.

Growth Strategy of Gravita

- Procurement
  - ¤ New procurement centres
    - – Latin America
    - – North America
    - – Africa
  - ¤ Strengthen procurement network on Northern and Western India
  - ¤ Setup collection centres in South India
- Sales
  - ¤ LME Brand Registration
  - ¤ Entry in Niche market
  - ¤ Strength the marketing network globally
  - ¤ Enhance market share in domestic territory
  - ¤ Focus on value added and customized products
- Manufacturing
  - ¤ Expand Global
  - ¤ Manufacturing presence
    - – Africa
    - – Lat American
  - ¤ Indian manufacturing Facility Announced in southern India at Chittoor.
  - ¤ Focus on Value Added Product
  - ¤ R&D initiatives for cost reduction
- Diversification

- ¤ Plastic/PET Recycling
- ¤ Aluminium Recycling

Growth Strategy of Nile

- 1987 – Started production of Glass lined equipment.
- 1995 – Started producing pressure vessel, and others.
- 1997 – Received technology from COMBER, Italy
- 1998 – Started exporting to Malaysia, Singapore and China.
- 1999 – Started producing lead recycling Plant in Andhra Pradesh Choutuppal -3000 TPA
- Nile's 2MW wind farm is located at Ramagiri, Ananthapur district, Andhra Pradesh.
- 2005 – Lead recycling plant capacity doubled (6000 TPA)
- 2009 – 2nd plant in Tirupati (capacity) – 20000 TPA
- 2010 – JV (Joint Venture) with Georgia company (sold in 2013)
- 2012 – Tirupati (20000–50000 TPA)
- Glass line division sold to De Dietraich, French company.
- Early 2000s the lead recycling capacity was 3000 TPA which currently stands at 82000 TPA.
- The Operational performance of the company during the financial year 2016-2017, which shows a significant increase in turnover as well as profit.
- This year, the lead division recorded sales of Rs. 57,883 lakhs as against Rs. 42,465 lakhs in the previous year, an increase of 36%.

Growth

- In 2008 – 2012 sales is grown up to 20%
- In 2012 – 2018 the company grows up to 15%
- 2012-2021 it just 7.7%
- Total installed capacity of the lead division from the 32,000 TPA to 62,000 TPA. This capacity expansion is expected to result in a healthy growth in revenues, going forward.

Sales

- LME Brand Registration
- Nile's 80% revenue comes from Amara raja.
- 80% of lead sold to Amara raja 20% to other companies.
- Nile ltd has increased its sales at an annual rate of 16% over last decades.
- SSGR of about 18-25% over the years and growing its sales revenue (growth rate over the 11 years)

Diversification

- Non-ferrous segment
- Pharmaceutical Industry

- With the launch of Nirmalya Extracts, Nile is diversifying into the natural extracts sector to cater to the growing needs of the nutra- ceutical, cosmetic, and food industry.
- Eco-friendly secondary lead Metal.
- Company get to know that the demand for lead is going to be very high that's why the company start expanding its lead division from 1999 to 2021.
- Glass equipment to lead recycling.
- After that the Company only focuses on lead recycling.

CSR Policy

As per CSR Policy of the Company, the Company may engage in any of the activities related to Health, Education, Environment, Sports and Others. The Policy will outline the Company's philosophy and responsibility and lays down the guidelines and mechanism for undertaking socially impactful programs towards welfare and sustainable development of the community. The Company may also collaborate with other companies/trust/societies for undertaking projects or programs or CSR activities in accordance with the provisions, amendments and rules specified in the Act. In addition, it may build CSR capacities of their own personnel as well as their implementing agencies through institutions while complying with respective provisions and amendments, if any, under section 135 Companies Act, 2013. The CSR initiatives of the Company shall focus the areas surrounding its plants, locations or where the Company has its offices.

Measures Already taken by Gravita

At Gravita, CSR key areas of focus are Health, Education & Environment. Gravita is a responsible global Lead manufacturer. The company's responsibility towards the environment is reflected in its primary business objective of recycling which save energy and in turn, helps conserve finite mining resources. Gravita India Limited is offering proper access to medical and other essential healthcare facilities including free medicines across its operation facilities. It is an important aspect of Gravita's social initiatives. Realizing the importance and relevance of education, the Company has adopted a School in Phagi near its plant. Gravita is supporting the children of this school with books, stationary, bags, drinking water bottles and sports kit etc coupled with providing Computers in the Computer Lab of this School. The children are provided with regular medical check-ups as well on regular intervals as mutually decided with school management The company is equally concerned about the environment and has taken many initiatives in this direction like planting of large number of trees, using environment friendly technologies, adopting beautification drive of public parks in Jaipur.

CSR Policy of Nile Limited

The CSR Committee has formulated a CSR Policy indicating the areas in which activities are to be undertaken. As per the Policy, the Company during the year has undertaken the CSR activities in areas of promoting education, making availability of safe drinking water, preventive health care and rural development projects which have benefited the community at large. These projects are in accordance with Schedule VII of the Companies Act, 2013.

Project or Program that have Already taken by Nile Limited

- Contribution for Covid-19 expenses.
- Drinking water and pipe line materials.
- Temple-Construction of toilets and drinking water tank.
- Construction of building for children.
- Baling Press (for Environment Protection)
- Promoting Education.
- Promoting Preventive health care, sanitation and safe drinking water.
- Promoting Education of differently-abled children.

Comparative Ratio Analysis

Ratios Gravita Ltd

	Mar-10	*Mar-11*	*Mar-12*	*Mar-13*	*Mar-14*	*Mar-15*	*Mar-16*	*Mar-17*	*Mar-18*	*Mar-19*	*Mar-20*	*Mar-21*
Debtor Days	36	51	61	40	30	19	25	34	41	28	18	15
Inventory Days	66	42	47	80	57	81	77	77	72	64	75	115
Days Payable	17	7	12	25	7	12	8	10	21	35	29	51
Cash Conversion Cy	**85**	**85**	**96**	**94**	**80**	**88**	**94**	**101**	**91**	**58**	**65**	**80**
Working Capital Days	71	81	105	96	85	108	114	105	97	69	79	86
ROCE %	55%	28%	18%	22%	21%	9%	7%	21%	23%	13%	19%	20%

Ratios Nile Ltd

	Mar-10	*Mar-11*	*Mar-12*	*Mar-13*	*Mar-14*	*Mar-15*	*Mar-16*	*Mar-17*	*Mar-18*	*Mar-19*	*Mar-20*	*Mar-21*
Debtor Days	32	59	26	39	70	19	13	18	53	36	37	57
Inventory Days	180	96	68	45	60	41	28	41	41	67	48	70
Days Payable	93	64	23	14	32	5	2	2	3	2	3	4
Cash Conversion Cy	**120**	**91**	**71**	**70**	**99**	**54**	**40**	**57**	**91**	**101**	**82**	**123**
Working Capital Days	96	81	68	68	93	56	55	51	86	94	82	114
ROCE %	16%	19%	14%	12%	15%	18%	18%	45%	28%	13%	11%	12%

- While comparing both businesses, investors may look at a combination of factors to select the best. If two companies have similar values for return on equity (ROE) and return on assets (ROA), it may be worth investing in the company that has the lowest CCC value. It indicates that the company is able to generate similar returns more quickly.

- And this is the best way to find out which company has better management on basis of CCC. Cash Conversion Cycle (CCC) is a metric that expresses the time (measured in days) it takes for a company to convert its investments in inventory and other resources into cash flows from sales. And now we have done comparative analysis on CCC of two listed companies in lead manufacturing sector.
- Both companies are in growing stage. But Gravita Ltd. Company has greater ratio in cash conversion cycle comparative to Nile Ltd as we shown in above chart.
- As we have seen that Nile had 120 days CCC in 2010 and in 2021 has 123 days CCC and on other side Gravita Ltd. had 85 days CCC in 2010 and in 2021 has 80 days CCC.
- Hence, we can clearly conclude that Gravita Ltd has lowest CCC from 2010 to 2021. Thus, comparing both companies, Gravita Ltd. is on better position. Because it is said that the company having lowest CCC is often the one with superior management.

Balance Sheet of Gravita India Ltd.

Corporate Actions

Mar-10	*Mar-11*	*Mar-12*	*Mar-13*	*Mar-14*	*Mar-15*	*Mar-16*	*Mar-17*	*Mar-18*	*Mar-19*	*Mar-20*	*Mar-21*	*Sep-21*
10	14	14	14	14	14	14	14	14	14	14	14	14
19	64	73	86	98	102	105	136	176	186	211	255	315
21	29	61	75	82	103	99	166	233	250	279	261	323
19	20	18	42	26	31	22	39	70	123	110	196	258
69	**127**	**166**	**217**	**220**	**250**	**240**	**355**	**493**	**573**	**614**	**726**	**910**
14	20	33	44	61	54	54	68	109	137	182	172	169
0	0	1	13	6	6	15	32	24	46	15	13	41
4	31	20	9	0	0	0	0	0	0	0	0	0
52	75	112	150	153	190	170	255	359	390	418	540	699
70	**126**	**166**	**216**	**220**	**250**	**239**	**355**	**492**	**573**	**615**	**725**	**909**

Balance Sheet of Nile Ltd

Corporate Actions

	Mar-10	*Mar-11*	*Mar-12*	*Mar-13*	*Mar-14*	*Mar-15*	*Mar-16*	*Mar-17*	*Mar-18*	*Mar-19*	*Mar-20*	*Mar-21*	*Sep-21*
Share Capital	3	3	3	3	3	3	3	3	3	3	3	3	3
Reserves	25	31	36	54	58	64	70	97	117	129	138	151	164
Borrowings	38	61	66	41	52	31	24	22	61	46	22	51	54
Other Liabilities	36	51	25	17	30	14	12	18	13	11	13	13	12
Total Liabilities	102	146	130	115	143	112	109	140	194	189	176	218	233

Fixed Assets	27	27	46	36	34	34	35	34	34	31	30	38	38
CWIP	1	7	0	0	0	1	1	2	0	1	0	0	1
Investments	1	1	1	0	0	0	0	0	0	0	0	0	1
Other Assets	73	112	83	78	108	78	74	103	161	156	145	179	193
Total Assets	102	147	130	114	142	113	110	139	195	188	175	217	233

Profit and Loss Account of Gravita

Narration	*Mar-12*	*Mar-13*	*Mar-14*	*Mar-15*	*Mar-16*	*Mar-17*	*Mar-18*	*Mar-19*	*Mar-20*	*Mar-21*	*Trailing*	*Best Case*	*Worst Case*
Sales	268.95	25.61%	516.04	500.79	430.27	654.84	1,017.40	1,241.73	1,347.80	1,409.75	1,987.78	1,987.78	1,638.05
Expenses	249.15	8.52%	472.08	480.46	411.85	596.33	925.79	1,179.87	1,239.07	1,294.74	1,804.41	1,804.41	1,521.07
Operating Profit	19.80		43.96	20.33	18.42	58.51	91.61	61.86	108.73	115.01	183.37	183.37	116.98
Other Income	2.78		–3.46	3.77	3.03	1.45	1.59	5.45	–12.24	7.17	3.40	–	–
Depreciation	1.52		6.03	6.36	6.71	5.85	8.69	11.56	18.13	20.30	20.17	20.17	20.17
Interest	2.54	9.09	9.96	10.51	8.78	10.58	20.32	26.16	31.43	30.97	25.99	25.99	25.99
Profit before tax	18.52	27.29	24.51	7.23	5.96	43.53	64.19	29.59	46.93	70.91	140.61	137.21	70.82
Tax	3.27	3.79	2.88	–2.36	0.48	8.38	16.55	10.20	10.35	14.08	14.31	10%	10%
Net profit	15.04	19.04	21.32	6.62	4.37	32.70	44.09	15.49	33.18	52.48	119.40	123.25	63.61
EPS	2.21	2.80	3.13	0.97	0.64	4.77	6.42	2.25	4.81	7.61	17.29	17.85	9.21
Price to earning	60.46	10.77	11.10	37.45	38.11	10.67	24.28	35.99	6.96	11.90	21.98	21.98	18.63
Price	133.53	30.10	34.70	36.30	24.35	50.95	155.85	81.15	33.45	90.50	380.10	392.34	171.66
Ratios:													
Dividend Payout	36.24%	28.62%		20.54%	31.35%	12.57%	10.91%	13.30%	14.56%	14.48%			
OPM	7.36%	8.93%		4.06%	4.28%	8.94%	9.00%	4.98%	8.07%	8.16%	9.22%		
Trends:		*10 Years*		*7 Years*		*5 Years*		*3 Years*		*Years*		*Best*	*Worst*
Sales Growth		20.21%		15.44%		26.79%		11.49%		41.00%		41.00%	11.49%
OPM		7.37%		7.19%		7.68%		7.14%		9.22%		9.22%	7.14%
Price to Earning		24.52		23.42		18.63		19.21		21.98		21.98	18.63

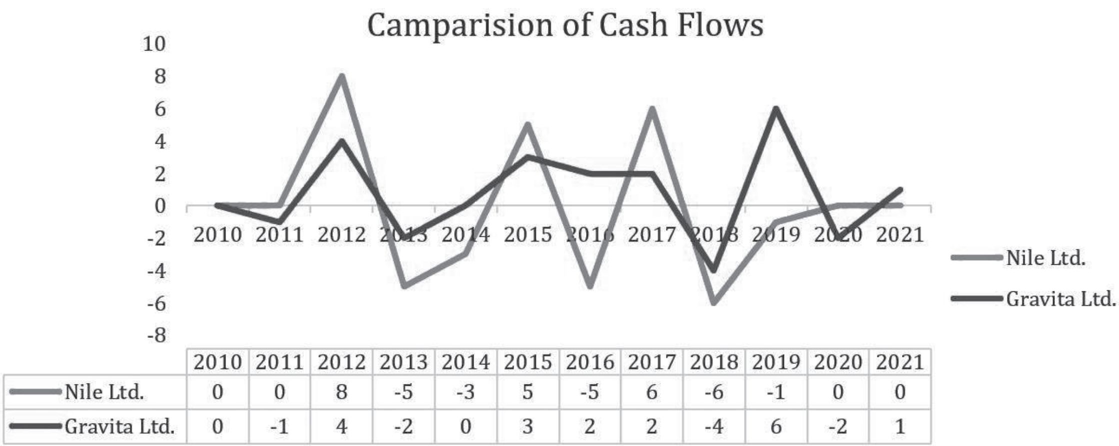
Profit and Loss Account of Nile

	Mar-10	*Mar-11*	*Mar-12*	*Mar-13*	*Mar-14*	*Mar-15*	*Mar-16*	*Mar-17*	*Mar-18*	*Mar-19*	*Mar-20*	*Mar-21*	*TTM*
Sales +	145	254	275	258	277	386	425	579	633	571	593	536	710
Expenses +	134	240	261	258	260	369	406	527	587	544	571	511	669
Operating Profit	11	14	13	0	17	17	19	52	46	27	21	25	41
OPM %	8%	5%	5%	0%	6%	4%	4%	9%	7%	5%	4%	5%	6%
Other Income	1	2	2	31	2	6	3	1	1	1	0	0	0
Interest	5	5	6	5	7	7	7	9	7	5	5	3	4

Depreciation	2	1	1	3	3	3	3	3	4	4	4	4	4
Profit before tax	5	10	8	22	8	12	11	40	35	19	14	19	34
Tax %	33%	26%	29%	12%	38%	33%	37%	35%	35%	35%	19%	26%	
Net Profit	3	7	6	20	5	8	7	26	23	13	11	14	25
EPS in Rs	10.79	23.88	18.89	65.92	17.36	27.05	23.52	87.68	76.78	41.67	36.41	45.87	82.71
Dividend Payout %	9%	8%	11%	3%	17%	11%	13%	3%	7%	7%	3%	2%	

Cash Flows Statement

	Mar-10	*Mar-11*	*Mar-12*	*Mar-13*	*Mar-14*	*Mar-15*	*Mar-16*	*Mar-17*	*Mar-18*	*Mar-19*	*Mar-20*	*Mar-21*
Cash Flows Nile Ltd												
Cash from Operating	4	–4	22	17	–6	38	15	21	9	7	13	18
Cash from Investing	–2	–12	–11	10	–1	–5	–4	–5	–1	–2	–1	–11
Cash from Financing	–3	17	–4	–31	4	–28	–16	–10	–14	–6	–11	–7
Net Cash Flow	0	0	8	–5	–3	5	–5	6	–6	–1	0	0
Cash Flows Gravita Ltd												
Cash from Operating	–14	–13	–14	19	19	0	29	1	–3	89	34	77
Cash from Investing	–5	–35	–3	–11	–8	–2	–10	–49	–42	–66	–14	–19
Cash from Financing	10	47	21	–10	–10	6	–17	49	40	–17	–21	–57
Net Cash Flow	0	–1	4	–2	0	3	2	2	–4	6	–2	1



While comparing both companies, Gravita India Ltd and Nile Ltd, we conclude that Gravita Ltd was having 4, 6, -2,1 net cash flow in 2018, 2019, 2020, 2021 respectively and Nile Ltd having -6, -1, 0, 0 in last 4 years 2018, 2019, 2020, 2021 respectively. It is said that ratio of one or greater than 1.0 is preferred by investors, creditors and analysts, as it means a company can cover its current short-term liabilities and still have earning left over.

Swot Analysis of Gravita India Limited

SWOT Analysis of Gravita India by EMBA PRO includes the four key elements – Strengths, Weaknesses, Opportunities, & Threats. The strengths and weaknesses address the internal factors of the company, opportunities and threats are the macro challenges that Gravita India is facing in India and other international markets that it operates in.

SWOT Analysis is a strategic methodology to analysis the Strengths & Weaknesses that Gravita India possess, and Opportunities & Threats that the company faces because of competitive and macro-economic factors prevalent in India.

Strengths of Gravita India Limited

- Modern Environment Friendly Recycling Facilities with high process and operational efficiencies Versatile Product mix
- Diversified Product & Geography – Plastic, Aluminium recycling, lead recycling
- Back to Back Hedging Policy
- Track record of innovation - Even though most players in the Basic Materials strive to innovate, Gravita India has successful record at consumer driven innovation.
- Deep Routed collection network.
- Wide geographic presence - Gravita India has extensive dealer network and associate network that not only help in delivering efficient services to the customers but also help in managing competitive challenges in Metal Mining industry.
- Global Access to Raw Material
- Strong Branding
- Brand catering to different customers segments within Metal Mining Segment – Gravita India extensive product offerings have helped the company to penetrate different customer segments in Metal Mining segment. It has also helped the organization to diversify revenue streams.
- Success of new product mix – Gravita India provides exhaustive product mix options to its customers. It helps the company in catering to various customers segments in the Metal Mining industry.
- First mover advantage in the increasingly crowded market place – The new products are rapidly increasing Gravita India market share in the Metal Mining industry.
- High margins compared to Metal Mining industry's competitors – Even though Gravita India is facing downward pressure on profitability, compared to competitors.
- Multi-decade relationships along with approval products with several reputed global customers Professional and dedicated team with longstanding industry experience

Weaknesses of Gravita India Limited

- High turnover of employees at the lower levels is also a concern for the Gravita India. It can lead to higher salaries to maintain the talent within the firm.

- High cost of replacing existing experts within the Gravita India: Few employees are responsible for the Gravita India's knowledge base and replacing them will be extremely difficult in the present conditions.
- Loyalty among suppliers is low: Given the history of Gravita India coming up with new innovations to drive down prices in the supply chain.
- Low investments into Gravita India's customer oriented services: This can lead to competitors gaining advantage in near future. Gravita India needs to increase investment into research and development especially in customer services oriented applications.
- Declining per unit revenue for Gravita India: Competitiveness in the Metal Mining industry is putting downward pressure on the profitability. A starting guide to manage this situation for company name is – objectively assessing the present value propositions of the various products.
- Declining market share of Gravita India with increasing revenues: The Metal Mining industry is growing faster than the company. In such a scenario Gravita India has to carefully analyse the various trends within the Basic Materials sector and figure out what it needs to do to drive future growth.

Opportunities for Gravita India

- Increased demand of Lead Batteries in the Auto, Telecom and Power sectors.
- Depletion of mining resources, increasing the demand for secondary source.
- Increase in Government focus on strict regulatory compliance to control unorganized or backyard smelters.
- Enhancement of product portfolio as well as venturing into new geographies.
- Trend of customers migrating to higher end products - It represents great opportunity for Gravita India, as the firm has strong brand recognition in the premium segment, customers have experience with excellent customer services provided by Gravita India brands in the lower segment. It can be a win-win for the company and provides an opportunity to increase the profitability.
- Increasing customer base in lower segments: As customers have to migrate from un-organized operators in the Basic Materials industry to licensed players. It will provide Gravita India an opportunity to penetrate entry level market with a no-frill offering.
- Increasing government regulations are making it difficult for un-organized players to operate in the Metal Mining industry. This can provide Gravita India an opportunity to increase the customer base.
- Accelerated technological innovations and advances are improving industrial productivity, allowing suppliers to manufacture vast array of products and services. This can help Gravita India to significantly venture into adjacent products.
- Lowering of the cost of new product launches through third party retail partners and dedicated social network. Gravita India can use the emerging trend to start small before scaling up after initial success of a new product.

Threats to Gravita India

- Threats are factors that can be potential dangers to the firm's business models because of changes in macroeconomic factors and changing consumer perceptions. Threats can be managed but not controlled.
- Hazardous Industry.
- Volatile Metal prices.
- Saturation in urban market and stagnation in the rural markets - For Gravita India, this trend is an ongoing challenge in the Metal Mining segment. One of the reasons is that the adoption of products is slow in rural market. Secondly it is more costly for Gravita India to serve the rural customers than urban customers given the vast distances and lack of infrastructure.
- Competition from local unorganized sector.
- Shortage of skilled human resources: Given the high turnover of employees and increasing dependence on innovative solution, company name can face skilled human resources challenges in the near future.
- Changing political environment with US and China trade war, Brexit impacting European Union, and overall instability in the Middle East can impact Gravita India business both in local market and in international market.
- Distrust of institutions and increasing threat of legal actions for Gravita India -
- As the WTO regulations and laws are difficult to enforce in various markets, legal procedures have become expensive and long drawn process. It can lead to less investment into emerging markets by Gravita India thus resulting in slower growth.
- Poor monitoring of environmental regulations in Countries.
- Trade relation between US and China can affect Gravita India growth plans-
- This can lead to full scale trade war which can hamper the potential of Gravita India to expand operations in China.
- Changing demographics: As the baby boomers are retiring and new generation is finding hard to replace their purchasing power, this can lead to higher profits in the short run for Gravita India but reducing margins over the long run as young people are less brand loyal and more open to experimentation.

SWOT Analysis of Nile Limited

Strengths of Nile Limited

- Nile has been able to establish a quality conscious clientele consisting of Lead Acid Battery manufacturers as well as PVC stabilizers and Lead Oxide Manufacturers.
- All their products are customized to meet specific composition requirements. The expansion of storage Facilities, and debottlenecking of materials movement, at the Tirupati plant are completed, and operations have become smoother as result.
- The company is equipped with state of the art recycling and testing facilities to ensure product quality.

- The company also plans to extend the wind power purchase agreement with the Andhra Pradesh Power Coordination Committee. If the agreement is not extended, the wind power will be used for the Tirupati plant.
- Nile has emerged as a leader in achieving customer satisfaction by delivering quality products, with a fervent desire to convert every customer relationship into a prospective partnership.
- With strong technical qualification and vast experience of the management in the industry, Nile has established itself as a leading player in secondary lead manufacturing having reputed client base in India

Weakness of Nile Limited

- Declining margins
- High costs of raw materials.

Opportunities for Nile Limited

- Nile limited is actively looking for diversification opportunities.
- The company has narrowed its search for diversification opportunities, and should be ready to finalize on appropriate project soon.
- The demand for lead and lead alloys continues to be strong.
- In the short term, the demand for lead continues to be robust.
- Lithium-ion batteries are expected to be available in gradually increasing quantities over the next decade.
- Nile Ltd, through Nile Li-Cycle is gearing up to recycle these.

Threats of Nile Limited

- The long-term threat to the recycling business is the anticipated shift to electric vehicles.
- Margins are under pressure.
- Raw material availability is becoming a cause for concern because Cargo movement is curtailed due to Covid-19. The company is looking at all the avenues for sources of raw materials.
- Man Power cost is on rise significantly due to the reduction in availability of migrant manpower.

Hence it can be concluded that for the sustainable development of automobile sector in India, battery recycling companies are going to play a critical role in the coming years.

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Life Management in India during Covid-19 Period – A Study

Wechansing Z. Suliya and Ku. Madhuri Chandwani

Abstract: *World has experienced the disaster of Covid-19. This Paper is having exploration and description about various situations faced by societies during pandemic. World has managed learning online/ (digital learning) and has made use of new platform for future. 'Work from home' concept became popular due to Covid-19 and will extend for selected companies in future. Food business is backbone of economy and faced and overcame many challenges. Digital learning will assist global learning for all. People became health conscious after Covid-19 and the concept of washing hands and sanitization culture made its place in society. Businesses have faced many challenges like stoppage, absence of raw material etc. during lockdown. Government of India ignored growth of economy and focused on health management even when growth went in negative mode. World has learned many things though disaster and got recovered.*

Keywords: Exploration, Digital Learning, Work from Home, Sanitization

Introduction

Lockdown of Covid-19 is the past but the situations which world faced were challenging and alarming. Everyone was behaving like soldier and exit home with preparation for fighting with Corona. Schools were closed and students were in home for almost one month, without study. Lockdown of Covid-19 and online classes have strong relations. The era of online study started from this lockdown and students were enjoying classes from home. Online interaction was good in one sense which does not need to move outside and which reduced cost of movements for all but weaknesses were also there.

The Oxygen Cylinder

There was one term 'Oxygen cylinder' required for Corona patients and second form of oxygen required (entertainment) to people who were consuming time at home. Entertainment was going on through TV and Mobile. The big catalyst of entertainment is social media like TikTok and YouTube. Internet service provider also had blessings through not increasing in charges during lockdown. Almost 50% population of India was using internet and its use is increasing. Ways of using internet were online classes, entertainment and working from home.

Food Supply Management

Rural people were busy in farming and daily routine. There is one big business in the world which have growth is food business. Vegetables, fruits and grains have continuous requirement for growing population. Food is treated as valuable at any time and place. This is going to be eternal. Government should focus on quality food production for better health of population. Almost Every business was stopped other than food business. Cities were performing better due to availability of transportation facilities for vegetables and fruits. But because of absence of 'weekly bazaar' in villages, villager faced many problems.

Mental Health

Each bad situation affects mental health so, Covid-19 also affected. Physical health can be recovered with medicines but mental health needs proper environment, treatment and emotional support. People were mentally imbalanced and suffered with psychological diseases. The fear was the one reason for improper mental health which was high from March 2020 to June 2020. The movements at hospital were at high level and doctors also paid their life for service of the society.

Physical Health

It is also observed that Physical health was sound due to continuous rest and washing of hands. 'Washing hands' has its significant impact and importance 'World health Organization' (WHO) declared 'hand wash day' once in a year. 'Hand wash day' is not since emergence of Covid-19; but much before Covid-19. People have accepted the tradition of washing hands. It is observed that other normal complaints related to health were less during Covid-19. Reasons might be rest, washing hands, family gathering, relationship, interactions of thoughts.

Work from Home

The working class also faced problems which had manual work at workplace. People in production area also experienced empty hands at home but people who were working in IT did well from Home. 'Work from the Home' is the old concept but it got rejuvenated in pandemic situations. Companies are offering 'Work from home' to employees. There are significant impacts of working from home; such as saving office space, electricity, saving transportation cost and lesser fatigue during movements. Work from home had some negative impacts such as obesity and diabetes during pandemic.

Digital Learning

During pandemic, online class was the new term for many people and they were familiar almost after two months of its use. Small kids are interested in mobile due to its nature and specifications. Kids could directly see cartoons, pictures, and videos in mobile. It is also observed that, kids linked with online classes with indirect motivation for cartoons, picture and games in mobile. Addiction of mobile to kids is one bitter outcome of mobile. Rural people were unaware about online classes and rural education was in danger zone. Rural people had mobiles but they could not handle many technical software and methodology for joining online classes. Old people were also busy in entertainment through mobile and TV.

The situation was difficult for people who were living in city because of environment and sticking in homes.

Offline Learning

According to research, online learning has good experience but offline interaction has its own beauty and effect. In offline learning, communication with eye contacts can work better and can increase understanding in learners. Online teaching is comfortable but teachers want to see satisfaction in student's eyes which is lacking in online interaction. Learning is not only activity but it vibrates the minds for improvements in thoughts and feeling. Active interaction was less in online learning. This resulted into slow development of students.

There are major 3 types of learners; visual, auditory and kinesthetic. Visual learners learn through video, images and body language of teachers and also learn through photos, scenes and visual presentation. Auditory learner learns through music, voice of teacher or trainers and music in video but as kinesthetic learners learn through actions and actions had limitations during lockdown so, kinesthetic learners faced problems in leaning things and work. Practical and on job learning was lacking during pandemic.

Concept of Digital University

There is continuous change in the world. According to change in styles of learning; styles of teaching should change. According to the demand of majority in world, nature of training should change so; Government of India also declared in budget on 1st Feb 2022, launching fund for 'digital university' in India. People also interested in online learning and training so online learning will have great future. Internet is improving its space through services and speed and there is significant impact of online leaning so it will surely grow in future.

The Digital Platforms

According to observations and experiences, scope of online learning will have great future and some international platform is serving as trainer. Udemy, Upgrad, Edx, Byju's, Vedantu and New Online School etc. are the players in online teaching market. Government of India also had initiatives and started SWAYAM portal. SWAYAM portal is covering almost all courses in general, at graduation and Post-graduation level.

The Concept of Flexible Learning

The significant impact of online learning in many organization along with Government of India has launched many courses through which, students had cleared concepts which were not cleared during classroom teaching. Internet is the great medium for learning and which is available anytime to learner. The concept of flexible learning leads digital learning in the world. Learning becomes very easy which will affect offline teaching in future. The skills development's movement of Government of India can be achieved through digital learning.

Flexible learning has its own importance which leads learning anywhere and anytime. Working people can get benefitted of this and can learn forever through digital learning. Housewives and working women are comfortable with digital learning and they can start new business at home though online training. So, ‘Traditional learning’ would be the old concept which may be replaced by ‘flexible learning’. Traditional learning has it importance but ‘Online learning’ alternative became popular due to situation of pandemic.

Due to digital learning, knowledge is near to fingertips and everyone has freedom to use. Paying fees for learning skills was the tradition but digital learning will reduce the cost of learning in future. E-books, PDF books and videos are easily available on internet through website and social media so people will be aware about updated knowledge and information through digital learning. E-books replaced heavy books and many e-books can easily be stored now in mobile which is affordable and comfortable to modern learners.

Global Learning

World is nearer and one can contact to other people though calling and video calling. Global learning is new concept through which international teachers and students can connect with each other. Google Meet, Microsoft team app and Zoom App are popular for online meeting and class. One day, International University may start online course and students will not move to foreign for offline leaning; will learn everything from computer window. Research is the action for betterment and each country should do research in all angles. Research is going in world on technology and methodology. Global learning will have bright future for inculcating global knowledge, which will directly improve the world.

Online learning has many technical challenges but they would be solved after arrival of 5G technology in the world. The demand of online learning will increase from rural area. Due to this, it will definitely grow in future. Villagers are also aware about social media and smart-phones will help for better digital learning. Lockdown of Covid-19 taught about what to learn and how to learn. Digital learning is cheaper as compared to offline learning and this is one alternative and may increase its arena in future for working people. Rural India can take more benefit of digital learning as teachers are less in rural India.

In production industry, most workers were from rural region and due to their migration and lockdown, industries took a halt. Other than food industry all other industries stopped their working. Unemployed manpower was happy at their homes. During pandemic no one was talking about unemployment and inflation; everyone was busy is precaution and self-protection. Each one was living in silence at home. Vegetable and fruit markets were stable and scattered in whole city as a reason of social distancing. New location of market started in some cities due to situation of pandemic; which is now running like a regular market after lockdown which locate new small entrepreneurs in urban market.

Agriculture sector was good and running as usual. Only supply of pesticides and seeds were less due to lockdown and limitations in transportation. Farmers were working and supplying vegetables to urban region for earning and fulfilling demand of urban India. Urban India was wholly depending upon rural India in sense of provision of food and vegetables. Income of passenger-railway was blocked, only goods carriers were working. Railway faced great loss during pandemic. Transportation of goods was regular for fulfilling the need of population. Government of India distributes free grains to poor people in urban area. There was also great loss to Government in industry sectors. According to sources, GDP growth of India was in negative mode. The Indian government focused more on saving people instead of saving economy.

Conclusions

World has managed all situations by taking efforts in the field of public administration and health management, during pandemic. Media had the important role for instructing public about hygiene and cleanliness. Telecommunication companies also appealed the masses and projected instructions in dialer tones. Celebrities also had great role in public awareness. All online platforms such as Google Meet, Zoom, Microsoft teams etc. create impact in online and digital education. Food items were sufficient due to movements of transportation vehicles and farmers in farming. New businesses and startups were launched as per the needs, in the service of public. Finally it is concluded that world is ready and 'up to date' to face new same pandemic situations in future with the weapon of vaccines.

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