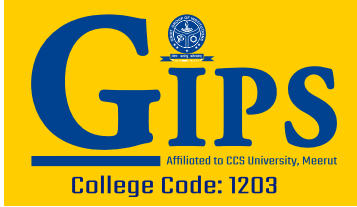


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Innovation in Technology & Management for Sustainable Future

National Conference on

Innovation in Technology & Management for Sustainable Future

ITMSF-2023



29 April 2023,
Saturday

Editors

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Reverence to our Founder Chairman



Late Shri Krishan Lal Gupta

18/02/1961 to 02/01/2017

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OF
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Preface

The National Conference on Innovation in Technology and Management for Sustainable Future ITMSF-2023 envisions to facilitate the creation of an enriching platform for the researchers, academicians, industry professionals, and budding students, globally to present and thereby comprehensively articulate innovative research ideas, by stimulating an intellectual environment incorporating collaborative endeavours. The ITMSF-2023 is a novel attempt by GIPS to encourage presentation of myriad ideas on diverse themes such as emerging technologies and innovation in the field of Computer Science, Commerce and Management. The overall objective of the conference is to create innovative know how and refurbishing existing technologies for sustainable development and brainstorm future solutions to devise a hybrid approach in decision making processes while creating technology-oriented business, strengthened by R&D and innovation management, new business/product development strategy as well as technology procurement and management eventually.

Inviting papers on varied yet extremely relevant themes, ITMSF-2023 has comprehensively judged different papers on originality of the idea, presentation, relevance, quality of work and ultimate value addition in the vast field of knowledge. Post formal process of peer review, and scrutinizing the editorial board has finally selected most relevant papers to be a part of this volume, which are undoubtedly going to pave way towards exploring new dimensions in research.

We want to take this opportunity to extend our gratitude towards Dr. Rajesh Kumar Gupta-Chief Patron, Gaurav Gupta-Patron, Prof. (Dr.) Savita Mohan-Conference Chair, and all the members of the organising committee who have worked tirelessly to make this conference happen. We would also like to thank all the revered authors for showing trust and faith in us to craft this publication with their valuable research papers which culminated into the success of the conference.

We are extremely obliged to all the members of the advisory committee whose technical knowledge, prudence and guidance has been extremely path breaking and imperative for the purpose of execution of all the related proceedings. We also thank the Intuitions innovation council (Ministry of HRD initiative) for curating a platform like this conference for presentation of innovative ideas which are sure to make constructive contribution in future decision-making processes. We extend our earnest gratitude towards all those who have made this conference a success.

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The Emerging Era of Quantum Computing in Medicare

Sambndam Thirugnana

Amity Institute of Information Technology, Amity University, Noida

Abstract

The emerging technology of quantum computing uses the principles of quantum mechanics to solve complex issues that are hard to solve by conventional computers. The studies made in recent times on the application of quantum computing in healthcare have shown how this fascinating and quickly developing field has the potential to revolutionise healthcare. In this paper, the study presented will focus on Quantum Computing working in the field of medical imaging, Precision Medicine, Genomics, Cryptography and Health Data Security. With greater accuracy than conventional computers, quantum computing can simulate the behaviour of atoms and molecules, facilitating the quicker and more effective development of novel drugs. Additionally, it can be used to analyse genomic data and forecast the side effects of medications. The key focus of this paper is to highlight the impact that quantum computing can have on healthcare. It aims to provide medicine and public health initiatives with a more elaborated and definite approach. Quantum Computing is still in its initial phase of development, and assembling a practical and expandable quantum computer remains a notable challenge. To conquer these challenges and fully use the capacity of quantum computing, researchers strive to build new hardware, software, and algorithms.

Keywords: Quantum Computing, Medicine, Data Security, Genomics, Cryptograph

I. Introduction

A rapidly developing area of technology called quantum computing has the power to completely alter how humans process information. Quantum computers are using quantum bits or qubits. They are available in several states simultaneously and significantly allow for quicker and more complicated computations than classical computers. Classical computers use bits that can only be in one state at a time (either 0 or 1) [1]. Although, this technology is still in its beginning stage, has already shown some signs in a variety of applications alike from drug discovery to cryptography.

Medical research and healthcare are two of the most prominent areas where quantum computing is likely to have a substantial influence. The application of quantum computing in medical imaging, precision medicine, genomics, cryptography, and health data security have the possibility to transform how we identify and treat illnesses, safeguard private medical information, and make them curative. Quantum computers have the capability to scan and evaluate massive data sets of imaging data far more efficiently and precisely than conventional computers in the field of medical imaging [2]. This may result in timely and more accurate diagnoses as well as the creation of more potent treatment strategies.

Quantum computing can be used in precision medicine to analyse vast volumes of genetic data and find certain genetic changes that may be the cause of diseases. This may result in more individualised treatment strategies that are created based on each patient's particular genetic profile [5]. Quantum computing in genomics can aid researchers in comprehending the intricate relationships between genes and environmental variables that

lead to the onset of some diseases. This could result in the creation of fresh therapies and treatments that focus on these relationships. Quantum computing has the potential to produce new levels of security that are nearly impossible to break in cryptography and health data security. This is because hackers will find it much harder to intercept or steal private medical data because of quantum computers' ability to transmit and store data using quantum encryption [11]. Considering the vast potential applications of quantum computing in medical research and healthcare, the possibilities are endless. Due to the constant development of this ever-growing field, it has the potential to change the current approaches taken for medical research. This leads to more accurate diagnoses, personalized treatments as well as a more secure healthcare system [7].

The study gives a general overview of the current state of quantum computing. It investigates its potential Medicare applications and highlights the difficulties and moral issues surrounding its adoption. Additionally, it discusses how quantum computing can alter the outlook of healthcare in the future.

The paper is divided into 6 sections. Section 2 presents the literature review related to the domain. Section 3 discusses the impact of quantum computing the sector of Medicare. The implementation of quantum computing in Medicare faces many challenges which is presented in Section 4. Further, Section 5, talks about future and application of quantum computing in the domain followed by conclusion in Section 6.

II. Literature Review

A fast-growing technology called quantum computing has the power to completely alter multiple aspects of healthcare. Quantum computing enables computations that are not possible on classical computers by utilizing quantum-mechanical phenomena like superposition and entanglement [15]. Recent research has shown drug discovery could be improved and cost-effectively reduced due to quantum computing. Finding substances that bind to a particular target protein with high affinity and specificity is one of the most challenging tasks in drug discovery. The intricate behaviour of molecules can be difficult to simulate using traditional computers, which makes it challenging to forecast the efficacy and safety of possible medication candidates. Contrarily, quantum computing is more accurate and effective at simulating molecular behaviour than traditional computing. This increases the possibility of discovering efficient and secure chemicals by enabling the search for therapeutic candidates in a considerably bigger chemical space. Moreover, uses of quantum computing to optimize medicine doses, and predicting drug interaction. Another field where quantum computing may have a big impact is genomics. Analysing huge genetic data sets is one of the genomics' most difficult tasks. The slow and inaccurate analysis of massive datasets by conventional computers can cause delays in diagnosis and treatment. Genome analysis might be completed in lesser time than it takes, thanks to quantum computing superior ability to analyse massive genetic data sets. This might result in more rapid and precise genetic illness detection and more individualized treatment regimens [10]. A further area where quantum computing can have a big influence is medical imaging. Large databases of images generated by medical imaging must be reliably and promptly analysed. The inability of traditional computers to fully analyse big datasets can cause delays in diagnosis and treatment. Large datasets of medical images can be analysed more quickly and effectively by quantum computing than by classical computers, which permits the detection of small alterations in the images that could otherwise go undetected. This might result in more precise diagnosis and treatment of diseases like cancer as well as early detection of those diseases. Numerous aspects of healthcare, including drug development, genetics, and medical imaging, could be revolutionised by quantum computing [14]. Even while quantum computing is still in its

infancy, it is obvious that technology has the potential to greatly enhance healthcare outcomes while speeding up and lowering the cost of providing treatment. Future developments in quantum computing research are likely to result in even more healthcare-related uses for this technology.

III. Impact of Quantum Computing in Medicare

In this section we will be focusing on the impact of Quantum Computing in various domains of healthcare such as:

- **Medical imaging**

All diagnostic and therapeutic investigations and treatments carried out in a conventional radiology department fall under the category of medical imaging. It comprises many imaging techniques used to monitor the human body for diagnostic, therapeutic, and follow-up purposes, and it is essential in advancing public health for all demographic groups [6]. It includes:

- X-rays
- Magnetic resonance imaging (MRI)
- Ultrasound (US)
- Computed Tomography (CT)
- Nuclear Medicine
- Optical Imaging

Each of these techniques has its own pros and cons and is most effective for particular medical situations. Several new technologies and techniques are being developed in the fast-developing field of medical imaging. It helps in assisting, increasing the efficiency of healthcare delivery, improving diagnostic accuracy, and lowering radiation exposure and patient pain. Medical imaging is an essential part of modern healthcare, has completely changed how we identify and treat illnesses.

Medical imaging may advance substantially because of quantum computing's potential for exponentially quicker processing and increased accuracy in some types of analyses. Image reconstruction is one application of quantum computing in medical imaging [2]. Reconstructing a three-dimensional image from two-dimensional images is a difficult technique in reconstruction.

Machine learning algorithms used to analyse medical images may benefit from optimisation and speedup provided by quantum computing. This may result in a more effective use of computing power as well as a quicker and more precise interpretation of medical data.

- **Precision Medicine**

A technique of medicine, that uses genomic or protein information to prevent, diagnose, or treat disease. Precision medicine in cancer uses specific information about a person's tumour to aid in diagnosis. It is patient-centered care. Quantum computers could unlock value from massive healthcare data lakes. The integration of precision medicine and quantum computing can perform wonders in the following fields:

- New personalized drug or therapy development.
- Revolutionary clinical decision support systems.
- Insilco clinical trials based on distinctive genetic makeup.
- Predictive health optimization based on population genomics.

Quantum computing stores information in qubits and uses a unique methodology based on quantum physics that is fundamentally different from traditional calculation methodologies. This computational technique enables much faster processing than regular ones [3]. It seeks to deliver unparalleled skills for comprehending complicated biological systems, forecasting disease outcomes, and developing highly focused and successful treatment approaches. The future of precision medicine appears to be brighter than ever. There has been a significant increase in customized medicine applications or medical devices, novel gene therapies, and new tailored drugs produced for congenital illnesses or autoimmune diseases.

In short, quantum computing has the potential to advance precision medicine by improving drug discovery, enhancing genomic analysis, refining treatment plans, enabling individualized design and analysis, and improving data security. As quantum computing advances, it may pave the path for more precise and individualized medical therapies that benefit patients immensely.

- **Genomics**

By enabling the effective analysis and processing of massive volumes of genetic material, quantum computing has the potential to revolutionise genomics. Quantum computing offers a faster and more precise alternative to conventional DNA sequencing methods, which can be laborious and prone to errors. Qubits enable quantum computers to carry out calculations that are not feasible for classical computers, enabling more effective sequencing and better genetic data interpretation [4].

The analysis of gene expression is one of the most important uses of quantum computing in genomics. Researchers can learn more about protein interactions and find fresh targets for drug development by mimicking the expression of genes at the quantum level. This might have a significant effect on biotechnology, agriculture, and medicine, allowing for more individualised and efficient therapies [10]. Before quantum computing can significantly influence genetics, nevertheless, there are still several formidable obstacles that need to be overcome. Practical quantum computers that can be used for extensive sequencing and analysis are still being developed, as the technology is still in its infancy. Additionally, it is difficult for researchers to fully realise the potential of quantum computing because the knowledge required to run and use it is still scarce [17].

In short, quantum computing has enormous promise for the study of genomics by providing a quicker and more accurate method of processing and analysing vast amounts of genetic material. The use of quantum computing in genomics has a promising future, despite considerable technical and practical obstacles to be overcome. Quantum computing has the potential to fundamentally alter how we approach genetic analysis and personalised medicine with more study and development.

- **Cryptography and Health Data Security**

Cryptography performs the application of securing information through various techniques such as encryption, decryption, and key management. It is practised in the field of health data security to safeguard sensitive data including patient records, diagnosis, and treatment plans [18]. Quantum Computing manipulates data according to the laws of quantum physics. The security of health data is at jeopardy as supercomputers have the potential to overcome standard cryptography techniques. Patient data is confidential and must be secured from illegal access or disclosure, thus health data security is a major problem in the healthcare industry. With the introduction of quantum computing, standard

encryption approaches used to safeguard health data may become vulnerable to cyber attacks [19].

To overcome this difficulty, researchers are looking at novel cryptography methods that are resistant to attacks from quantum computers. Post-quantum cryptography is one such method that makes use of mathematical puzzles that are thought to be challenging for both conventional and quantum computers to solve. These approaches are intended to guarantee that the security of the health data will not be compromised even if a quantum computer manages to defeat conventional encryption techniques. Overall, maintaining the security of health data is crucial, and the healthcare sector must keep up with the most recent developments in quantum computing and cryptography to do so. The summary of different domains in healthcare influenced by quantum computing is presented in Table 1.

Table 1: Impact of Quantum Computing in various domains

Ref. No.	Domain	Impact
[6], [2]	Medical imaging	<ol style="list-style-type: none"> 1) Through quantum computing, doctors can get more accurate and individualized diagnoses and treatments. 2) Rapid and reliable medical image analysis could result from its capacity to handle enormous amounts of data. 3) It carries out complex procedures simultaneously, thereby improving patient outcomes.
[3]	Precision Medicine	<ol style="list-style-type: none"> 1) It analyses enormous volumes of patient data to find individualised treatments and personalised medicine. 2) Patients' outcomes and quality of life may improve as a result of more accurate medication development, customised treatments, and improved sickness prediction. 3) Each patient gets individualised and targeted medication.
[10], [17]	Genomics	<ol style="list-style-type: none"> 1) The ability of quantum computing to analyse enormous volumes of genetic material more quickly and precisely than traditional computers has the potential to revolutionise genomics research. 2) Large datasets and complicated algorithms might be handled by it. 3) This results in more thorough genomic analyses and the creation of novel treatments for genetic illnesses as well as personalised medicine.

[18], [19]	Cryptography and Health Data Security	<ol style="list-style-type: none"> 1) Sensitive health data can be safely protected using untraceable cryptographic methods that could be made possible by quantum computing. 2) Chance of data breaches is reduced by preventing unauthorised access. 3) Its capacity to efficiently factor big numbers and execute complex computations might dramatically improve the security and privacy of health records and communication systems.
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IV. Challenges of Quantum Computing in Medicare

Healthcare is one of the many industries that quantum computing has the potential to revolutionise. Quantum computing can significantly advance our understanding of biological processes and aid in the creation of new illness treatments due to its unmatched capacity for processing massive quantities of data and performing intricate calculations. Before quantum computing can be fully incorporated into healthcare, there are several issues that must be resolved. We will go over some of the main problems with using quantum computing in healthcare in the following section, along with possible solutions.

Quantum computers are currently only available in a few research labs and technological companies, and they are not yet broadly accessible. This is because developing and maintaining quantum computing devices is expensive and difficult. Healthcare applications that need to process massive amounts of data in real-time face a significant hurdle, therefore. However, initiatives are being made to increase the usability of quantum computers, such as remotely accessible cloud-based quantum computing services [20]. Few of the challenges are listed below:

- **Integration with existing healthcare systems:**

Healthcare systems are extremely complicated and depend on a wide range of tools and software. It will be necessary to upgrade and modify these systems significantly in order to integrate quantum computing. Furthermore, when using quantum computing systems, there are worries about the confidentiality and privacy of patient data. Healthcare providers will need to collaborate closely with quantum computing specialists and cyber security experts to create secure and effective systems to handle these difficulties.

- **Limited medical practitioners' knowledge and abilities:**

The highly specialised field of quantum computing necessitates a thorough understanding of quantum mechanics, computer science, and mathematics. It's possible that healthcare workers lack the knowledge and training needed to comprehend and utilise quantum computing technology. In order to enable healthcare workers, understand about quantum computing and its applications, training programmes and instructional materials are required.

- **The Intricacy of the Quantum Algorithm:**

Implementing quantum algorithms requires a keen understanding of quantum mechanics and mathematical optimization. The model for healthcare applications using quantum algorithms, for example, drug discovery and genomic analysis, is still embryonic. For quantum algorithms to be efficient, the collaboration between quantum computing experts and healthcare professionals is necessary.

- **High cost of quantum computing:**

Due to their cost and maintenance, quantum computing systems are expensive to build and maintain. Despite technological breakthroughs, quantum computing gear such as quantum processors and memory remain insanely expensive for many healthcare practitioners. As technology advances and the demand for quantum computing services grows, quantum computing is likely to become more accessible in the future years.

- **Ethics and Regulation:**

The regulatory authority for quantum computing in Medicare is still in flux. The use of quantum computing in healthcare raises ethical concerns, such as the possibility of prejudice and discrimination in quantum algorithms. There is a need for integrity and interpretability in quantum-based healthcare decisions, as well as responsible security of personal patient data. Establishing regulatory frameworks and ethical norms for quantum computing in Medicare is a continuing challenge.

To summarise, quantum computing has the potential to transform healthcare by allowing for faster and more accurate patient data analysis, drug discovery, and individualized therapy. Several roadblocks must be cleared before quantum computing may be efficiently integrated into healthcare. These challenges include lack of quantum computers, integration with existing healthcare systems, the limited knowledge and abilities of healthcare staff, the complexity of quantum algorithms, and the high cost of quantum computing. Addressing these issues will involve collaboration between quantum computing experts and healthcare practitioners to create secure and efficient systems capable of processing enormous amounts of healthcare data in real-time [12].

V. The Future of Quantum Computing in Medicare

Healthcare data, which includes information from clinical trials, illness databases, electronic health records (EHRs), and medical equipment, is expanding at a fast pace. Legacy healthcare and business-to-business systems ought to be optimised for a new era of healthcare technology in the future. The shortage of nurses, medical secretaries, and IT personnel will necessitate greater efficiency and Big Data optimization, among other things [8]. The way healthcare is delivered must be completely reconsidered. While quantum computing systems promise to give quadratic performance advancements, the technology remains in its infancy, with vigorous ongoing research and development. Quantum computing could become another instrument that can be applied to find solutions to diseases like Parkinson's, cancer, and other illnesses that take so many lives on a daily basis. Quantum computing's computational power will enable new approaches to solve old problems, detect and diagnose diseases, and identify mental health hazards earlier. Due to Quantum's ability to calculate at magnitude, clinicians will be capable to incorporate many multidisciplinary data sets into their patient risk factor models. For example, they will be able to analyse environmental databases to evaluate the influence of pollution on a patient's medical history.

Over a century after the emergence of quantum physics, it has been demonstrated that quantum computing may surpass classical approaches. While working to enhance the scalability of quantum computers, it will reveal new intersections between machine learning, healthcare, and our newfound powers. Quantum computing can provide individuals with far clearer insights into their future health risks as we reach the healthcare era of genomes, biotech, nanotechnology, life science optimization, and personalised treatment [9]. Quantum computing's future in healthcare has tremendous potential for transforming the industry in a variety of ways. With its unique capabilities and processing

capability, quantum computing has the potential to revolutionize numerous fields of healthcare, including drug development, personalised medicine, medical imaging, and health data analytics.

VI. Conclusion

In conclusion, quantum computing has the ability to completely alter the healthcare sector as a whole. The possibilities are endless, from boosting medical imaging and diagnosis to bettering drug discovery and development. Quantum computing has great potential for enhancing the accuracy and efficiency of healthcare practises. It has the capacity to handle massive volumes of data at previously unattainable speed. Also, it tackles complicated issues that are currently beyond the reach of traditional computers. Although it can be completely implemented in healthcare systems, the technology must first overcome several obstacles as it is still in its early phases. However, due to the potential perks in this field of study and development it will surely continue to draw interest and support in the years to come.

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Deep Learning-based Object Detection and Recognition Using an Automated Image Capturing System

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Abstract *The activity of using words to describe a picture is known as image captioning. It is most frequently used when one needs automatic textual information on a certain image. By coming up with succinct explanations for pictures that might convey thorough, this strategy gets over restrictions by telling cohesive narrative. It creates a model that deconstructs both words and images into their constituent pieces by identifying linguistic zones in images using NLP and LSTM models. It also demonstrates how the LSTM Method has been used with extra features for excellent performance. The Gated Recurrent Unit (GRU) Method and the LSTM Method are contrasted in this study. The evaluation utilizing BLEU Metrics determines the best strategy, with an efficiency of 80%. The text generated by the algorithm has been evaluated using a variety of captioning performance metrics. The accuracy of the obtained statements is discussed in the grading. Different methods are tested, and the results show that the LSTM approach has an efficiency of 80%. This provides the most effective outcomes for the Visual Genome Dataset. Future research might enlarge its reach to enable better system usage by all scholars.*

Keywords—*Computer vision, machine learning, object detection.*

I. INTRODUCTION

The items, people, activities, and features present in a particular photograph are described using natural language processing algorithms. The vast majority of studies on the creation of picture captions focused on the creation of single-sentence captions. However, there is hardly any creation of the descriptive caption. A single caption can only express the minute details present in a particular image, not the full meaning intended by it. The current work places a strong emphasis on the development of expressions that perfectly reflect the idea and information present in a particular image. Kruse et al. contributed the idea of a paragraph captioning dataset to the Visual Genome corpus in 2016. established the concept of the Visual Genome corpus's paragraph captioning dataset. He suggested that we could turn those phrases into paragraphs if a well-trained model of a single captioning model could be created. But even after using beam search, this model still creates the paragraph by repeatedly repeating the same text. The production of paragraph captions can be done using a variety of techniques. Here, we're taking a deep look at the following methods for creating paragraphs.

II. CLASSIFICATION OF MACHINE LEARNING (ML) ALGORITHMS

Machine learning classification algorithms provide predictions about the chance that new data will fall into one of the established categories based on input training data. Filtering emails into "spam" or "non-spam" is one of the most popular uses of categorization. There are 3 major categories of ML algorithms: 1. learning under the supervision, 2. learning without supervision, 3. Reinforcement Model of Learning, learning under supervision is the most popular machine learning technique. Machines are educated using labelled data of some form in supervised learning. The computer makes predictions about the results based on this labelled data. Data with labels is the data that has already been connected to an output. The training data serves as the machine's "supervisor," teaching it to forecast output correctly. It functions much like a pupil who is being taught by a trainer or teacher. Finding a mapping function is the major goal of the learning under supervision approach. We may translate the variable in input (x) to the variable in output (y) with the use of this mapping function.

Generally, $Y=f(x)$ we can provide the data to our algorithm to predict the results one by one. With the passage of time, the algorithm will train itself for proper approximation of the relationship between provided dataset of instances and their labels.

There are mainly two types of supervised learning:

- a) Regression a desired prediction outcome is represented by independent quantities in regression. It is frequently used to determine the relationships between predictions and variable quantities. Regression may be used to estimate or forecast continuous quantities (Real valued output). For instance, if a person is shown to us in a picture, we must determine their age from the picture. Measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations.
- b) Classification to categories anything is to place it in a certain category. When the information is either discrete or categorized, it is a grouping challenge. For instance, give details on the 5 based on the size of buildings for sale, we may divide them into two main groups based on whether a home "sells for some more or less than the listing price."

Learning without supervision as implied by the name, there is no need to monitor your model while using unsupervised learning. Instead of training your model, you have given it permission to get data from many sources. The unlabeled data is what unsupervised learning typically uses to identify the undiscovered patterns in previously labelled data with the least amount of oversight and human interaction. In supervised learning, labels are often provided by people. Contrarily, accurate modelling of probability density functions on the inputs is made possible through unsupervised learning. Unsupervised machine learning algorithms extract trends from a population of data without relying on predetermined or labelled outcomes. It entails educating a computer to use uncategorized, unlabeled data and enabling the algorithm to run on the data collected without oversight. In this scenario, the machine's goal is to quantify unsorted datasets based on linkages, trends, and changes in the absence of any prior data schooling. The machine won't be trained because there is no teacher present, in contrast to learning while being supervised. Therefore, machines are limited in their capacity to find the underlying pattern in a dataset that has not been independently labelled. For instance, the machine won't know anything about the characteristics of dogs if we give it multiple photographs of cats and dogs to

categories. and cats together instead, categorizing them according to their patterns, similarities, and differences.

The learning algorithms without supervision allow you to do more complex data handling processing than supervised learning does. Unsupervised learning, on the other hand, produces results that are incredibly unclear when compared to other natural learning processes. There are many approaches to unsupervised learning issues:

- c) Clustering: When resolving a clustering issue, your objective is to determine the underlying categories in the dataset, such as classifying consumers according to their purchases. their purchasing habits.
- d) Association: When developing association principles, your objective is to identify trends that comprehensively depict your dataset, such as the fact that customers of X typically make further purchases.

III. REINFORCEMENT MODEL OF LEARNING

Reinforcement learning (RL), a machine learning technique, allows any agent to comprehend interactively through an iterative process that uses data from its interactions and activities. Machines frequently strive to find the best solutions by learning from their past errors. Educating machine learning prototypes to generate options is required. While both learning under supervision and reinforcement learning use mapping between inputs and outputs, reinforcement learning uses rewards and penalties as signals for positive and negative behaviour, in contrast to supervised learning, which provides feedback to the agents in the form of the best order of behaviours to complete a task. Right present, reinforcement learning is the most effective method for encouraging innovation in machines.

a. BASIC NEURAL NETWORK

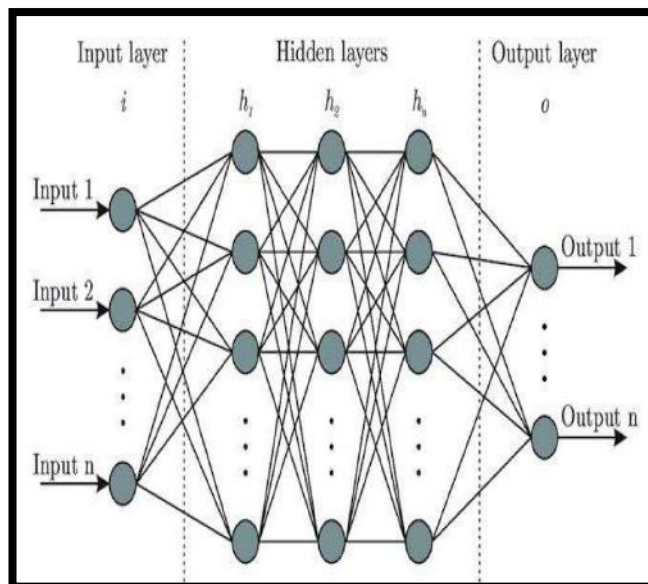


Fig1.Basic neural network algorithm

Start with entries for the network weights (w_{ij} weights and b_j biases) that are frequently arbitrary

1. To obtain the network's prediction, pass the data input through this in several iterations one.
2. Using the amounts of the expected labels and these resulting forecasts, calculate the losses.
3. Using the backpropagation approach, distribute all computed losses over all variables contained in the neural network design.
4. Using the modified neural network variables and the knowledge that has been changed, create a descent model to minimize losses.
5. Continue to iterate through the earlier phases until we think we have one reliable model.

b. DEEP NEURAL NETWORK

The neural network must continually develop new skills to do tasks with more proficiency or perhaps use a range of strategies to provide better outcomes. When new information enters the system, it learns how to react correctly to a new situation. Your understanding deepens when you solve complex challenges. A deep neural network is used by a system when it mines the input dataset for the best functions using numerous layers of nodes. It requires adapting the data to make it a more creative and abstract component. To better understand the results of deep learning, envision an average man. You will always be able to distinguish it from other animals and recognize that it is a person, despite the fact that you have never seen this particular image of the gentleman before. This provides as a model for how a Deep learning algorithms are used. The data's logical and artistic components are looked at and arranged to make sure the object is correctly recognized. These elements must be modified and generated by the ML system because they are not immediately available to the system.

c. NATURAL LANGUAGE PROCESSING

Natural language processing (NLP) refers to a computer system's ability to interpret natural language, or human speech as it is spoken and represented. It is a subset of artificial intelligence (AI). NLP has been around for over 50 years and has its roots in linguistics. It has There are several practical applications in a variety of fields, including business analytics, browsers, and clinical science. NLP has enabled computers to interpret natural language in the same way that humans do. Natural language processing uses artificial intelligence to receive true insight, explore it, and construct logic from it in such a way that a system can grasp it, regardless of whether the system is human or machine.

Communications are either spoken or recorded. Computers have reading programmers and microphones to record audio, much as humans have many sensors such as ears to hear and eyes to see. Just as live creatures have a nervous system to interpret their numerous inputs, computers have a programmer to do the same. During processing, the input is finally transformed into computer-readable code. The two fundamental steps of natural language processing are data pre-treatment and code creation. Data preparation is the process of preparing and "cleaning" data in the form of text so that machines can test it. Pre-processing prepares data for usage and highlights text characteristics that a user may be interested in Organizations must be able to manage the massive volumes of unorganized content data that they consume. Until recently, companies were unable to adequately analyse the fundamental human language that comprises a major amount of the information created and stored digitally. in databases. That is when NLP comes in handy.

IV. MOTIVATION FOR THE WORK

The importance of this issue in terms of practical systems must be acknowledged first. Consider a few of circumstances in which an approach to this difficulty would be really advantageous.

- Self-driving cars - One of the primary difficulties is automatic driving, and if we can convert the vehicle's environment into textual and spoken forms. Specifically, the automated driving system will benefit.
- Aid for the blind — A technology can be created to help blind individuals navigate roads or walkways. To create this technique, we must first convert the surroundings into textual format, followed by text-to-speech commands. Both of these deep learning technologies may be combined to give assistance to blind individuals all around the world. CCTV cameras are commonly employed presently, but if we can incorporate relevant textual information in addition to analyzing the local visual surroundings of cameras, we will be able to warn authorities as soon as suspicious activity occurs. This might happen. Contribute to a reduction in crime and/or accidents. If we can turn visual features of a picture into a full textual headline, automatic captioning can make Google image search far more successful. These headlines can then be used to find related information on the internet.

V. PROBLEM STATEMENT

The major objective is to use deep learning and natural language processing methodologies to produce textual descriptions for the supplied input picture data in the form of sentences. This is accomplished by using picture captioning to communicate the aesthetic content in word order.

VI. PROPOSED APPROACH

The goal of picture captioning is to develop explanations from the visuals. To create textual material, a hierarchical 20 techniques is used. The visual elements are marked at the very first step. When recognized, a textual description is written to fully characterize that element. The obtained textual findings were then logically integrated to form a comprehensive caption. The character strings are then divided into tiny textual units called as tokens. These produced tokens are correctly saved and utilized as needed.

Pre-processing- The pre-processing stage typically filters raw data to generate the cleanest version of data with no similarities. Our relevant data is stored unprocessed raw photos in every given dataset, which must be pre-processed. We used the caption generating model. This accessible data is divided into three parts: training dataset, testing dataset, and dataset for result verification. These three sections each include 14575, 2489, and 2487 picture numbers, which serve as image indices for the collection.

To make the next step of the project easier, objects accessible in any given image are identified in the following phase. For this, the LSTM model is utilized. Figure 1 depicts the implementation flow. An image is uploaded in the first phase to determine the major attributes and focal area of the picture. 21 These important attributes are then passed through an LSTM model to extract certain keywords. That may be used to describe the visual and form a reasonable phrase. As our LSTM model progresses, it will output a large number of phrases. These phrases may then be combined to form a paragraph that describes the image's qualities as a whole. Sentence Generation is the final module of this work. The words are produced by differentiating the objects in the picture attribute and utilizing tokens from a file allocated for token storage called captions. Each word is

merged with a previously created word to form a phrase. We must create paragraphs in the last phase of this project. Produced sentences will be organized in such a way that they may offer a clear comprehension using the logical orders listed below. As a consequence, the desired outcome.

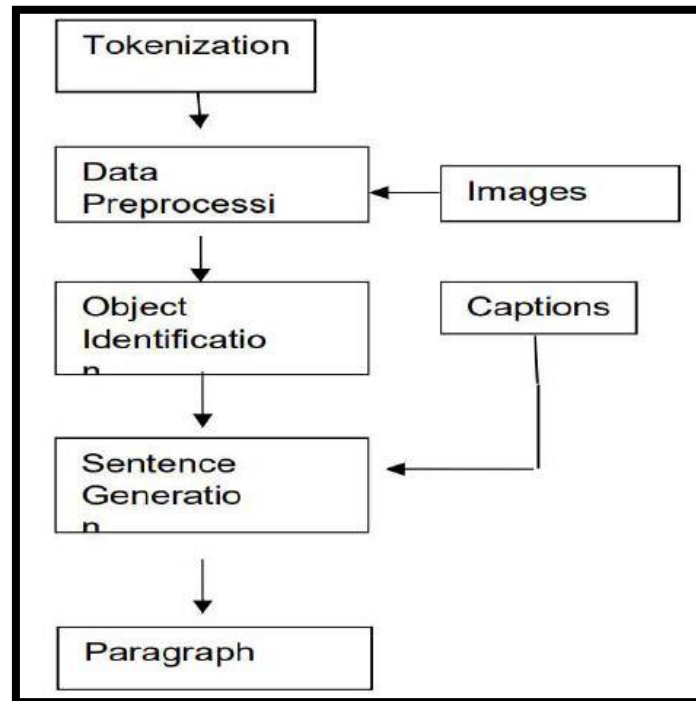


Fig 2. Proposed system architecture

a. DATA PROCESSING- CAPTIONS

Our model's pictures are all input (X). As you may be aware, all input to a model should be delivered as a vector. To utilize a picture in a neural network, we transformed each one to a certain size. Vectors. We will use transfer learning to achieve our goal of employing Google Research's InceptionV3 model of convolutional neural network. To collect diverse types of images, our model will be trained using the Visual Genome Corpus dataset. Instead of categorizing the photos, we want to obtain a vector of fixed length for each and every one of them. This is known as automated feature engineering.

b. DATA PROCESSING- CAPTIONS

The primary goal of this study is to produce image captions. These captions constitute our output, which is represented by the output variable Y. In the current study, our system will attempt to predict this output variable and will get appropriate training in this respect. However, we cannot anticipate an entire caption for a certain image in a single frame. We will be expecting our image descriptions word for word, which will be rationally interconnected with one another. As a result, encoding each word in a fixed size vector is almost always required for a good model.

Word to ix ("word to index") and ix to word ("index to word") are two dictionaries.

c. USE OF GENERATOR FUNCTION FOR DATA PREPARATION

To demonstrate, consider image 1 as a standard example of caption generating. This image is described in words as follows:

"startseq the black cat sat on grass end seq."

We are solely interested in developing the best possible title for our photograph. The picture vector will be used as an input in our model. To predict a caption, let's take a look at our model and attempt to figure out how it works. We will use the picture vector and the first word as input parameters to predict the following word.

Input (i/p) = photo 1 + "start seq"; Output = "the."

For clear forecast of third term, our input will be previous two words and image vector:

I/p = photo 1 + "start seq the"; Output = "cat."

These input parameters will repeat until we conclude a logical sentence for our image. Below mentioned table summarizes the process of caption generation for a picture.

		Xi	Yi
i	Image feature vector	Partial Caption	Target word
1	Image_1	startseq	the
2	Image_1	startseq the	black
3	Image_1	startseq the black	cat
4	Image_1	startseq the black cat	sat
5	Image_1	startseq the black cat sat	on
6	Image_1	startseq the black cat sat on	grass
7	Image_1	startseq the black cat sat on grass	endseq

d. STATISTICAL ALGORITHM

Hochreiter and Schmidhuber discover the LSTM. The performance of RNN and LSTM is equivalent. It produces a whole word and is mostly used for knowledge transmission between cells. Three gates are used to create a circuit. They are as follows: an input gate, an output gate, and a switch. Forget about the gate. An input gate accepts the signal and forwards it to additional cells that are accessible. Additionally, the forget gate evaluates the value significance and image levels. Finally, an output gate is used to collect all of the information. It can comprehend data sequences such as voice or video in addition to pictures. The LSTM equations are as follows:

$$It = \sigma (xtUi + ht-1Wi) \dots\dots\dots(1)$$

$$Ft = \sigma (xtU f+ ht-1Wf) \dots\dots\dots(2)$$

$$ot = \sigma (xtU o+ ht-1Wo) \dots\dots\dots (3)$$

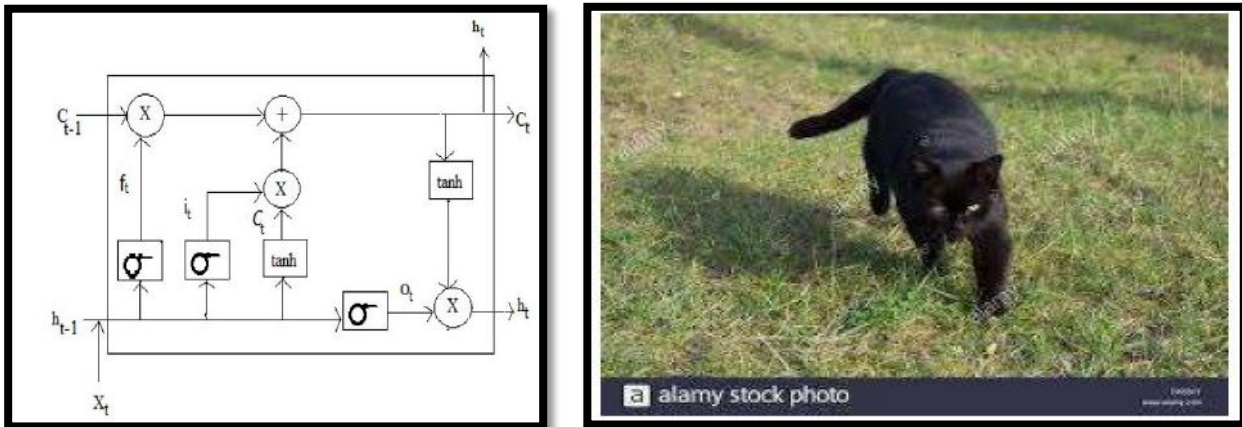
$$Ct = \tanh(xtU g + ht-1Wg) \dots\dots\dots (4)$$

$$Ct = \sigma (ft * Ct-1 + it * Ct) \dots\dots\dots(5)$$

$$ht = \tanh (Ct) * ot \dots\dots\dots(6)$$

These gates regulate the flow of incoming and outgoing data via a unit. This information will be maintained in a specific unit for a configurable time period. The LSTM models can categories, analyses, and forecast data with a specific time stamp.

Image feature vector as input 1,

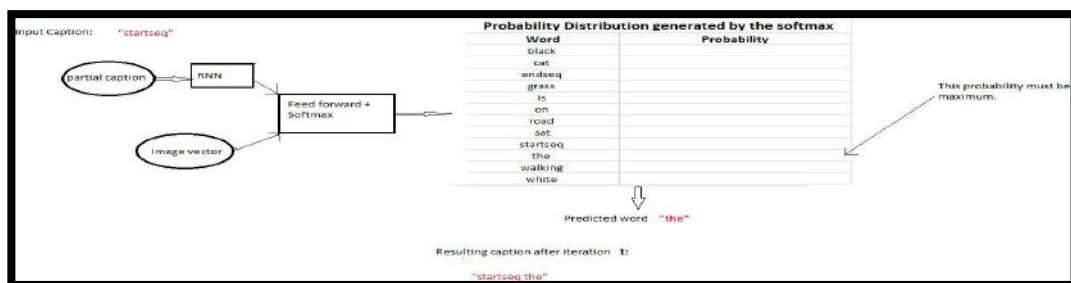


Partial caption as input 2.

Fig.4 an explanation example of image captioning

The usage of the token 'startseq' is critical in this case. This token will serve as a partial caption for a stage interference image. The model generates a 12-long vector in the demo instance against a 1652-long vector in the production instance. starting statement that describes the probabilistic model of each lexical phrase. We chose the term with the best likelihood given the feature set and partial caption.

Maximum likelihood estimate (MLE) is the process of selecting the term that the model predicts to be the most likely input. This approach is also known as "greedy search" since we select the phrase with the highest likelihood while being avaricious.



Input "started the" + Input Image Vector

Anticipated output "BLACK"

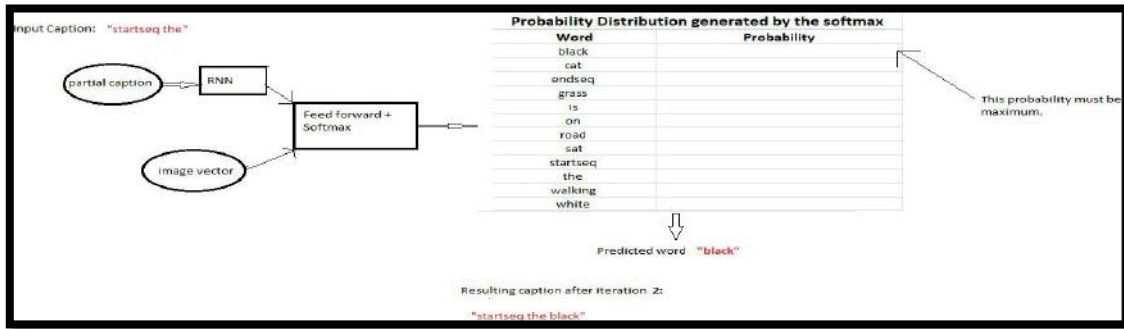
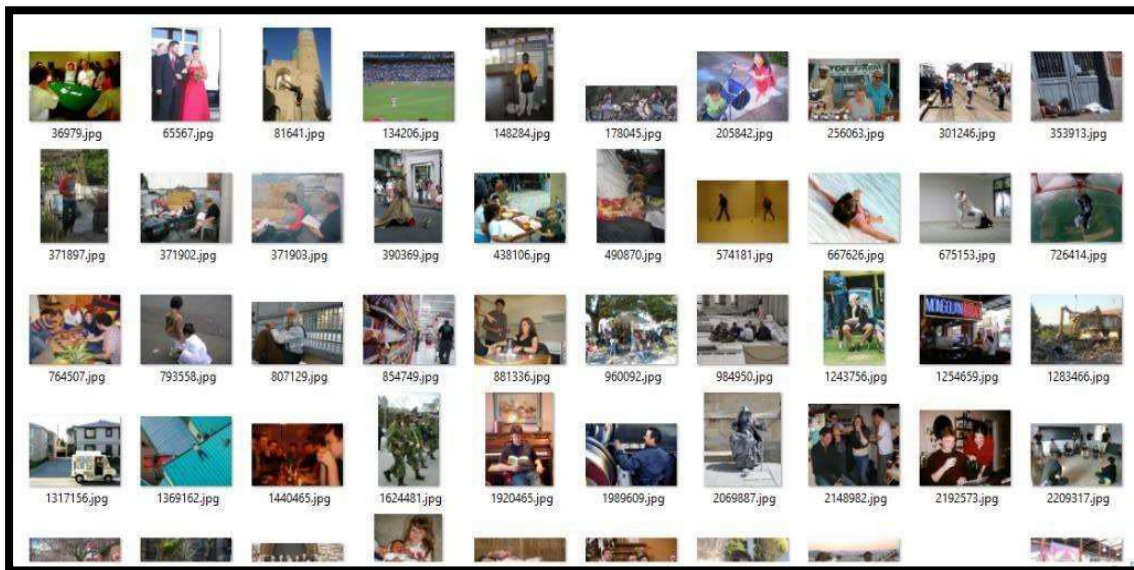


Fig. 6 Alteration 2



1001465944.jpg	1	Three people are standing outside near large pipes and a metal railing .								
1001465944.jpg	2	A young woman walks past two young people dressed in hip black outfits .								
1001465944.jpg	3	A woman with a large purse is walking by a gate .								
1001465944.jpg	4	Several people standing outside a building .								
1001545525.jpg	0	Two men in Germany jumping over a rail at the same time without shirts .								
1001545525.jpg	1	Two youths are jumping over a roadside railing at night .								
1001545525.jpg	2	Boys dancing on poles in the middle of the night .								
1001545525.jpg	3	Two men with no shirts jumping over a rail .								
1001545525.jpg	4	two guys jumping over a gate together								
1001573224.jpg	0	Five ballet dancers caught mid jump in a dancing studio with sunlight coming through a window .								
1001573224.jpg	1	Ballet dancers in a studio practice jumping with wonderful form .								
1001573224.jpg	2	Five girls are leaping simultaneously in a dance practice room .								
1001573224.jpg	3	Five girls dancing and bending feet in ballet class .								
1001573224.jpg	4	A ballet class of five girls jumping in sequence .								
1001633352.jpg	0	Three young men and a young woman wearing sneakers are leaping in midair at the top of a flight of concrete stairs .								
1001633352.jpg	1	Four casually dressed guys jumping down a stairway outdoors with a stone wall behind them .								
1001633352.jpg	2	Four guys three wearing hats one not are jumping at the top of a staircase .								
1001633352.jpg	3	Four men with excited faces are jumping down from the top of stairs .								
1001633352.jpg	4	Four people are jumping from the top of a flight of stairs .								
1001773457.jpg	0	A black dog and a white dog with brown spots are staring at each other in the street .								
1001773457.jpg	1	A black dog and a tri-colored dog playing with each other on the road .								

Fig 7. Image dataset

WORK BREAKDOWN STRUCTURE

- Image Preprocessing
- Text Preprocessing
- Visualize Image with caption

- Vocabulary Creation

```
image Preprocess

In [2]:
images_path = '../input/flickr8k-sau/Flickr_Data/Images/'
images = glob(images_path+'*.jpg')
len(images)

Out[2]:
8091

In [3]:
images[:5]

Out[3]:
['../input/flickr8k-sau/Flickr_Data/Images/2075041394_0b3ea1822d.jp
g',
 '../input/flickr8k-sau/Flickr_Data/Images/3185662156_c877583c53.jp
g',
 '../input/flickr8k-sau/Flickr_Data/Images/2189181027_a445b13438.jp
```

```
In [4]:
import matplotlib.pyplot as plt

for i in range(5):
    plt.figure()
    img = cv2.imread(images[i])
    img = cv2.cvtColor(img, cv2.COLOR_BGR2RGB)
    plt.imshow(img)
```



VOCABULARY CREATION

```
In [18]: count_words = {}
for k,vv in captions_dict.items():
    for v in vv:
        for word in v.split():
            if word not in count_words:
                count_words[word] = 0
            else:
                count_words[word] += 1

In [19]: len(count_words)

Out[19]: 4011
```

```
In [5]: from keras.applications import ResNet50

incept_model = ResNet50(include_top=True)

Downloading data from https://storage.googleapis.com/tensorflow/keras-applications/resnet/resnet50_weights_tf_dim_ordering_tf_kernels.h5
102973440/102967424 [=====] - 1s 0us/step

In [6]: from keras.models import Model
last = incept_model.layers[-2].output
modele = Model(inputs = incept_model.input, outputs = last)
modele.summary()

Model: "functional_1"
-----
-----
Layer (type)                Output Shape              Param #   Con
```

```

Text Preprocess

In [9]: caption_path = '../input/flickr8k-sau/Flickr_Data/Flickr_TextData/Flick
r8k.token.txt'

In [10]: captions = open(caption_path, 'rb').read().decode('utf-8').split('\n')

In [11]: len(captions)

Out[11]: 40461

In [12]: captions_dict = {}
         for i in captions:

```

VII. Conclusion

This research was entirely focused on image captioning. A thorough picture caption generator is constructed based on accessible literature from earlier studies of numerous scholars. It can be argued that with thorough picture captioning model training, a more accurate and It is possible to create a dependable system. This approach can assist our generations in smoothly adopting a new vertical of technology. Some tools are utilized to assess the efficiency of our caption generating model. Some of the metrics employed throughout the study to measure the efficiency and performance of the picture caption generating model were BLEU, ROUGE, and CIDER. Based on the ratings acquired from these models, it is possible to infer that the LSTM approach is capable of producing suitable captions for accessible photos. It may also be deduced that the present captioning model's performance will be more trustworthy on the Visual Genome Dataset.

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Digitalization of Consumer Focused Marketing Strategies

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ABSTRACT

Today customer approach to purchase the product has been changed in customer oriented market scenario. The consumer purchase pattern changes when we consider products, quality of product, its price, characteristics, status, packaging, age group of the customer, customer belong to which generation, gender of the customer, etc. Since the young generation is the most versatile group, because its fashion style and taste has been changed with movement of time. Therefore, market researchers and analysts are spending more on surveys to find the customer behaviour pattern. Now in this present era, in the world of digitalization, digital marketing is in trend instead of traditional marketing. Also, digital marketing faces many challenges than traditional segment. Youth prefers digital purchasing rather than traditional retail shopping. The marketers are creating innovative applications to attract this generation and come up with many offers for customer purchasing behaviour. It shows that their purchasing capacity and behaviour predicts the buying behavioural. Hence in this paper, we focused on main problem in customer oriented marketing approach in digitalized. We focus on that lack of awareness in digital era, reveals no optimum utilization of things through present generation which causes major issue.

Keywords: Digitalization, Digital Marketing, E-commerce, Behaviour pattern, Customer

INTRODUCTION

Digitalization of products is defined as customer overall journey of purchasing product and company portfolio. In digital marketing, the complete information of product, its cost, its purchase and selling has been reflected via online. E-commerce has great impact on whole economy, business world, revenue sector, customer behaviour capacity changes and supply chain. In digital marketing, either booking, staying at hotels, making trips, transaction of money either directly by customer or third party has great change in business and revenue sector. The tremendous change has been occurred in recruitment, matrimony, B2B, real estate, automotive and e-service. This causes maximization of economy and revenue sector. The huge influencer is advertising industry where cost to reach in audience has been caused huge reflection in broadcast, newspaper, magazine and direct mail. The companies are handling their branding by own through e-business by making their websites innovation and offering offers to customer to survive in this digitalization and spending more money so that young generation has been influenced and grow their purchasing capacity.

DIGITALIZATION IN INDIA

In the whole world, E-business has made changes in advertising industry for product promotion. They spend total revenue on short videos 68%, test based article, website and post 15%, e-book or manual 4%, infographic 3%, sales call and demo 3%, presentation and pitch 4%, other 3%. Therefore, customers most prefer to know about their choice products.

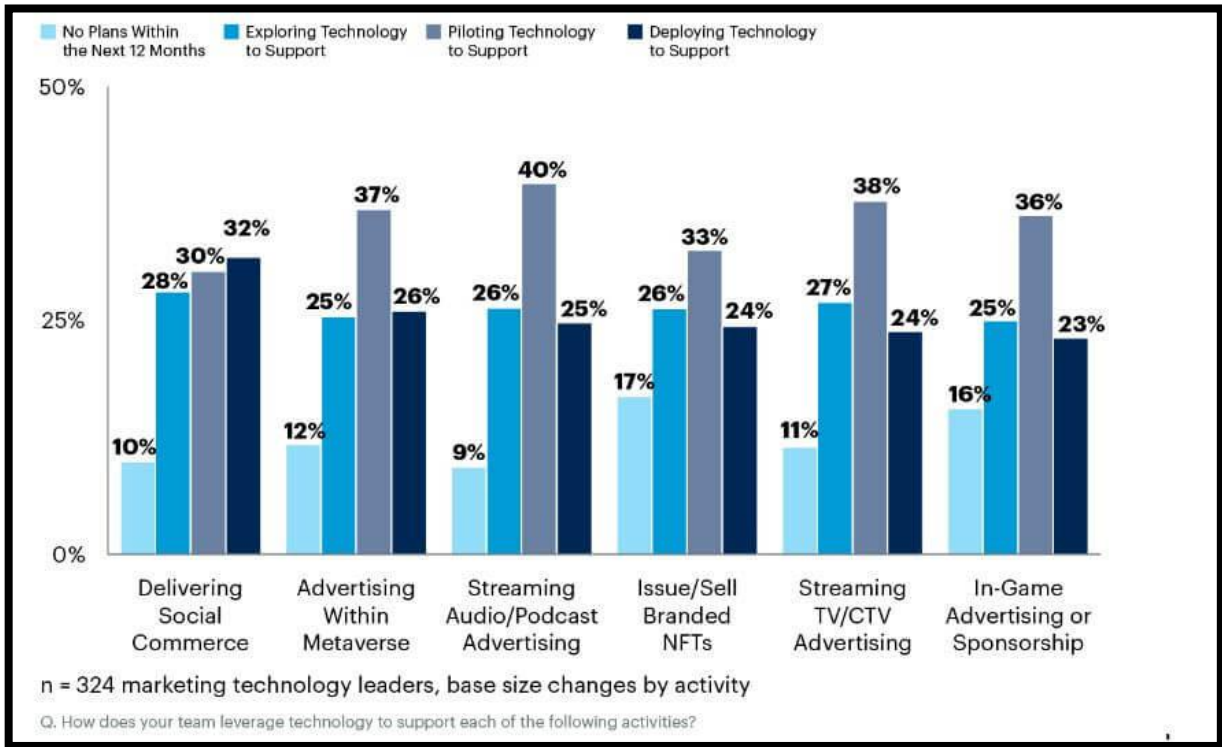


Figure 1 Marketing Technology

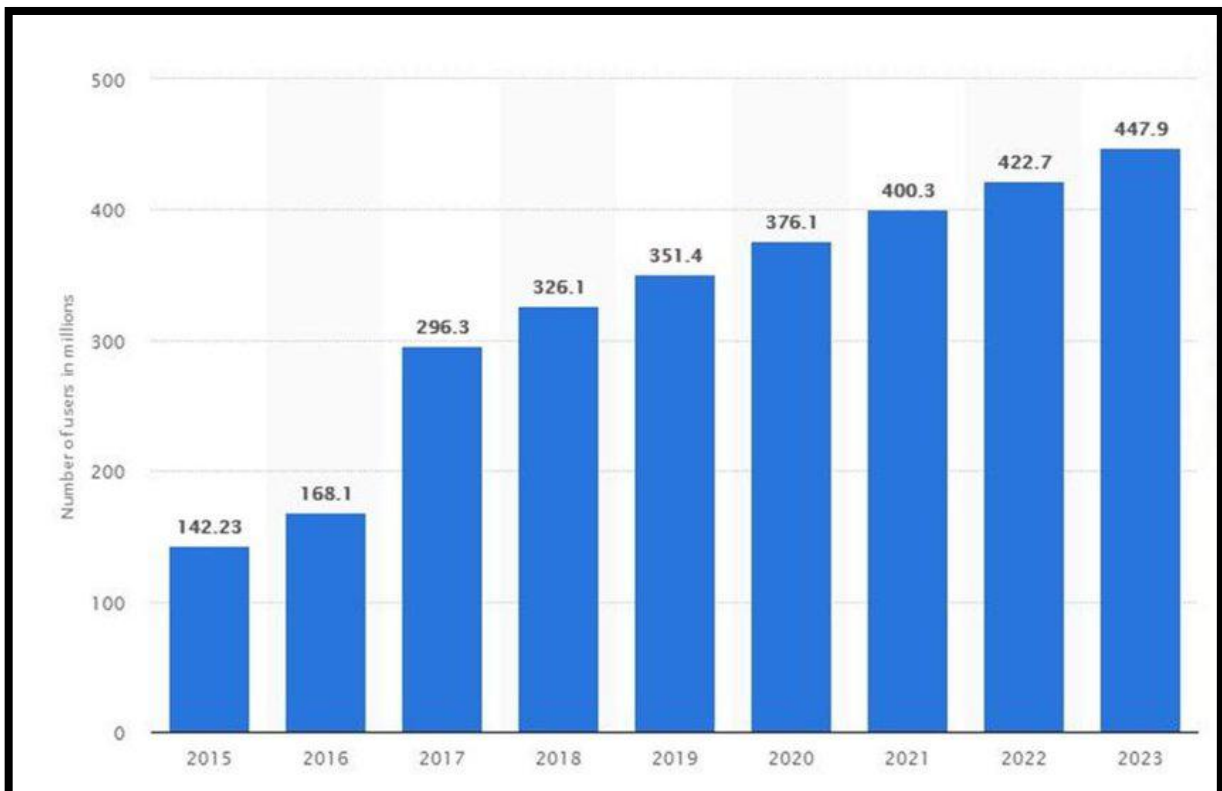


Figure 2 Bar Graph

RESEARCH METHODOLOGY

Research methodology has performed literary surveys in which they concluded on publications and industry surveys. Manufacturing SMEs, EIS and technology adaptations are

influenced to grow the sales. Firm contacts are crucial point to consider for revenue sector and customer relationship with companies. They ask for company and product feedback. They consider visits, emails, telephone, etc. Also to enhance market research they opt informal meetings, process observations, semi-structures interviews. Ultimately all the beneficial for analyses, which lead to company growth rates, are

It includes -

1. Data sources
2. Design sample
3. Sample size
4. Analysis of Data
5. Discussion

Its types are –

- a) Quantitative Research
- b) Qualitative Research
- c) Descriptive Research
- d) Analytical Research
- e) Applied Research
- f) Fundamental Research
- g) Exploratory Research
- h) Conclusive Surveys
- i) Case Studies

LITERATURE REVIEW

In this global era, digitalisation and e-business get popularised. All social networking sites have million and billion of users either it is Facebook, Twitter, etc. The huge numbers of people socially get connected within past years, around 2004 onwards. Consumer now spent maximum time on Internet and virtually connected with products and all types of articles. Consumers connected via different platforms like YouTube, Blogs, Instagram, Facebook, Twitter, LinkedIn etc. to stay connected. Consumers share their knowledge, products, services and revenue transactions. Only the unique feature to promote digitalisation is advertisements. Similarly, it has features like increasing business, social connection enhanced; people build their relations with low cost and frequent response. There are many advantages of digital marketing like it aligned business strategy, here objective for business promotion are clear, brand development, consistent consumers, regular services, consumer journey has been recorded, and consumer feedback to enhance business strata, also online customer lifecycle is there. The data shows that 88% of market understanding and 44% of sales experience grows from 2004. Now companies are bothering 80% cultural sensitivity. Data driven has been monitored which leads optimization promotion, publishing ads, create innovation to attract customers so that engagements and connection in between company and consumer must be aligned.

CONSUMER PURCHASE BEHAVIOUR

- (1) External Factors
 - (a) Marketing Stimuli
 - (i) Product
 - (ii) Price
 - (iii) Place
 - (iv) Promotion
 - (b) Environment Factors

- (i) Economic
- (ii) Technology
- (iii) Political
- (iv) Cultural
- (v) Demographic
- (2) Decision Making Process
 - (a) Need Recognition
 - (b) Information Search
 - (c) Evaluate Alternatives
 - (d) Purchase Decision
 - (i) Purchase
 - (ii) No Purchase
 - (e) Post-purchase evaluation
- (3) Buyer's Characteristics
 - (a) Believes
 - (b) Values
 - (c) Attitudes
 - (d) Knowledge
 - (e) Motives
 - (f) Preceptors
 - (g) Lifestyle

Digital Marketing has brought amazing changes in the way in which the marketer markets the product and the way in which the customers are purchasing the same. Purchasing behaviour of an individual influences many factors, and these factors invariably affects the marketer to match the needs of the customers in general and youth in particular. So it is realized that there is a need to study Digital Marketing and its effect on purchasing behavior of the Consumer and Customer.

NEED OF THE STUDY

Digital Marketing is responsible for amazing changes in the market surveys, degree of involvement of customer (which includes studying complex buying behavior of customer, habitual buying behavior, reducing buying behavior). Their objective is to maximize profit and minimize losses; also consistent customer must be involved. They recognize the customer life cycle where problem findings, information search, evaluation, purchase of products and post purchase evaluation through feedback surveys are included.

OBJECTIVES OF THE RESEARCH

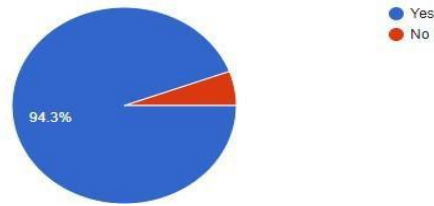
1. To fulfill Consumers demand is the bigger social responsibility.
2. Reward points to consumers are the greater responsibility for business ethics.
3. These social responsibilities achieve the sustainable environment for business.
4. It also enables web experiences for online controllable marketing factors.

SUGGESTIONS OF THE STUDY

SEO utilizing the facts and figures for convincing the inexperienced that SEO is worthwhile, high ROI channel worthy investment and acquiring budget, resources to successfully accomplish critical tasks. Also domain areas for the study are keyword research, link acquisition monitoring industry changes, on-site optimization social media (twitter, facebook, etc.) and alternately imbedding coffee time also.

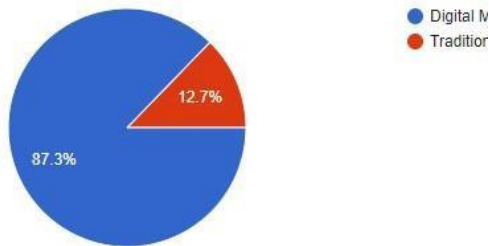
Are you Familiar with Digital Marketing ?

53 responses



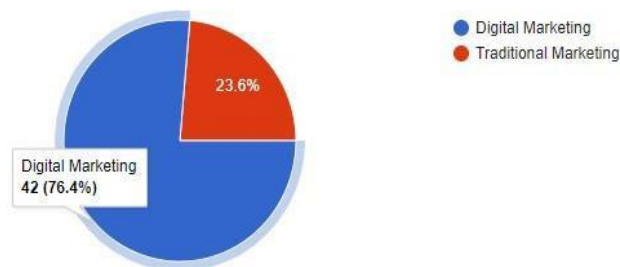
As a Customer What do you Prefer ?

55 responses



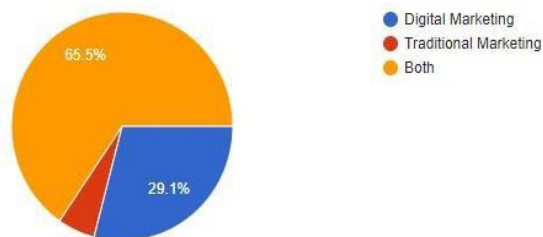
Which is More Cost Effective ?

55 responses



As a Startup what would you Prefer ?

55 responses



CONCLUSION

To conclude, customer-product journey, their buying capacity, awareness about brands, products and their qualities, etc. have been make market more influenced for concluding customer behaviour pattern in which major focus on youth and their choices. The major market purchasing segment has covered by youth in the digital era and which enriches market strata and growth of revenue sector. This competitive world has created market threat for marketers if they not move as per generation demand. This revolution in digitalization, change drastically products and their costing. To become in trend, they spending more on revenue sector.

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Impact of Organization Citizenship Behavior on Employee & Organization

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Abstract *An employee's voluntary behaviors that benefit their organisation outside the scope of their work obligations are referred as organizational citizenship behavior or OCB, in the field of organizational behaviour. These behaviors can include offering assistance to coworkers, beyond the scope of assignments, and demonstrating support for the goals and ideals of the company. According to research, OCB is favourably associated to job performance, organizational commitment, and job satisfaction. Workers that participate in OCB are frequently viewed as important assets by their employers because they foster a healthy workplace culture and enhance overall productivity. OCB is a choice behaviour, though, and not every employee partakes in it. An employee's desire to participate in OCB might be influenced by elements like job happiness, organizational fairness, and perceived organizational support. However, there can be some unfavorable effects of OCB, such increased workload and burnout sensations. In general, firms should understand OCB since it can increase employee commitment, satisfaction, and performance, which will ultimately result in a more successful business.*

Key Words: - Employee cooperation, Organizational Citizenship, Workplace, Customer Satisfaction.

I. INTRODUCTION

Organizational Citizenship Behavior (OCB) is a term used to describe individual actions that, taken collectively, support the efficient operation of an organisation but are taken at the discretion of the person and not immediately or explicitly understood by the formal incentive system. OCB is about going above and beyond what is required of one's job description and providing the firm with contributions that are not strictly required but improve its functionality. Helping coworkers with their chores, volunteering to take on extra responsibilities, showing up on time and being dependable are all examples of OCB. Another is fostering a healthy work atmosphere. OCB is commonly employed as a metric for assessing a worker's commitment to the organisation and is associated with both greater job satisfaction and lower turnover rates.

According to research, OCB can improve organizational performance by fostering a favorable workplace culture and encouraging employee cooperation and teamwork. Yet, because it is not necessarily directly related to work performance or compensation, OCB can also be challenging to measure and identify. In order to reward and encourage OCB, it is crucial for enterprises to establish a culture that values and acknowledges it. Productivity in businesses has been proven to be positively impacted by organizational citizenship behaviour (OCB). Employees who participate in OCB go above and beyond the requirements of their jobs and help the business succeed as a whole. For instance, OCB is displayed by an employee who takes the time to assist a coworker with a task or offers helpful criticism to a supervisor. These acts can boost productivity for the company.

According to research, workers who participate in OCB are happier at work and are more dedicated to the company. This can then result in stronger productivity, better performance, and greater motivation. Moreover, OCB may result in a favorable workplace atmosphere that fosters employee cooperation and teamwork, boosting productivity. Yet, it's crucial to remember that OCB shouldn't be used as a replacement for sound organizational design or appropriate management procedures. While OCB might help boost productivity, it cannot take the place of good leadership or a great organizational plan.

II. LITERATURE REVIEW

OCB, which is an additional individual behaviour not directly or formally recognized in a formal work system, can improve the effectiveness of organizational functions as a whole (Organ, 1988, p. 159). A corporation generally holds that in order to achieve excellence, individual performance should be at its highest level since, in essence, individual performance affects the performance of the team or work group, which in turn affects the organization's overall performance.

According to Netemeyer et al. (1997), OCB improves the effectiveness and efficiency of the distribution of scarce resources, time, and problem-solving among the work units in a collaborative and interdependent manner. Additionally, it helps with resource transformation, creativity and adaptation, as well as overall organizational success. According to Whittaker (1993), who makes this claim in his book "The Government Performance Outcome Art of 1993," performance evaluation is a management strategy intended to improve accountability and judgment. Performance evaluation is another method used to analyze goals and objectives. The three main factors that determine a person's capacity to work are: (1) level of effort expended; (2) capacity to complete the activity; and (3) organizational support, according to Mathis and Jackson (2002, p. 227).

Organisational citizenship behaviour is described by Organ (1988) as "employee controlled activity that may or may not be rewarded by the organisation but adds to the organisation by increasing the overall quality of the setting where work takes place". Organisational Citizenship Conduct is an important idea to consider because it contributes to people being more motivated for the company.

III. OCB IN EMPLOYEE PERFORMANCE

Employees will perform better if they possess these elements, which will have a favorable impact. In contrast, if one of the elements is reduced or absent, the performance will be reduced. Our current discussion is focused on the connections between OCBs and a range of individual-level outcomes, including performance evaluations and decisions regarding reward distribution, as well as a number of employee withdrawal-related activities (such as turnover intentions, actual turnover, and absenteeism).

Organisational Citizenship Behaviors' Effects at the Individual and Organisational Levels: A Meta-Analysis Nathan P. Podsakoff Arizona State University Philip M. Podsakoff and Steven W. Whiting. Effects on assessments of incentive distribution and performance evaluations. For a variety of reasons, managers may take OCBs into account when determining how to provide rewards and assess performance (Allen & Rush, 1998; Podsakoff, MacKenzie, & Hui, 1993; Podsakoff et al., 2000). For instance, managers may comprehend how OCBs like generosity, good citizenship, and sportsmanship make their own tasks easier.

Managers could regard OCBs as behavioral indicators of a worker's dedication to the organization's success when evaluating an employee's job performance. Last but not least, Lefkowitz (2000) asserted that managers have a favorable opinion of workers who display OCBs, and that this favorable opinion has an impact on the manager's evaluation of an employee's performance and choice of rewards. When considered collectively, the aforementioned justifications imply that workers who demonstrate higher levels of OCB need to be given better performance reviews and more rewards than workers who do not. This is in line with empirical data showing that OCB-like behaviors are favourably correlated with decisions regarding reward recommendations as well as evaluations of performance Allen & Rush 1998 MacKenzie et al. 1991 Werner 1994.

Cohen and Vigoda (2000), claim that employee extra-role behaviors will be more obvious when rules and procedures are enforced consistently and fairly throughout the firm. Organizations promote and support OCB since it is crucial to achieving organizational success and does so to be able to enhance the efficacy and their daily activities' effectiveness (Eisenberger, Huntington, Hutchison, & Sowa, 1986).

Employees were described as "any individual truly hired by an organisation or whose activity directly influences and connects to the essential economic functions of the enterprise" by Zeinabadi and Salehi in 2011. Employees are an integral component of the working principal, according to Guangling (2011), and they frequently demand acknowledgment from their employers. Workers contribute their knowledge, skills, experiences, and creativity to the organisation, which makes them essential to its success, according to Lichtenstein's definition of employee performance in 2008. People are even said to have a significant impact on whether a company succeeds or fails. Place (2010) claimed that a company's power is in the hands of its employees. Some workers can operate freely with little to no guidance, while some people need a lot of direction to do a job properly. The variations between Employee performances can be evaluated by comparing behavioral traits and competencies (Leventhal, 1976).

Individuals' psychological attachment to an organisation was strongly influenced by their view of the firm's commitment, according to employees. According to Adeel, Hashmi, and Iqbal (2017), organizations must improve employee job performance for the benefit of the business through inspiring and fostering a sense of commitment.

Organisational citizenship behaviour (OCB) is defined as individual behaviour that is optional, not immediately or openly recognized by the formal incentive system, but generally helps the efficient and effective operation of an organisation (Organ et al., 2006). Since organizational functioning depends greatly on organizational citizenship behaviors, there is a wealth of knowledge. Employees' extra-role activity allows managers to focus more time on strategic tasks, better utilize organizational resources, improve the workplace environment, and ultimately result in the efficient operation of the company. In reality, organizational citizenship conduct contributes to organizational performance and effectiveness through factors including employee retention, higher job satisfaction, and less absenteeism (Chughtai & Zafar, 2006; Podaskoff & Mackenzie, 1997). Organ (1988) established five classifications for OCB:

- Civic virtue: This justifies the voluntary contribution of a worker to the organization's success.
- Altruism: Assisting coworkers with organizational tasks.
- Consciousness: When a worker goes above and beyond what is required of him in the

position. An employee who exhibits sportsmanship will refrain from complaining or have a high tolerance for criticism.

IV. OCB IN ORGANISATION PERFORMANCE

Along with the impact they are expected to have on outcomes at the individual level, these behaviors are also expected to have an impact on unit or organizational outcomes. In this part, we focus on three key outcome categories that have been researched in the literature: organizational effectiveness (a), customer satisfaction (b), and group- or unit-level turnover (c).

Effectiveness at the group or unit level and OCBs. The reasons why OCBs might enhance unit- or organizational-level measures of effectiveness have been explained by Organ, 1988; Podsakoff et al., 1997; Podsakoff & MacKenzie, 1997; Borman & Motowidlo, 1993; Podsakoff & MacKenzie, 1993; and others. By teaching their less experienced counterparts the ropes, for instance, seasoned workers who display OCBs may increase their output.

Instructing them on good practices. Similar to this, staff members who exhibit virtue of the people (or voice conduct) may provide their management with beneficial proposal that enhance the unit efficiency, cut costs, or give the manager more time to focus on more beneficial projects, strategic planning included. Finally, OCBs may boost team spirit, morale, and cohesion, which may help organisations retain top personnel and save time and resources on team maintenance duties. OCBs have been linked positively to a number of unit or organisational effectiveness measures, including production quantity, efficiency, profitability, and waste reduction (Dunlop & Lee, 2004; Koys, 2001; Podsakoff et al., 1997; Podsakoff & MacKenzie, 1994; Walz & Niehoff, 2000).

According to Folgers (1986), the nice and respectful way in which supervisors interact with their subordinates as well as the prompt delivery of information to staff members are the causes of overworked worker behavior. Organ identified OCB as a deliberate, independent practice that boosts organizational efficiency. The managers of RefahKargaran Bank would provide the ideal conditions for luring specialists and professional staff if they are serious about luring good and suitable workers. Bringing in fresh specialists can not only replace outdated personnel but also be beneficial for growth. Managers can actively assist talent attraction by using a combination of tools for company strategy and employment.

With a talent management system, banks may swiftly and easily find the skills they need thanks to database information that is now available. As a result, if it leads, the effectiveness of such functions integrated talent management is crucial. If RefahKargaran Bank's various branches have an effective and appropriate mechanism in place to discover qualified and talented individuals, Of course, those who can carry out their duties best and perform better will join the organisation.

V. OBJECTIVE

In this study researcher are going to identify practices of Organizational Citizenship Behavior and its impact on employee. After find impact on employee researcher again going to find out impact on an organization. In last researchers find overall impact on organization and Employee.

VI. RESEARCH METHODOLOGY

This Study is based on secondary data. Researchers have done it with systematic literature review. A review of the literature on the effects of organizational citizenship behaviour on employees and organisations has been conducted to meet the objectives outlined above. Understanding the effects of organisational citizenship behaviour on employees and an organisation is made easier by this study.

VII. DISCUSSION

Employees' independent decisions to act in a way that goes above and beyond the call of duty and helps the organizations a whole are referred to as organizational citizenship behaviour (OCB). Employees engage in this conduct freely because they feel a feeling of ownership and responsibility for their work and the business; it is not required by official regulations or job descriptions. Helping coworkers with chores, going above and beyond the call of duty, demonstrating dedication to the organization's goals and values, and volunteering for additional jobs or projects are examples of OCB. These actions don't always fall under an employee's job description, but they can greatly improve the performance and culture of the company. Researchers said that employees' extra-role behaviors will be more obvious when rules and procedures are enforced consistently and fairly throughout the firm. In order to boost the effectiveness and efficiency of their daily operations, organizations encourage and promote OCB because it is essential to organizational success.

OCB has many advantages for both enterprises and people. Participating in OCB can boost a worker's sense of belonging, job happiness, and appreciation for their contributions. Organizations can benefit from OCB by increasing overall productivity, lowering absenteeism and attrition rates, and improving their reputation and image. It's crucial to remember that OCB is not always simple to develop or maintain. To encourage and acknowledge employees' achievements, it is frequently necessary to create a great work atmosphere, have excellent communication, and exercise strong leadership. Moreover, businesses should refrain from giving staff members too many duties, and make sure that OCB is properly acknowledged and rewarded.

Many researchers quoted that the OCB concept is nice and respectful way in which supervisors interact with their subordinates as well as the prompt delivery of information to staff members are the causes of overworked worker behavior. Organ identified OCB as a deliberate, independent practice that boosts organizational efficiency. In general, OCB may be a great benefit for businesses looking to enhance both culture and performance. By recognizing and encouraging employees' discretionary efforts, organizations can create a workforce that is more engaged, motivated, and better able to achieve their goals and objectives.

VIII. CONCLUSION

Organizational Citizenship Behavior (OCB) is the umbrella term for employee discretionary activities that go above and beyond the official obligations of their jobs and support the efficient operation of the business. A key element of organizational behaviour, organizational citizenship behaviour (OCB) supports a productive workplace and increases productivity. According to research, OCB is favorably associated to job performance, organizational commitment, and job satisfaction. Colleagues are more inclined to view

employees who participate in OCB as reliable and trustworthy, and they are also more likely to give them promotions and raises in pay. Promoting OCB in organizations does come with certain difficulties, though.

Due to the fact that OCB contains discretionary acts that are not expressly called for by the work, it is challenging to quantify. Another issue is that if employees engage in OCB without obtaining the proper recognition or benefits, they could feel exploited. In general, firms can gain from supporting OCB by creating a pleasant workplace culture and honoring and rewarding staff members who participate in OCB.

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Remote Working and its impact on Employees Productivity

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Abstract

Remote working is a practice followed by employees performing their job from a location other than the office separated by employer. In this literature review paper, the concept of remote working has its advantages, disadvantages are elaborated. Also, the various challenges faced by employees while working remotely has been discussed. According to the reviews, it has been seen that working remotely has positive and negative impacts on employee productivity. Employees who worked remotely experienced self motivation and discipline on one hand and on the other hand they experienced uncertainty, loneliness, and separation at the end of the day. Based on the above reviews, it was recommended to consider remote working, work life balance and employees' productivity as important variables. However, it is suggested that more variables can be included to understand the concept more widely and also for robust outcome.

Keywords: Remote working, virtual performance, employee's productivity, work life balance

I. Introduction

The growth and development of technology have led to the development of new ways of performing work, and among them is remote working. The concept of remote working is becoming a consolidated reality worldwide. According to ILO, during Covid-19, they describe "remote work that is fully or partially carried out on an alternative work site other than the default place of work". The concept of remote working was developed during the 1970s. It was given that remote working leads to employees working from any place other than the prominent institute. As employees work from distant places, the manner of evaluation and super visional so changed concerning traditional methods. The International Association of remote working defines remote working as a pattern of working in which employees are provided flexibility in terms of time and place to work. It is a type of remote work where a person not only works at which he/she excels but also runs their own business. Here, a person will be working at their choice of place.

Work from Home

Employers allow their employees to work while staying at home.

- **Hybrid**

It is a typical arrangement between employer and employee's where they agree to work some days from the office and some other days from home. It is considered to be the best

method of boosting productivity of employees.

- **Fully Remote**

Here, the work is fully remote. Employees are never expected to come to the office. They can perform their work duties at a place of their choice other than the place of organization.

II. Statement of Problem

Availability of image literature on remote working, and its uses and this knowledge are still in the development phase. This is a reason that is due to a need to know what remote working is and its impact. We are not able to adopt such types of work. To find out the solution to this, the concept of remote working, its advantages and disadvantages are studied in detail. This research paper helps in explaining remote working perceived impact on employee productivity.

III. Research Objectives

The objectives of study are

- To study the concept of remote working and its impact on employee productivity by reviewing the literature.
- To determine the respondent level of agreement and disagreement on remote working by survey analysis.

IV. Methodology

To achieve the first objective of study various research papers have been studied and to attain the second objective survey analysis has been used. The research is based on primary and secondary data collected from various journals, magazines, online sites, news papers etc.

a. Population and Sample

From the population, 70 respondents were selected using convenience ball sampling.

b. Data Collection

The primary data was collected by using Google from links to the various people working in various industries. And also, secondary data was collected from various sources like journals, magazines, online sites, news papers etc.

c. Data Analysis

The data collected will be analyzed using descriptive analysis crosstab with spss software.

V. Limitations of analysis the study

1. The finding may be not same as the perception of employee working in different industries are likely to differ.
2. The sample size is small.

a. Positive impact of implementing Remote Working

- According to T. L. Bredt and R.M. Verbusg (2007) Remote Working results in reduction in cost of travelling, apparels, work place and pollution. They concluded that providing flexibility in terms of working location, style and time will give more power to the organization which will ultimately lead to avoiding financial risks.
- According to Elliott (2015), working remotely has a positive impact on employee's productivity. It was concluded that remote working increases the productivity as well as morale of employees. Author also suggested that working remotely will open up the opportunities outside the country.
- According to Golden et al, (2008) remote working provides more freedom to employees from organization rules and policies which help in enhancing creativity in work as well as proficiency in work. It was also concluded that remote working will give extra time to submit work that was not available earlier because of time consumed to work, accidents, traffic, search for parking etc.

b. Negative impact of implementing Remote Working

- According to Peters et al (2009), there are a number of challenges faced by companies due to remote working policy. They stated that remote working directly affects the work of an organization. Adoption of remote working will lead to weak employee performance and ultimately the organizational culture and interpersonal skills are infected.
- According to Nicholas (2013), 100% remote working demands total dependence on technology. It demands to be present and accessible every time required. But, people working remotely generally get distracted due to domestic life, children around, TV shows etc.
- Trimintzios et al (2006) states that remote working leads to no knowledge sharing, no team working, no socialization which deviates the opportunities for improving skills by learning professionals.

c. Analysis

This section describes the demographic profile of various variables related to remote working. A total of 70 respondents (working professionals) participated in the study.

Table – 1 Age-wise sample profile

Age(inyears)	Frequency	Percentage
Below30	19	27.1
31-35	26	37.1
36andabove	25	35.8

Source: Primary data

Table – 2 Gender-wiseprofile

Gender	Frequency	Percentage
Male	44	62.9
Female	26	37.1

Source: Primary data

Table – 3 Industry-wise sample profile

Industry	Frequency	Percentage
IT	28	40
Automobile	2	2.9
Education	8	11.4
Power	6	8.6

FINDINGS

- From the analysis and interpretation of data, the following findings of the study are:
- The sample profile of respondents shows that out of 70 respondents that maximum are male (44), and superseded by female (26).
- Ages wise classification of respondents shows that highest no. of respondents (26) are from the age group of 31-35 followed by (25) those are form 36 and above age group, and (19) are from below 30 age group.
- The results of crosstab regarding gender and choice of working states that out of 44 male respondents, (26) male employees preferred hybrid work style followed by (12) opted for work from home and (6) opted for work from office. Among (26) female employees, (12) opted for hybrid form of working, followed by (19) opted for work from home and (5) opted for work from office.
- The results of crosstab regarding age and choice of working style states that out of (19) respondents, those are below 30 age group (12) respondents preferred work from home and (2) work from office.
- Out of 26 respondents belonging to the 31-35 age group, 13 respondents preferred hybrid style of working followed by 8 preferring work from home and 5 following work from office.
- Out of 25 respondents, belonging to 36 and above age group, (13) preferred hybrid style of working, followed by (8) referring to work from home and (4) preferring work from office.
- The results of crosstab regarding gender and views regarding work from home and its impact on employee productivity states that out of male employees, (29) male respondents marked yes i.e. Work from home affects employee productivity

followed by (15) male respondents demand for the same.

- In the case of female respondents, (18) marked yes and (8) stated that work from home doesn't affect employee productivity.
- The results of crosstab regarding age and views regarding work from home and its impact on employee productivity states that among all age groups, the maximum of respondents marked yes which states that work from home affects employer productivity.

Conclusion

On the basis of data collected from respondents and literature review it has been concluded that work from home affects the employee productivity in both negative and positive ways. Data collected from respondents stated following positive and negative points-

Positive:

1. Being a mother, one can give more output and can save time for travelling.
2. Better environment at home and maximum time can be spent with family.
3. It allows flexibility and freedom.
4. No traffic issues.
5. Work Life balance.
6. Working environment at home leads to less physical tiring and a good diet at home results in maintaining good health.

Negative:

7. No sharing of thoughts
8. Low energy
9. Low productivity
10. Health issues occurs
11. No routine and recreational activities
12. Internet connectivity issues at home
13. Permanent work from home negatively impacts employee productivity.
14. Loss of focus with respect to work.

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Assessment of Industrial Revolution 5.0 on Social Entrepreneurship Dynamics in India

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Abstract

The Industrial Revolution 5.0 is a transformative force that is reshaping the global economy and society. This paper assesses the impact of the Industrial Revolution 5.0 on social entrepreneurship dynamics in India. Social entrepreneurship has emerged as a powerful force for addressing social and economic challenges in India, and the Industrial Revolution 5.0 has the potential to accelerate and amplify the impact of social entrepreneurship. The study reviews the key technologies driving the Industrial Revolution 5.0, including artificial intelligence, machine learning, blockchain, and cloud computing, and examines their potential applications in social entrepreneurship in India. The study provides valuable insights into the potential impact of the Industrial Revolution 5.0 on social entrepreneurship dynamics in India, and highlights the critical role that social entrepreneurship can play in driving innovation, promoting economic growth, and addressing social challenges in India.

Keywords- *Industrial Revolution 5.0, Social Entrepreneurship, Artificial Intelligence, Social Challenges, Internet of Things (IoT),*

I. Introduction

The ongoing technological revolution of Industrial Revolution 5.0 is expected to have a significant impact on the Indian economy and society. It is estimated that by 2035, the adoption of Industry 4.0 technologies could lead to a 20-30% increase in India's manufacturing output, and the creation of up to 90 million jobs [12] In the context of social entrepreneurship, the technological advancements of Industrial Revolution 5.0 are expected to create new opportunities for social entrepreneurs to address pressing social and environmental issues. For example, the use of artificial intelligence and big data analytics can enable social entrepreneurs to better understand social problems and develop innovative solutions that can scale quickly and sustainably [4] Moreover, the proliferation of digital technologies and platforms is expected to enable social entrepreneurs to reach a wider audience and mobilize resources more efficiently. For instance, crowd funding platforms and social media can be used to raise funds and create awareness about social issues [12]

However, the adoption of Industrial Revolution 5.0 technologies also presents some challenges for social entrepreneurs in India. The increasing automation of jobs and the digital divide can exacerbate existing social inequalities and create new ones. Moreover, the high

cost of adopting advanced technologies and the lack of skilled labour in certain areas can hinder the growth of social enterprises [4]

The ongoing technological revolution of Industrial Revolution 5.0 is expected to have both opportunities and challenges for social entrepreneurship dynamics in India. Social entrepreneurs will need to navigate these changes and leverage the potential of new technologies to address social and environmental issues effectively.

II. Industrial Revolution 5.0 proliferation in India status quo

India is one of the world's fastest-growing economies and is undergoing a digital transformation that is expected to drive the adoption of Industrial Revolution 5.0 technologies. According to a report by Deloitte, the digital economy in India is expected to reach \$1 trillion by 2025, driven by the proliferation of digital technologies such as 5G, cloud computing, artificial intelligence, and the Internet of Things (IoT) [5]

The Indian government has launched several initiatives to support the adoption of advanced technologies and promote innovation. For instance, the Digital India program aims to transform India into a digitally empowered society and knowledge economy by providing digital infrastructure and services to citizens [6]. The Make in India program aims to promote manufacturing in India and attract foreign investment by providing a favorable business environment and incentives [6]. The proliferation of Industrial Revolution 5.0 technologies in India is expected to have a significant impact on various sectors such as manufacturing, healthcare, agriculture, and education. For example, the use of robotics and automation in manufacturing can improve productivity and quality, while the use of telemedicine and IoT in healthcare can improve access to healthcare services in rural areas [14]

However, the adoption of Industrial Revolution 5.0 technologies in India also presents some challenges such as the digital divide, the lack of skilled labor, and the need for regulatory frameworks to ensure data privacy and security. Moreover, the high cost of adopting advanced technologies can be a barrier for small and medium-sized enterprises (SMEs) and start-ups [5].

The proliferation of Industrial Revolution 5.0 technologies in India presents both opportunities and challenges. The Indian government and businesses will need to navigate these changes and leverage the potential of new technologies to drive innovation, growth, and development.

III. Linkages between Social Entrepreneurship and IR 5.0

Social entrepreneurship and Industrial Revolution 5.0 are two intertwined concepts that have the potential to drive innovation and address social and environmental challenges in India. The ongoing technological revolution of Industrial Revolution 5.0 is expected to create new opportunities for social entrepreneurs to develop innovative solutions that can scale quickly and sustainably [4]

The use of advanced technologies such as artificial intelligence, blockchain, and the Internet of Things can enable social entrepreneurs to better understand social problems and develop effective solutions. For example, social enterprises can use blockchain technology to create transparent and secure supply chains for fair trade products, or use machine learning algorithms to analyze data and identify patterns to inform their decision-making process [11].

Moreover, the proliferation of digital technologies and platforms can enable social entrepreneurs to reach a wider audience and mobilize resources more efficiently. For

instance, social media and crowdfunding platforms can be used to raise funds, create awareness about social issues, and engage with stakeholders [12].

However, the adoption of Industrial Revolution 5.0 technologies also presents some challenges for social entrepreneurship in India. The digital divide can exacerbate existing social inequalities and limit access to technology for marginalized communities. Moreover, the high cost of adopting advanced technologies and the lack of skilled labor in certain areas can hinder the growth of social enterprises [4]

The linkages between social entrepreneurship and Industrial Revolution 5.0 in India are complex and present both opportunities and challenges. Social entrepreneurs will need to navigate these changes and leverage the potential of new technologies to address social and environmental challenges effectively.

IV. Adoption of IR 5.0 in social entrepreneurship in India: Probable Directions

The adoption of Industrial Revolution 5.0 technologies presents a unique opportunity for social entrepreneurs in India to create innovative solutions for social and environmental challenges. Some of the probable directions of adoption of IR 5.0 in social entrepreneurship in India are as follows:

a. Use of AI and Machine Learning

Social entrepreneurs can leverage AI and machine learning to analyze data and identify patterns to inform their decision-making process. This can help them develop innovative solutions to address social problems and optimize their operations. Artificial Intelligence (AI) and Machine Learning (ML) are key technologies driving the Industrial Revolution 5.0. The integration of AI and ML in manufacturing processes enables automation and optimization of the production line, which leads to improved efficiency and reduced costs. AI and ML are also used in predictive maintenance to reduce downtime and improve reliability, and in quality control to reduce defects. [20] In the context of social entrepreneurship in India, AI and ML can be used to address various social challenges such as healthcare, education, and agriculture. For example, AI-powered chatbots can be used to provide affordable and accessible healthcare services to remote areas, while ML algorithms can be used to personalize education for students and improve learning outcomes. AI and ML can also be used in precision agriculture to improve crop yields and reduce water usage. [10]

One example of an AI-based social enterprise in India is Niramai, a startup that uses AI-powered thermal imaging to detect breast cancer at an early stage. [13] The technology is non-invasive, affordable, and accessible, making it ideal for screening in remote and low-resource settings. Niramai has been recognized as one of the top social enterprises in India, and its technology has been deployed in various parts of the country.

AI and ML play a crucial role in the Industrial Revolution 5.0 by enabling automation and optimization of manufacturing processes. Furthermore, AI and ML can also be used to address social challenges and facilitate the creation of sustainable and scalable social enterprises. The examples mentioned above demonstrate the potential of AI and ML to create positive social and economic impacts in India.

b. Blockchain Technology

Blockchain technology is a key enabler of the Industrial Revolution 5.0 by providing a decentralized and secure platform for storing and sharing data. In manufacturing, blockchain can be used to improve supply chain management by providing transparency and traceability

of products. Blockchain can also be used to improve the reliability and security of the industrial Internet of Things (IIoT) by enabling secure communication and data sharing between devices. [15]

In the context of social entrepreneurship in India, blockchain can be used to address various social challenges such as financial inclusion, supply chain transparency, and identity management. For example, blockchain can be used to provide affordable and accessible financial services to underserved communities, while also providing transparency and accountability in financial transactions. Blockchain can also be used to improve supply chain transparency and reduce food waste by providing end-to-end visibility of the supply chain. [19]

One example of a blockchain-based social enterprise in India is Agri10x, [1], a platform that connects farmers directly with buyers, eliminating intermediaries and providing transparency in the supply chain. The platform uses blockchain technology to provide transparency and traceability of products, enabling farmers to receive fair prices for their products and reducing food waste.

Another example is Sahyadri Farmers Producer Company, [18] which uses blockchain technology to provide a transparent and secure platform for farmers to sell their products. The platform provides end-to-end traceability of products, ensuring fair prices for farmers and transparency for consumers.

In conclusion, blockchain technology plays a crucial role in the Industrial Revolution 5.0 by providing a secure and decentralized platform for storing and sharing data. Furthermore, blockchain can be used to address social challenges and facilitate the creation of sustainable and scalable social enterprises. The examples mentioned above demonstrate the potential of blockchain technology to create positive social and economic impacts in India.

c. Internet of Things (IoT)

The Industrial Revolution 5.0 is characterized by the integration of various technologies, including the Internet of Things (IoT), artificial intelligence, and advanced robotics, to create a more connected and automated manufacturing process. In this context, IoT plays a crucial role in enabling the collection and analysis of real-time data to optimize industrial processes and improve efficiency. [23] Furthermore, IoT can also facilitate the creation of new business models and revenue streams through innovative products and services.

In the context of social entrepreneurship in India, IoT can be used to address various social challenges such as healthcare, education, and agriculture. For example, IoT-enabled medical devices can be used to provide remote healthcare services to rural communities, while IoT sensors can be used to monitor soil moisture levels and improve crop yields in agriculture. Furthermore, IoT can also facilitate the creation of social enterprises that provide sustainable and scalable solutions to social challenges. IoT plays a crucial role in the Industrial Revolution 5.0 by enabling the creation of more connected and automated manufacturing processes. Furthermore, IoT can also be used to address social challenges and facilitate the creation of sustainable and scalable social enterprises. The examples mentioned above demonstrate the potential of IoT to create positive social and economic impacts in India

Cloud computing is a key technology driving the Industrial Revolution 5.0 by providing scalable and cost-effective access to computing resources. In manufacturing, cloud computing can be used to improve supply chain management by providing real-time visibility and control over production processes. Cloud computing can also be used to

improve collaboration and innovation by providing a shared platform for data and knowledge exchange. [9]

In the context of social entrepreneurship in India, cloud computing can be used to address various social challenges such as healthcare, education, and financial inclusion. For example, cloud-based telemedicine platforms can provide affordable and accessible healthcare services to remote areas, while cloud-based e-learning platforms can provide personalized education to students. [17] Cloud computing can also be used to provide affordable and accessible financial services to underserved communities, enabling financial inclusion and economic empowerment. One example of a cloud-based social enterprise in India is HealthifyMe, [7] a platform that provides personalized nutrition and fitness coaching to users. The platform uses cloud computing to provide scalable and cost-effective access to its services, enabling it to reach a large number of users across India. HealthifyMe has been recognized as one of the top social enterprises in India, and its platform has helped thousands of users achieve their health and fitness goals.

Another example is Cashless Technologies India, [2] which provides a cloud-based platform for digital payments and financial services. The platform provides affordable and accessible financial services to underserved communities, enabling financial inclusion and economic empowerment. In conclusion, cloud computing plays a crucial role in the Industrial Revolution 5.0 by providing scalable and cost-effective access to computing resources. Furthermore, cloud computing can be used to address social challenges and facilitate the creation of sustainable and scalable social enterprises. The examples mentioned above demonstrate the potential of cloud computing to create positive social and economic impacts in India. However, the adoption of IR 5.0 technologies also presents some challenges for social entrepreneurship in India. Social entrepreneurs will need to develop the necessary skills and knowledge to adopt these technologies effectively. Moreover, the high cost of adoption and the lack of access to technology for marginalized communities can limit the impact of IR 5.0 on social entrepreneurship in India. The adoption of IR 5.0 technologies presents significant opportunities for social entrepreneurship in India. Social entrepreneurs will need to navigate the challenges and leverage the potential of these technologies to create innovative solutions that can address social and environmental challenges effectively.

V. Conclusion

The adoption of Industrial Revolution 5.0 technologies presents significant opportunities and challenges for social entrepreneurship in India. [4]. On the one hand, these technologies can enable social entrepreneurs to create innovative solutions that address social and environmental challenges more effectively. On the other hand, the high cost of adoption and the lack of access to technology for marginalized communities can limit the impact of IR 5.0 on social entrepreneurship in India. [8]

To fully realize the potential of IR 5.0 in social entrepreneurship in India, there is a need for further research and collaboration between different stakeholders. [21] Social entrepreneurs will need to develop the necessary skills and knowledge to adopt these technologies effectively, and policymakers will need to create an enabling environment that fosters innovation and entrepreneurship. Moreover, there is a need for greater attention to the social and ethical implications of IR 5.0 technologies. As these technologies become more pervasive, there is a risk that they could exacerbate existing inequalities and create new forms of exclusion. Therefore, it is essential to ensure that the adoption of IR 5.0 technologies is accompanied by efforts to promote social inclusion and equity. [22]

In the future, research on the adoption of IR 5.0 in social entrepreneurship in India should focus on understanding the factors that drive adoption and the barriers that limit

it. This research should also explore the social and environmental impacts of these technologies and the strategies that social entrepreneurs can use to maximize their positive impact. [3]. The adoption of IR 5.0 technologies in social entrepreneurship in India presents significant opportunities and challenges. To fully realize the potential of these technologies, there is a need for further research, collaboration, and efforts to promote social inclusion and equity.

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An overview of green banking & its relevance in economy

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Abstract

The banking sector also plays an significant role in economic growth and environmental protection by promoting eco-friendly practices. Green Bank is one of them. The theory of green banking is the endeavour of banks whose main objective is to conduct their banking activities in a green manner in order to develop the economy and restore the natural environment. The aim is to promote an eco-friendly bank as compared to the traditional green bank. The reason of this research paper is to first define that what green banking is; secondly, the benefits associated with it or the reasons for adopting it, thirdly, the challenges faced by banks in implementing green banking and finally the role of green banks in economic growth.

Key words: Green banking, Economy, Economic growth, Environment protection

I. Introduction

The conception of green banking is the bank's concern for environmental sustainability. Green banking will provide benefits to the banks and industries as well as the economy. Green banking means promoting and encouraging eco-friendly practices and sinking the carbon footstep of traditional banking actions. Green banking agenda is to improve green banking processes and technology. Green banking also aims at making the habits of its customers eco-friendly. Green banking is a type of common banking that focuses on social and environmental factors to protect the environment and achieve environmental sustainability; therefore it is also known green banking.

- **Ethical banking**
- **Sustainable banking.**

Green Banking

Green banking wasfirst introduced in 2003 with the aim of protect the environment. Green banking was initially adopted by some of the major global banks. Examples of such banks are – Royal Bank of Scotland, Westpac Banking Corporation etc. Green banking in India started in Florida in 2009. SBI is a commercial bank in India which has started 'Green Banking' initiative. Jha and Bhom (2013) defined green banking as a method of promoting eco-friendly practices and reducing carbon footstep through banking. Green activity according to (IBA, 2014) Indian Banking Association A bank is like an ordinary bank, which takes into account all social, ecological or natural factors with the aim of protecting the atmosphere and conserving natural resources.

Green banks are banks that focus more on environmental factors, and their agenda is to provide environmentally and socially friendly business practices. Green Bank considers all important factors before granting the loan, and checks whether the project is environmentally friendly or not and has any impact in future, then Green Bank will not grant the loan unless you agree. Make sure to follow all important points' environmental protection standards. There are two types' approaches to green banking practices. The first is in-residence green banking and the second is bankers who practice in their line of trade.

The in-house Green Banking includes the following -

- Create and maintain a healthy banking environment.
- Green construction
- Internet Banking
- Waste Management, Installation of solar panels on the roof of the bank
- Reducing noise pollution
- Online Account Statement etc.

Green project financing is one of the main practices of bankers in their fields of business.

- Biogas plant
- Solar power plant
- Bio-fertilizer plant
- Projects with ETP
- Work on specific green projects
- Voluntary activities of banks

II. Objectives and Methodology

- To examine what Green Banking is.
- To examine the benefits or reasons for green banking adoption.
- To examine the challenges faced by banks in implementing green banking.
- To examine its importance in the economy.

III. Methodology

- This study is descriptive and secondary data has been used for the study.
- The secondary data was collected from different research articles, websites, various articles and journals.

IV. Limitations Of Study

The limitations of this study are as follows -

- Time Consuming
- Secondary data was used in this study, so it may be less reliable.

Benefits or Reasons Of Adoption Associated With Green Banking

Saves Time – Using Green Banking saves time compared to branch banking.

Carbon footprint- Carbon footprint can be reduced by adopting green banking banks.

Healthy Environment - Green banking creates a clean and hygienic environment and creates an overall healthy environment.

Direct Deposit - Green Banking encourages direct deposits to get pay-checks.

Goodwill – Banks gain reputation by following green banking practices.

Low interest rate – Green banking provides low interest rate based loans to environmentally friendly industries or customers.

Other Benefits:

Other benefits associated with green banking are as follows:

- Improve work standards
- computerized tasks
- Possibility to retain employees

- Green banking obtain better profitability ratio
- Customer reliability enhanced
- Minimized expenses to sell and serve & diminish managerial burden too.

Implementing Of Green Banking Challenges Faced By Banks

Banks faced numerous challenges in implementing green banking; the main challenges are discussed below –

- It's a challenge for banks to execute green banking successfully in rural areas.
- Resistance to change is another challenge for banks and most people in India still prefer written communication on paper and ignore and question other conveniences.
- Lack of awareness is another challenge faced by the banks while implementing green banking.
- Banks do not have enough infrastructures to help them apply green banking practices efficiently.
- Banks don't have more technical knowledge related to green banking that resulted into convenience issues.
- Operating green banking is costly because green banks need specific expertise and skills due to the type of consumers, they are servicing.
- Accurate legislation linked to green banking is not still framed.

Relevance Of Green Banking In Economy

It is important for both the banks and the economy to avoid the risks inherent in the financial sector. Sometimes it involves minimizing risks, managing the environment well and maximizing profits. Equally eminent is the risk involved, moral or financial. Green banking can be a way to diminish pollution and preserve the environment which helps in sustainable economic development.

Green banking is very important for the economy as a whole as it reduces the credit risk, legal risk and reputational threat involved in the banking sector.

Credit Risk:

Consumers most affected by credit risk due to lending (Kezel and Sponholtz, 2017) are those whose businesses are affected by pollution costs, changes in environmental regulations, and new requirements regarding emissions levels. Credit risk can also occur not directly when banks lend to companies whose activities are unfavorably affected by changes in environmental regulations.

Legal Risk:

Banks face legal risks if they breach banking regulations (Charlier, 2000). Banks, like other businesses, face legal risks if they do not fulfill with relevant environmental regulations. They may also face other risks such as direct liability to the lender for cleaning costs or compensation claims if they already occupy the property in question.

Reputational risk:

The reputation of banks can be affected if they are involved in projects that harm the environment (Saliuddin, 2014). Reputational risk arises from the financing of environmentally questionable projects.

V. Conclusion

Concept that aims to promote eco-friendly practices to protect the environment. Green banking also offers various benefits like digital banking transactions, less time and convenience as compared to traditional banking services. By adopting this, banks can also reduce their carbon footprint. Green banking will also provide mutual benefits to banks, industries and the economy. Green banking is a method to improve the environment and promote economic growth. Green banking will also improve the quality of banks in future.

A smart way to think about future sustainability. It is significant for banks to remain dynamic and increase the growth rate of the economy. For sustainable growth, Indian banks need to adopt green banking as a trade model without delay. Adopting green banking is good for the banks as well as the entire economy, but implementing it is not an easy task as there are many challenges associated with it. Banks should precisely define the strategy before implementing it and ensure integrity and accountability to get better results.

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Effects of organizational learning and informal learning on organizational citizenship behavior: a study from college teachers in Greater Noida

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Abstract

Organizations are ecosystems for substantial learning for the employees, since employees working in any particular organization have exposure not only to the environmental surroundings in the place of work but also carry considerable background learning informally, which they previously or concurrently acquire as a part of the informal environment in which they grew up or have been a part of, which significantly affect the overall conditioning and work behaviour in the professional scenario. Therefore, it becomes imperative to analyze how not only formal learning i.e., learning inside the organization in formal professional training set up but also informal learning i.e., learning from the informal environment i.e. colleagues through informal interaction, interaction with friends and family and general life experiences shape the behaviour of the employees in the organization. Behaviour in the organization is characterized by organizational citizenship behaviour, which is contribution made beyond the contractual duties by the employees in the organization which is an evident predictor of employee loyalty and engagement.

Keywords: Organizational learning, Formal Learning, Informal learning, Organizational Citizenship Behaviour.

Introduction

The process of acquiring new behavior, attitude, knowledge, preferences and skills is called learning. Learning may occur immediately, because of a particular incident or because of a need to overcome a challenge, but generally knowledge gets accumulated from repeated experience. Organizational learning happens when organization gains knowledge related to its functions and uses it to adapt to the dynamic environmental happenings and there by endeavors to improve its efficiency. Also, it can also be referred to as the process of creating, retaining and transforming knowledge within an organization. Knowledge is gained as and when the organization gains experience. Organizational learning is a phenomenon that leads to alteration by developing new behavior different from existing or previous one. Organizational learning is very significant in today's business environment, which is characterized by high rate of

dynamism and competitive as well as attractive market for the labor force to work for, which are looking forward to gaining advantage of opportunities for improving their knowledge and learning. Therefore, organizational learning is a tool to retain talented employees as well, since it fosters employee engagement and collaboration among employees. When learning is made one of the key pillars for the existence of the organization, all actions are capable of becoming opportunities to improve by way of reflecting and innovating.

Organizational learning can occur in both ways in the organization.

- Formal organizational learning and
- Informal organizational learning

Formal training sessions and the like experiences fall in the first category and informal learning happens because of interactions with superiors and colleagues and feedback mechanisms in formally. Informal learning for the employees may happen within the organization out of organizational experiences or from outside the organization by way of their own life experiences, background in which they grew up, personal ethics, values and principles etc. Recently education got the highest contribution in the union budget. The education sector in India has shown signs of resilience and evolved to contribute significantly to the progress story of our country. According to an article authored by Mr. Prajodh Ranjan, Group CEO and Co-founder, Lighthouse Learning, education market is bound to touch \$313 billion by 2030 and the contribution that the academicians will be making in the same is certainly going to be significant is undeniable and the therefore understanding the impact of organizational learning both formal and informal (organizational and from personal experiences etc.) on organizational citizenship behavior is significant to analyze since it will boost loyalty and commitment amongst academicians as catalysts in the growth story of India.

Organizational citizenship behavior (OCB)

Dennis organ who is considered as the father of OCB explained it as a discretionary behavior of an individual which is apart from contractual duties of an employee, which helps in effective function ting of the organization. There are different forms of OCB:

- Altruism
- Courtesy
- Sportsmanship
- Conscientiousness
- Civic virtue

OCB is a person's voluntary commitment within an organization, which does not constitute part of formal work contract or duties, having significant consequences at the place of work. Assessing the impact of formal and informal organizational learning and informal learning from personal experiences on organizational citizenship behavior is vital for academic excellence in our country.

Formal learning

Traditionally learning has been organized, structured and goal oriented. This kind of structured learning takes place within the organization by way of formal training sessions and other mechanisms and thereby forming a part of the organizational learning. Therefore, how the formal learning affects OCB is worth analyzing amongst the college teachers in Greater Noida.

Informal learning

Any learning that is less structured and away from traditional learning environment, loaded with an intention to solve a problem, by way of discussions, learning by doing, feedback, reflection, in order to create knowledge is called informal learning. Since estimates state that 70% to 90% adult learning takes place outside formal environment, within an organization, it becomes vital. Informal learning can also happen outside the organization from the environment at home, personal life experiences, ethics, inclination towards spirituality, etc. leading to a certain type of behavior.

Therefore, it becomes significant to analyze the effect of informal learning from within organization and outside the organization (from life experiences etc.) on OCB of the college teachers in greater Noida.

Hypothesis

H1: formal learning of the teachers has an effect on the OCB in colleges in Greater Noida

H2: informal learning within the organization has an effect on the OCB amongst college teachers in Greater Noida.

H3: informal learning from outside the organization (from life experiences etc.) has an effect on the OCB amongst college teachers in Greater Noida.

Objectives

- To determine whether formal organizational learning affects the OCB amongst college teachers in Greater Noida.
- To determine whether informal organizational learning affects the OCB amongst college teachers in Greater Noida.
- To determine whether informal learning from outside organization (from life experiences etc.) affects the OCB amongst college teachers in Greater Noida.

Literature review

Organizational learning capability is the process and a set of actions that will lead to learning employees and the result is a kind of invisible assets in organization (Fariba Karimi, Marzieh Akbari, 2014) “The mediation role of organizational intelligence in relationship between organizational learning capability and organizational citizenship behaviour”. There is a significant relationship between organisational learning capability with OCB and organizational learning capability has indirect impact on OCB. More the levels of organizational learning capability and organizational intelligence in employees is present, greater the impact on organizational citizenship behaviour and increased effectiveness and efficiency of university activities. (Fariba Karimi, Marzieh Akbari, 2014). The organizational learning components considered are (risk taking, interaction with external environment, dialogue and participative decision making) may come under formal or informal learning, which can be further analysed in colleges in Greater Noida.

Fariba Karimi and Marzieh Akbari, 2013, “Predicting Organizational Citizenship Behavior on the Basis of Organizational Learning Capability” suggested a significant relationship between organizational learning capability and OCB. The study also suggested that more learning would increase performance, when employees improve their level of self-development that they attained in training session (could be formal) that are encouraged and then voluntarily expand knowledge skills and their capabilities, they also suggested improving OCB by training for staff. The study quotes Turker, M., 2008, the organization member’s beliefs and values would create a learning culture and provide opportunities to indulge in OCB. Therefore, what role the formal and informal (organizational and outside) learning plays information of such beliefs could be analyzed

in our area of study.

Müslim Alanoğlu, Zülfü Demirtaş, 2016, “The Relationships between Organizational Learning Level, School Effectiveness and Organizational Citizenship Behavior”, concluded that OCB is exhibited by workers to the extent of the value attributed to it by the society they are raised in (source of in formal learning outside organization) and the organizational culture they work at (source of formal and in formal learning within the organization), also organizational learning level of high schools significantly predicts the level of OCB exhibited by managers and teachers. Therefore, these findings become significant in our area of study as well.

Samantha Crans, Veronika Bude, Simon Beausaert, Mien Segers, 2021, “Social informal learning and the role of learning climate: Toward a better understanding of the social side of learning among consultants”, concluded that employees most often learnt deliberately and in reaction to a challenging situation by mainly engaging in passive learning activities, such as receiving feedback and observing their direct colleagues and supervisor. Learning climate seems to have a pivotal role for employees' social informal learning. If employees felt responsible for their development, experienced a supportive supervisor, had space to learn and had the opportunity to exchange knowledge with others this encourages them to engage in social informal learning. The study also indicated, consultants learnt from others in passive manner and informally learning by way of social interaction with co-workers, so therefore analysing the effect of such kind of learning in our area of study.

Findings of the study

Following findings have been understood based on the review of the available papers significant relationship between organisational learning capability with OCB, has been observed, risk taking, interaction with external environment, dialogue and participative decision making are considered to be elements of organisational learning, interaction with external environment will comprise interaction informally with parties that may impart informal learning lessons to employees that they may implement at their place of work. Dialogue may comprise of informal discussion with colleagues and seniors which may help them take up skills and behavioral lessons informally in the academic functioning. Participative decision making could be either formal when seniors ask for suggestions and informal when colleagues discuss amongst themselves regarding academic practices. Therefore it is observed that both formal and informal learning (within and outside organisation) have positive effect on organisational citizenship behaviour amongst college teachers in our area of study, so above hypothesis prove to be true based on the review of the considered papers. According to studies it has also been found that organizational members beliefs and values would create a learning culture and provide opportunities to indulge in OCB, these values and beliefs are generally a part of informal learning outside the organisation such as from family, personal life experiences, etc, that encourages them to indulge in OCB at place of work.

The studies suggest that people learnt from others in passive manner and informally by way of social interaction with co-workers (source of informal learning) The studies also suggested that more learning would improve sportsmanship, an element of OCB more will they be motivated to take steps for self development and knowledge expansion through formal or informal interaction, the same is applicable to teachers in our area of study as well.

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Destination Image of Western Rajasthan

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Abstract:

Western Rajasthan is known for its regal grandeur, cultural diversity, and natural beauty. For anyone looking for a true taste of India's rich heritage, it is a must-visit location. The researcher admires that this site is being paid attention to for this purpose. The main inflection of this study is to identify the image of a desert triangle of Rajasthan as a tourist destination in international tourists' perception and to determine the impact of destination perception on prospective behavioural intentions. As a result, the researcher found out that Rajasthan's desert triangle gets the highest mean score for museums, historic sites, and a rich cultural legacy and was also noted that the people of Western Rajasthan are hospitable and friendly.

Keywords: *Destination Image, Future Behavioral Intentions, Tourists, Western Rajasthan etc.*

Introduction

In many countries, the development of jobs and foreign cash is greatly aided by the tourism industry, one of those with the highest growth rates globally. It is among the most astounding social and economic advancements. Tourism generates foreign cash in the form of intangible exports, which leads to the country's numerous advancements. Tourism also has significant role in the field of service marketing, hospitality, the notions of service quality, customer happiness, and behavioural intents are crucial in the field of marketing since they may be used to gauge performance in a range of organisations. However, there hasn't been much use of these ideas in nature-based tourism [1]. Destination image is the term used to describe the conception or opinion that potential tourists have about a specific location. It develops through a variety of sources, including personal encounters, the media, word-of-mouth, and marketing materials.

Because it affects tourists' expectations, motivations, and behaviour, the destination image is crucial to their decision-making process. Therefore, for destination managers and marketers to create efficient traveller attraction and retention strategies, a thorough understanding of the destination image and its components is essential. Future behavioural intentions of tourists are significantly influenced by the perception of the destination. It moulds their expectations and views of the location, which affects how they make decisions. While a negative image may discourage potential tourists from visiting, a positive image can enhance visitation and encourage repeat trips. Therefore, it is essential for destination administrators and marketers to comprehend the variables that lead to the construction of the destination image as well as how to manage and promote it.

Destinations can draw more tourists and improve their competitiveness in the international tourism market by establishing a favourable destination image through efficient marketing and management tactics. Visitors that visit a site during various seasons could have different perceptions of it. Seasonality limits how broadly the results of tourist research can be applied, so it must always be taken into account during the interpretation process [3].

Literature Review

Borlido.T et al. (2023) demonstrates that, depending on the art genre being studied, research on the influence of art on destination image is at quite varied phases of development. The construction of destination images, with the goal of identifying commonalities among various artistic mediums. As a result of this analysis, the concept of word-of-art was further expanded and conceptualised, opening the door for its use in upcoming research. Additionally, recommendations for further research were made after identifying a number of research holes in the existing literature.

Zhong et al. (2023) performed empirical research on Chinese tourism by fusing big data with a new approach based on rich data to categorise vacation destinations and separated the 49 locations into three groups. Three groupings (core, expected, and latent) made up of twenty-two qualities were identified. Based on the network centralities of the destinations, three clusters (complete urban, scenic, and lifestyle) were identified. The most frequently reported (core) features were found to be the scenery, food and beverages, and utility based attractions using data on Chinese tourism. Consumer narratives gave importance to social life, but researchers frequently ignored this.

Lee et al. (2004) investigates the connections between service quality and customer satisfaction and how these affect visitors to forests' behavioural intentions. Face-to-face interviews were used to collect data during on-site surveys (n = 395) in a forest. Utilising structural equation modelling, the data were examined. The results indicate that satisfaction is a mediator between behavioural intention and service quality, and that satisfaction is an antecedent of service quality.

Smolčić Jurdana et al. (2017) minimise the dimensionality of customer happiness with the tourism offering, a principal component analysis was performed on 22 parts of the offering. The research produced four dimensions of customer satisfaction. The daily expenditure log was used as a dependent variable in a regression analysis. The findings showed that just one satisfaction dimension—related to the variety of facilities—out of the four established itself as a significant predictor of traveller spending at the destination. The study also shows that daily expenditure is highly influenced by family income, kind of lodging, past conduct, and duration of stay.

Chi C et al. (2008) examined the theoretical and empirical evidence on the causal links among destination image, tourist attribute, and overall satisfaction, and destination loyalty in order to provide an integrated approach to understanding destination loyalty. Seven assumptions that made up a research model were constructed. The empirical data was gathered in Eureka Springs, a popular tourist destination in the state of Arkansas.

Martzler et al. (2004) conducted an empirical study on a supplier in the automobile industry's customer satisfaction levels. The asymmetric association between attribute-level performance and overall satisfaction might be verified using a regression analysis with dummy variables. The management implications generated from an IPA are also demonstrated empirically to be false.

Research Objectives

1. To identify the image of a desert triangle of Rajasthan as a tourist destination in international tourists' perception.
2. To find out the influence of destination image on future behavioral intentions.

Research Methodology

This research is empirical in nature and primary data is collected by structured questionnaire from tourists visiting Western Rajasthan. The researcher used non-probability sampling (Judgmental sampling) was used in the paper. The questionnaire consists variables of cognitive destination image based on destination characteristics. The responses were taken by Likert Scale ranges from Strongly Agree to Strongly disagree. SPSS-22 was used for the analysis.

Results and Discussion

As previously acknowledged, the significant inflection gauges how well-known western Rajasthan is to tourists from abroad. The findings of a completed questionnaire were used to evaluate the data, which reveal the impact of destination image on future behavioural intention outcomes.

O1: To identify the image of a desert triangle of Rajasthan as a tourist destination in international tourists' perception.

Analysis:

The aim of the study is to find out what images foreign tourists have in mind when they consider visiting Rajasthan's desert triangle. The researcher looked at the typical score of the attributes of the location for foreign visitors to Rajasthan's desert triangle.

Table1- : Mean Score of Destination Image Attributes

Sr. No.	Destination Image Attributes	Mean score
1	This location offers a variety of goods for purchase.	4.37
2	A rich cultural legacy, historical landmarks, and museums are available at this place.	4.45
3	This location is linked to poverty	2.61
4	The people of Western Rajasthan are cordial and welcoming.	4.28
5	There are numerous festivals, fairs, and exhibitions here.	3.64

The perceptions of the desert triangle in Rajasthan as a tourist destination are shown in the table above. Among other things, Rajasthan is well known for its temples, historical sites, and monuments. Many magnificent palaces and forts with distinctive architectural styles may be found in Rajasthan. The same has been noted by visitors from other countries. According to the mean analysis of destination image, Jodhpur, Jaisalmer, and Bikaner have the highest mean score of 4.46 on the destination image scale and offer museums, historical sites, and a rich cultural legacy. Rajasthan has a long history of producing vibrant arts and crafts, in part because of its wealthy and diversified populace. This

beautiful country has preserved its centuries-old culture and heritage. Among other things, Rajasthan is renowned for its jewellery, hand-woven sarees, artwork, and pottery.

The similar perception has been expressed by foreign visitors. The desert triangle of Rajasthan has a variety of goods for shopping local crafts and jewels, according to the mean analysis of destination image, with a mean score of 4.38 on the destination image scale. The hospitality of Rajasthan's Rajputs is well-known and has become one of the state's most recognisable characteristics. The state's residents are renowned for their extraordinarily generous nature. International visitors gave the people of Western Rajasthan a mean score of 4.30 on the destination image scale, rating them as kind and hospitable. Rajasthan's festivals offer a platform for the arts, crafts, traditions, and history of the state. The same has been noted by visitors from other countries. The desert triangle of Rajasthan has numerous fairs, exhibits, and festivals, including the Camel Festival in Bikaner, the Desert Festival in Jaisalmer, the Rajasthan International Folk Festival in Jodhpur, the Marwar Festival in Jodhpur, the Kolayat fair in Bikaner, the Ramdevra fair in Jaisalmer, the Karni Mata fair in Bikaner, and so forth. This region has a mean score of 3.66 on the destination image scale. India's most populous state is Rajasthan. A significant socioeconomic issue in Rajasthan is poverty. When foreign tourists travel to Rajasthan, they see that the lower socioeconomic strata' standards of living are incredibly low. According to the mean analysis of destination image, the desert triangle of Rajasthan, with a mean score of 2.62 on the destination image scale, is associated with poverty.

O2: To find out the influence of destination image on future behavioral intentions.

Hypothesis:

H₂: The perception of the destination and the visitors' intended future behaviour would differ significantly.

Table 2:Correlations

		Future behavioral intentions	Destination Image
Pearson Correlation	Future behavioral intentions	1	0.356
	Destination Image	0.356	1
p-value		.000	

The findings of the correlation analysis (Table) show that the destination picture and the dependent variable have a positive and significant connection (p .001).

Results of simple linear regression analysis

Model formulation

The model for the multiple regression of this study is formulated as:

$$Y_{FBI} = \beta_0 + \beta_1 X_1 + e$$

The term "error" is used to record attributes that are not included in the sample and to account for various sampling faults. Where YFBI stands for tourists' future behavioural

intentions, 0 is a constant (coefficient of intercept), 1 are regression coefficients of destination image, and e is the term error.

Model summary

As a result, the model has forecasting capabilities. The significance of numerous correlation coefficients in predicting the outcome variable is supported by the F-statistic (F = 67.802, p .001, Table 3). This in turn shows how well the model can forecast the dependent variable.

Table 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.356 ^a	.124	.122	.61066	1.910
a. Predictors: (Constant), Destination Image					
b. Dependent Variable: Future Behavioral Intentions					

Table 4 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.29	1	25.29	67.80	.000 ^b
	Residual	179.37	481	.38		
	Total	204.65	482			
a. Dependent Variable: future behavioral intentions						
b. Predictors: (Constant), Destination image						

Destination image Impact on Future Behavioral Intentions

Regression analysis coefficients (Table 5), This positive coefficient for destination image shows that there is a strong positive correlation between future behavioural intention and destination image.

Table: 5: Impact of the destination on future behavioural intentions

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.58	.224		11.49	.000
	Destinatio n Image	.48	.057	.351	8.24	.000

The influence of destination image ($b=.471$, $p=.000$) is significant, and its coefficient is positive, indicating that the greater the destination image, the greater the future behavioral intentions. This can be summarized as follows:

$$Y = \alpha + \beta X$$

Here Y= Future Behavioral Intentions (FBI)

α = constant

X= Destination Image

To present the regression equation as:

Future Behavioral Intentions (FBI) = 2.58 + .48 (Destination Image)

Conclusion

The study focused on how foreign visitors saw Rajasthan's desert triangle as a travel destination. According to the mean analysis of destination image, Rajasthan's desert triangle gets the highest mean score for museums, historic sites, and a rich cultural legacy. The location offers a wide range of shopping options (local crafts and jewellery), and it was also noted that the people of Western Rajasthan are hospitable and friendly. However, this location is also known for its poverty and has the lowest mean score on the destination image scale.

It also hosts numerous fairs, exhibits, and festivals. Due to cultural variation, perception, historical bias, and, in particular, the regular scope of marketing operations at various sites, the image of a destination is considered differently in each place. As a result of the research, it has been determined that Rajasthan's desert triangle is home to a sizable number of magnificent palaces, forts, monuments, and historical sites with exquisite architecture and centuries of culture and history still present. The results of this study will also help the Rajasthan tourism sector in terms of service improvement and promotional strategy. As vital as offering a pleasurable experience and shaping a destination image in the minds of foreign travellers is creating a favourable picture of Rajasthan in the global market.

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A Study for Tracing the Impact of Exchange Rate Volatility on the Changes in Funds Mobilized in Mutual Funds

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Abstract

Volatility in exchange rates affects the various sectors of economies like flow of foreign investments, imports and exports and financial markets etc. It also impacts the investors' preference for a particular investment objective. In this study impact of exchange rate volatility is examined on the investors' preference for mutual funds. Funds mobilized are considered as a proxy for it. Monthly data collected for the 10-year time period commencing from 2012 to 2022. With an aim for tracing the impact of exchange rate volatility on investors' preference for mutual funds, E- GARCH (1,1) model is used. The result of E-GARCH model indicates that exchange rate volatility negatively impacts the changes in funds mobilized but this impact is not statistically significant.

Keywords: Exchange rate volatility, investors' preference, funds mobilized, causal relationship, co-integration, and E- GARCH model.

Introduction

Various factors affect the choices and preferences of investor's like geographical, demographical, personal, and macro-economic factors but the prominence is given to the macro-economic factors because of their inevitable and all-pervasive impact on entire economic system. Investor is also a unit of the financial system so he/she cannot remain unaffected from the effects generated due to fluctuation in these variables. Macro-economic variables are the indicators of the financial health of any economy and a reflector of various kinds of usual and unusual activities keep on happening around the world and in home country be it fiscal, geo-political natural events etc. Major reflectors of such events used to be inflation, unemployment, fiscal deficit, Gross Domestic Product, Foreign Exchange rate, crude oil prices etc.

The movement in these variables due the events happening around create a trickle-down effect in the economy which starts from the top and passes on to the investors. The COVID-19 and Russia Ukraine war are the recent examples which have created disruptions in economies around the world. India is not an exception to that. Timely corrections were seen in the stock markets and high volatility was witnessed in the Indian currency rates which impacted various sectors of our economy including investors.

There are various investment alternatives in the financial markets but mutual funds are more prominent in India now days. Mutual funds in India started in 1964 with the advent of Unit Trust of India with its first ever scheme having ₹25 crore Assets Under Management (AUM). Now, up till October 2022 total Assets Under Management of

Mutual fund Industry has been Rs. 39.50 trillion (US\$ 483.63 billion). The reason behind the multi fold growth of mutual funds in India is that it fundamentally works on the principle of diversification, where a team of qualified fund managers creates a pool of money collected through investors and invest it in a well- diversified portfolio created by themselves, so that an investor enjoys the higher returns of stock markets for relatively lower level of risk. At the same time, burden of managing the investment gets transferred on to the shoulders of professional fund managers. Because of these various benefits, interest of investors is increasing towards this investment avenue.

The relationship between investors' choices and exchange rate volatility are quite evident. At a micro level it is argued that exchange rates affect the portfolio of domestic and foreign investors like if exchange rate increases the profits of firm fall and eventually the stock prices of the firm also go down (Jorion (1990)). At macro- level, increase in exchange rate influence the sentiments of investors adversely because it sends unpleasant signals to the investors and bound them to act cautiously as a result to which investors pull back their money from the investment avenues both arguments reflect that, there exists a negative relation between exchange rate and investors' preference for investing. Another argument being put forward is that as and when exchange rate increases, people reroute their investments to other alternatives like mutual funds, fixed deposits etc. in place of keeping it safe their lockers which confirms to theory of elasticity of substitute goods which says that if prices of one commodity increases the demand of substitute commodity increase. So, in this case if exchange rate increases, there is a possibility that funds mobilized in mutual funds may increase. So, to check the relationship between exchange rate volatility and changes in funds mobilized, present study endeavours to trace the co-integrating relation and causal relation between the funds mobilized (taken as a proxy of investors' preference) and exchange rate. Further this study tries to trace the impact of exchange rate volatility on the funds mobilized in mutual funds.

The paper is divided into following sections. Section 1 contains the review of literature, section 2 encompasses material and methods, section 3 comprises of data analysis and key findings are mentioned in section 4.

Section-1

Review of literature: A lot of emphasis is given on the impact of exchange rate volatility on the so many variables like Abdalla and Murinde (1997) in their paper tried to trace the relationship between stock prices and exchange rate volatility in emerging financial markets of India, Korea, Pakistan and Phillipines and found the causal relationship between exchange rate and stock prices running from exchange rates. Görg and Wakelin (2002) in their research, tried to trace the impact of exchange rate volatility on the incoming and outgoing foreign direct investment from 12 developed countries in USA by collecting data for a period commencing 1983 to 1995 and found that exchange rate volatility does not impact the incoming and outgoing foreign direct investment in USA.

The relationship between exchange rate volatility and foreign direct investment was examined by Diallo (2008) in his paper by applying panel data co integration technique and found a non- linear relationship between exchange rate volatility and investments. It is also found that exchange rate volatility impacts investments negatively. The relationship between stock market returns and exchange rate volatility was examined by Grambovas (2003), Adjasi (2008), Sichoongwe (2016) in their studies and found that there exists a negative relation between exchange rate volatility and stock market returns in Ghana and Zambia.

The relationship between exchange rate volatility and economic growth was explored by Aghion et al. (2009), Oloyede & Fapetu (2018) in Nigeria and Ozata (2020) in Turkey. Former two studies found that excess exchange rate volatility can stunt the economic growth and latter advocates that that real effective exchange rate significantly affects the economic growth of Turkey positively. The impact of exchange rate volatility on investments was examined by Oluwaseyi et al., (2015), and Diala, Kalu, & Igwe-Kalu (2016) in Nigeria and Dhasmana (2017) in India, they found that exchange rate volatility has negative relationship with investments. Significant contribution was made by Ayobami (2019) in his paper where he tried to trace the impact of exchange rate volatility on the manufacturing sector of Nigeria by collecting annual data from World Bank for the time period of 1981 to 2016. He applied ARDL approach and found that exchange rate volatility significantly impacts the manufacturing sector and gross capital formation in Nigeria.

Meyer & Hassan (2020) in their paper attempted to trace the impact of exchange rate volatility on the government bond market in South Africa by taking data from 2000 to 2018. For accomplishing the objective GARCH and VECM model was applied and it was found that exchange rate volatility adversely impacts the South African government bond market. One of the important contributions was done by Syahri & Robiyanto (2020) where they tried to trace the relationship between gold prices, CSPI and exchange rates for the pandemic period by applying GARCH model and found that, there exists a significant negative correlation between CSPI and exchange rate volatility. The impact of exchange rate volatility on the investors' sentiment was traced by Škrinjarić et al. (2021) in their paper where they tried to trace the contagion effect of exchange rate volatility on the investor sentiments by collecting data from 2003 to 2019. They applied VAR model and found that volatility spill over takes place from exchange rate volatility to investor's sentiment.

After reviewing the literature, it was understood that a lot of work has been done to trace the impact of exchange rate volatility on economic growth, FDI flows, stock markets but none of the studies attempted to trace the impact of exchange rate volatility on the investors' preference for mutual funds. So, to bridge this gap, present study attempts to check the long term co-integrating relationship and causal relationship between funds mobilized and exchange and the impact of exchange rate volatility on the volatility of funds mobilized.

Section-2 Material and Methods:

Objectives of Study: This study endeavours to trace the impact of exchange rate volatility on the volatility of funds mobilized.

H01: There is no significant impact of exchange rate volatility on volatility of resources mobilized

Ha: There is significant impact of exchange rate volatility on the volatility of resources mobilized

Data: For attaining the above-mentioned objectives the percentage change in the log values of 10-year monthly data is taken for resources mobilized and foreign exchange rate commencing from January 2012 to December 2022. For tracing the impact of exchange rate volatility on the changes in resources mobilized, E- GARCH model is conducted.

Sr. No.	Name of Variables	Abbreviation	Source
01.	Resources mobilized	RM	www.amfi.com
02.	Foreign exchange rate	FOREX	www.investing.com

E- GARCH (1, 1) model: This model was proposed by Nelson (1991) with an aim to capture the leverage effect of shock on the dependent variable. It tests the asymmetric impact of news, meaning whether bad news impacts more than good news or vice versa. The equation for conditional E- GARCH (p, q) model can be written as follows

$$\log h_{(t)} = \varphi + \sum_{i=1}^q \eta \left| \frac{u_{t-1}}{\sqrt{h_{t-1}}} \right| + \sum_{i=1}^q \lambda_i \frac{u_{t-1}}{\sqrt{h_{t-1}}} + \sum_{k=1}^p \theta_k \log(h_{t-k}) \quad \text{Eq: 5}$$

Where, φ is a constant, η represent ARCH effect, λ signifies for asymmetric effect and Θ stands for GARCH effect. So, if in an E- GARCH model if, $\lambda_1 = \lambda_2 = \dots = 0$ the model is said to be symmetric but if $\lambda_i < 0$ it implies that negative shocks generate larger volatility than good news. In this case E GARCH (1, 1) model is used to trace the impact of exchange rate volatility on the funds mobilized for mutual funds

Section-3 Analysis and Interpretation of Data:

Descriptive Statistics: By looking at table 1 (in appendix) it is inferred that there exists more variability in funds mobilized (0.012) than exchange rate (0.0038). Data for exchange rate is positively skewed (0.591010) and funds mobilized is negatively skewed (-0.067928). Kurtosis values indicate that both the series are leptokurtic in nature because both the kurtosis values are more than 3 (4.41, 3.23 respectively). The probability values of Jarque Bera test entail that foreign exchange rate (p value= 0.0001>0.05) is normally distributed whereas funds mobilized (p value= 0.82<0.05) has non- normal distribution.

Test of Stationarity: For testing the stationary of series Augmented Dickey Fuller test is used. The result (see table no. 2 in appendix) indicates that the t- statistic value of funds mobilized at level is more than |3| (-6.90<|3|) and p- value is less than the level of significance (0.0000>0.05) it can be inferred that change in fund mobilized is stationary at level. Similar kind of results are exhibited by change in exchange rate where t- statistic at level is more than |3| (-9.54< |3|) and p- value is less than level of significance (0.0000>0.05) thus rejects the null hypothesis that there is presence of unit root in series. So, it is inferred that change in exchange rate is stationary at level.

E- GARCH model: The results of E- GARCH model (see table no.3 in appendix) indicate that model fits well in the data because the results of ARCH- LM test indicate that probability values of f- statistics and Chi- square statistics are more than 0.05 level of significance thus fails to reject the null hypothesis of no heteroskedasticity in the model which is desirable. The mean and variance equation of the proposed model is shown below.

Funds mobilized= 0.00041-0.17 Exchange rate(t)-0.04 Exchange rate(t-3) -0.51Funds mobilized(t-1) + ϵ_t Eq: 7

$$\log h_{(t)} = -2.39 + 0.32 \left| \frac{u_{t-1}}{\sqrt{h_{t-1}}} \right| - 0.27 \frac{u_{t-1}}{\sqrt{h_{t-1}}} + 0.77 \log(h_{t-k}) \quad \text{Eq: 8}$$

After looking at mean equation it is found that the value of exchange rate at time t is (-0.17) negative but not statistically significant ($0.42 > 0.05$) which indicate that increase in exchange rate volatility decreases the volatility in funds mobilized but not significantly. The value of γ coefficient in variance equation is negative (-0.27) and statistically significant ($0.04 < 0.05$), this confirms the existence of leverage effect in the funds mobilized. This means that negative news affects the volatility in funds mobilized more than the good news. So it can be interpreted as that there exists a insignificant negative relationship between the exchange rate volatility and funds mobilized which means that if volatility in exchange rate increases, it decreases the volatility of funds mobilized.

Conclusion

During the course of this study it was found that exchange rate do not tend to have any direct significant relationship with funds mobilized in mutual funds and results of E-GARCH model confirms that exchange rate volatility bears insignificant impact on the volatility of funds mobilized, but the direction of relationship between the two evidently stands out to be positive which confirms the theory of elasticity of substitute goods which means that if exchange rate volatility increases, the quantum of investments in mutual funds increases and vice versa because then, investors will pull back their money and reinvest that in other investment avenues. In this research, it is visible even though the relationship is not significant.

The results of Granger Causality test and Co-integration test declares that there is no causal relationship and no long-term relationship between exchange rate and funds mobilized. This study can be very useful for the students as it tries to explore the new dimension of relationship between the two variables. It can also be very useful for fund managers to understand that exchange rate volatility does not have any causal and long-term relationship with the flow of funds in mutual funds.

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Navigating The Complexities: Challenges Of Financial Institutions In Financing The Tourism Industry Of Gangtok

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ABSTRACT:

The tourism industry in Gangtok has been a key contribution to the local economy, creating jobs and propelling economic progress. Yet, despite its enormous potential, the Gangtok tourism industry confronts numerous obstacles in acquiring financing from financial organizations. The purpose of this research study is to investigate and examine the obstacles faced by financial institutions in financing Gangtok's tourism sector, as well as the consequences for the industry's long-term growth. The study paper will use a qualitative research technique, which will include a review of relevant literature, interviews with important stakeholders in Gangtok's tourism and financial sectors, and secondary data analysis. The difficulties encountered by financial institutions in financing the tourism industry in Gangtok will be divided into three categories: regulatory and policy difficulties, financial difficulties, and operational difficulties. The research paper will also discuss the consequences of these problems for the long-term growth of Gangtok's tourism business. They may include lower investment in tourism infrastructure, limited prospects for tourism sector expansion and innovation, increasing reliance on informal sources of finance, and potential negative effects on job creation and economic development. The findings of this study will provide insights into the issues that financial institutions confront while funding the tourism industry in Gangtok, as well as contribute to the current literature on tourism finance in emerging economies.

Keywords: Gangtok, tourism industry, financial institutions, financing, challenges, sustainable growth.

1. INTRODUCTION

Several locations around the world, including Gangtok, a major tourist destination in India, rely heavily on the tourism industry for economic prosperity. Yet, financing the tourism business in Gangtok is not without complexity, and financial institutions face a slew of difficulties in navigating this one-of-a-kind ecosystem. The issues are

multifaceted, involving aspects such as tourism infrastructure development, finance access, risk management, regulatory compliance, and concerns about sustainability. Issues connected to government policies, rules, and guidelines controlling the tourism and finance sectors, such as severe licensing requirements, a lack of clear guidelines for tourism financing, and complex bureaucratic processes, may be among the regulatory and policy problems. Financial difficulties may include a shortage of credit and cash for tourist-related projects, excessive interest rates, collateral requirements, and a lack of financial products targeted to the tourism industry. The operational challenges may include difficulties assessing the creditworthiness of tourism enterprises, a lack of reliable data and information, a lack of financial literacy among tourism entrepreneurs, and a lack of institutional capacity of financial institutions to cater to the tourism industry's unique needs.

Addressing these issues effectively is critical for financial institutions to promote the growth and sustainability of Gangtok's tourism industry. This research topic intends to investigate and analyse the difficulties and obstacles faced by financial institutions in financing the tourism industry in Gangtok, with a focus on understanding the local context and providing potential solutions to these challenges.

This project will add to the current body of knowledge on tourism financing and give insights for policymakers, practitioners, and other stakeholders to make informed decisions and encourage sustainable tourist growth in Gangtok by putting light on this essential topic.

LITERATURE REVIEW

Gangtok, a major tourist destination in India, relies on tourism for its economic growth. Yet, legal frameworks, market conditions, and the tourist industry's particular peculiarities make funding it difficult for financial institutions. This literature analysis examines Gangtok, India's banking institutions' difficulties financing tourism.

Challenges in Financing the Gangtok Tourist Industry:

Gangtok, as a tourist destination, is subject to a variety of tourism-related regulations and policies, such as environmental regulations, land use regulations, and licencing requirements (*Dhakar et al., 2018*). These restrictions can present compliance and risk management problems for financial institutions, as they must ensure that sponsored projects meet regulatory standards.

Market Conditions: External factors such as geopolitical stability, exchange rates, and global economic conditions all have an impact on tourism demand and the financial sustainability of tourism initiatives (*Brouder et al., 2017*). To make educated investment decisions, financial institutions must thoroughly analyse market circumstances and consider the risks connected with financing tourism projects in Gangtok.

The Tourism Industry's Distinctive Characteristics: The tourist industry's distinct qualities present obstacles for financial institutions in financing tourism projects in Gangtok. Tourism enterprises' financial health and creditworthiness may be affected by altering tax, licencing, and land ownership laws (*Hall, 2017*). Due to legislative instability and unpredictability, financial institutions may struggle to assess tourism financing risk (*Rasoulinezhad et al., 2019*). Financial institutions must take these particular qualities into account when developing creative financing solutions to handle the issues connected with the tourism industry.

Lack of Financial Infrastructure: Gangtok lacks adequate financial infrastructure, including credit facilities, insurance products, and investment opportunities for tourism ventures (*Gurung & Pradhan, 2020*). This can limit financial institutions' funding alternatives and impair their capacity to give adequate financial support to the tourism industry.

Uncertain Regulatory Environment: Tourism enterprises' financial health and creditworthiness may be affected by altering tax, licencing, and land ownership laws (*Hall, 2017*). Due to legislative instability and unpredictability, financial institutions may struggle to assess tourism financing risk (*Rasoulinezhad et al., 2019*).

RESEARCH METHODOLOGY

Objectives:

- Identify financial institutions' funding, regulatory, and risk management concerns in financing Gangtok's tourism industry.
- To Assess how economic, political, and environmental aspects affect Gangtok's tourism industry financing and how financial institutions might handle these issues.
- To identify how government's investment can help financial institutions finance Gangtok's tourism economy.

Hypothesis:

- Gangtok's tourism business is hampered by regulatory and policy issues for financial institutions.
- Gangtok's tourism business suffers from inadequate finance and high interest rates, limiting infrastructure investment and expansion.
- Financial institutions in Gangtok struggle to support the tourism sector due to operational issues such lack of collateral and financial literacy among stakeholders.

Research Design: The qualitative study will evaluate financial institutions' difficulties financing Gangtok's tourism industry. It also complicated issues and provides rich insights into key stakeholders' opinions and experiences.

Data Analysis: Thematic analysis will find patterns and themes in secondary data. According to the research objectives, regulatory and policy issues, financial issues, and operational issues will be coded and categorized.

STATISTICAL ANALYSIS:

Table:1 Statistical analysis on the challenges faced by financial institutions in financing the tourism industry of Gangtok.

Challenges	Frequency	(%)
Lack of collateral and creditworthiness of tourism businesses	45	22.50
High risk perception due to seasonal nature of tourism in Gangtok	30	15
Inadequate tourism industry data for assessing risk and profitability	28	14
Limited availability of specialized financial products for tourism industry	20	10
Complex regulatory and legal framework for tourism financing	13	6.5

Lack of awareness and understanding about tourism industry among financial institutions	15	7.5
Insufficient government support and incentives for tourism financing	14	7
Lack of skilled manpower for assessing tourism project viability	17	8.5
Difficulties in obtaining financing for small and medium-sized tourism enterprises	18	9
Total	200	

Source: Created by authors based on interviews and surveys

The table summarises Gangtok's tourism industry financing problems for banking institutions. The lack of collateral and trustworthiness of tourism enterprises, high risk perception due to Gangtok's seasonal tourism, and poor tourism industry data for risk and profitability assessment are the most typical issues. Other challenges include the limited availability of specialised financial products for the tourism industry, a complex regulatory and legal framework for tourism financing, financial institutions' lack of awareness and understanding of the tourism industry, insufficient government support and incentives for tourism financing, a lack of skilled manpower for assessing tourism project viability.

Table 2: Analysis of Economic, Political, and Environmental Aspects Affecting Gangtok's Tourism Industry Financing and Potential Responses by Financial Institutions.

Aspects	Impact on Gangtok's Tourism Industry Financing	Potential Responses by Financial Institutions
Economic	Fluctuations in exchange rates can affect tourism revenues, as Gangtok heavily relies on foreign tourists.	Financial institutions may offer hedging options to tourism businesses to manage currency risks.
	Economic downturns can lead to reduced travel spending, resulting in decreased revenue for tourism businesses.	Financial institutions may provide short-term loans or credit lines to support tourism businesses during economic downturns.
Political	Political instability or conflicts in the region can disrupt tourism activities and deter tourists from visiting Gangtok.	Financial institutions may provide emergency funds or support services to tourism businesses affected by political instability.
	Changes in government policies, regulations, or taxation can impact tourism businesses' profitability and financing options.	Financial institutions may provide advisory services to tourism businesses on how to adapt to changes in government policies or regulations.
Environmental	Natural disasters such as earthquakes, landslides, or floods can disrupt tourism activities and damage tourism infrastructure in Gangtok.	Financial institutions may offer insurance products to tourism businesses to mitigate risks associated with natural disasters.

	Environmental conservation efforts or sustainability initiatives may require tourism businesses to invest in eco-friendly infrastructure or practices, affecting their financing needs.	Financial institutions may provide specialized loans or financing options for tourism businesses to invest in eco-friendly practices or infrastructure.
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Source: Based on Author's Knowledge.

Table 3: Government Investment for Gangtok's Tourism Economy

Factors	Analysis
Financial Institutions	Government investment can help Gangtok's tourism economy by funding financial institutions. Building hotels, resorts, and other tourist facilities can be funded. Local businesses, tour operators, and other tourism-related firms can also receive loans and credit facilities from banking institutions. Government investment can help financial institutions support Gangtok's tourism economy, boosting investment and economic growth.
Employment Opportunities	Government tourism investment in Gangtok can produce local jobs. Tourism projects including attractions, cultural events, and recreational activities can provide local jobs. Hence, the tourism business can provide local jobs, raise incomes, and eliminate poverty.
Infrastructure Development	Transportation, water, sanitation, and electricity infrastructure in Gangtok can be funded through government investment. This can enhance tourism by making the location more accessible and appealing. Local residents can also profit from infrastructure development by getting better roads, public transportation, and utilities.
Promotion and Marketing	Government funding can boost Gangtok's tourism nationally and internationally. Advertising, trade exhibits, and web marketing can be funded. Gangtok's tourism attractions can be promoted to improve visitor numbers. So, the tourism sector can thrive, boosting local companies, government tax revenue, and economic development.
Sustainability and Conservation	Government investment can promote Gangtok's tourism economy's sustainability and conservation. Ecotourism, resource conservation, and cultural heritage preservation can be funded. The government can ensure Gangtok's tourism sector is environmentally and socially sustainable by supporting sustainable tourism. This can preserve Gangtok's natural and cultural resources, sustain the tourism sector, and promote sustainable development.
Collaboration and Partnerships	Government investment can help Gangtok's tourist stakeholders collaborate. Public-private partnerships, industry groups, and community-based organisations can be funded. Cooperation and partnerships can coordinate tourism growth, resource sharing, and information exchange, enhancing the tourism sector. Innovation, creativity, and entrepreneurship can lead to new tourism products, services, and experiences.

Source: Based on Author's Knowledge.

In conclusion, government investment may help finance Gangtok's tourism economy by supporting financial institutions, creating jobs, boosting infrastructure development, marketing

and promotion, sustainability and conservation, and stakeholder participation and partnerships. Investments can boost tourism, economic growth, and sustainability.

FINDINGS:

- Tourism in Gangtok has generated jobs and economic growth.
- Banking institutions encounter regulatory, policy, financial, and operational challenges while financing Gangtok's tourism sector.
- These impediments may reduce tourism infrastructure investment, hinder tourism industry expansion and innovation, boost informal finance, and hurt job creation and economic development.

CONCLUSIONS:

- The research study highlighted financial institutions' difficulties financing Gangtok's tourism industry, which may limit its growth.
- This study adds to the knowledge on tourism finance in emerging economies and illuminates Gangtok's banking institutions' funding challenges.
- Gangtok's tourism industry, economic growth, and job creation depend on overcoming these difficulties. Address regulatory and policy challenges, improve tourism business finance access, and streamline financing operations.

RECOMMENDATIONS:

Conduct Market Research: Banks should study Gangtok's tourism economy. Analyzing tourism demand, identifying major companies, and comprehending the competitive landscape. This research can assist banks evaluate Gangtok tourist project risks and potential.

Develop Specialized Financial Products: Banking institutions can create Gangtok tourism-specific financial solutions. For instance, they can issue loans with seasonal payback schedules that coincide with Gangtok's tourism season.

They may design loans for hotels, travel companies, and tour operators.

Collaborate with Government and Industry Stakeholders: Gangtok financial institutions can work with government and industry players to create tourism-friendly policies and regulations. These can involve campaigning for advantageous tax benefits, expediting the permission and licencing procedure for tourism firms, and promoting Gangtok as a tourist destination with local tourism boards.

Provide Technical Assistance and Capacity Building: Gangtok tourist enterprises might receive technical assistance and capacity building from financial institutions. Financial literacy, business planning, and financial management classes are examples. Financial institutions can reduce risk and boost tourism project success by strengthening tourism entrepreneurs' financial literacy and business abilities.

Diversify Funding Sources: Banking institutions might provide alternate funding for Gangtok's tourism business. Development finance institutions, crowdsourcing sites, and international financing organisations can partner. Diversifying funding sources helps financial institutions reduce risk and enhance tourist project investment.

8.0 MANAGERIAL IMPLICATIONS:

- Gangtok's tourism financial institutions must comprehend the local market's difficulties and potential.
- Banking institutions should customise financing techniques to Gangtok's tourism industry's seasonality, infrastructure constraints, and regulatory environment.
- Financial institutions must work with government agencies, tourism groups, and community organisations to sustain Gangtok's tourism economy.

SOCIAL IMPLICATIONS:

- Gangtok tourist financing can boost employment, economic growth, and cultural understanding.
- When establishing financing solutions for Gangtok tourism, financial institutions should consider community relocation, environmental deterioration, and cultural preservation.
- Local tourism operators and businesspeople, particularly SMEs, can benefit from financing.

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Impact of AS -9 Revenue Recognition on Financial Reporting: A Study of Bjus

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Abstract

This research paper examines the impact of Accounting Standard 9 (AS-9) on the financial reporting of BYJU'S, an Indian edtech company. The study aims to analyze the effect of AS-9 on the recognition, measurement, and disclosure of revenue for BYJU'S. The findings of the study suggest that AS-9 has significantly affected the financial reporting of BYJU'S. The company has had to make changes to its revenue recognition policies, particularly in the areas of performance obligations and variable consideration. The study concludes that AS-9 has had a positive impact on the financial reporting of BYJU'S, leading to improved transparency and accuracy of financial information. The paper recommends that other companies in the edtech industry and beyond should adopt AS-9 to improve their financial reporting practices.

Keywords: accounting standards-9, revenue recognition, bjus, SEBI,

1. Introduction

Accounting Standard 9 [1] is a critical accounting standard that provides guidelines for the recognition, measurement, and disclosure of revenue in India. It is essential for companies follow AS-9 to ensure accurate and transparent financial reporting. The implementation of AS-9 has had a significant impact on the accounting practices of companies in India. According to a report by Deloitte, the implementation of AS-9 has led to significant changes in the accounting policies of companies in India [3]. According to a report by KPMG, the implementation of AS-9 has led to significant changes in the revenue recognition policies of companies in India, particularly in the software and technology sectors [5]. The study concluded that companies have had to make changes to their accounting policies and disclosures to comply with the standard. In recent years, the implementation of AS-9 has been a topic of debate among accounting professionals, regulators, and investors. The Securities and Exchange Board of India (SEBI) has also emphasized the need for companies to comply with AS-9 and improve their financial

reporting practices [8]. The regulatory body has also taken strict actions against companies that fail to comply with the standard.

BYJU'S, a leading edtech company in India, has also been impacted by the implementation of AS-9. In its annual report for the financial year 2020-21, the company highlighted the changes made to its revenue recognition policies to comply with the standard [10]. The annual report also emphasized the need for proper implementation and compliance with AS-9 to ensure transparent and accurate financial reporting. This research paper aims to provide insights into the impact of AS-9 on financial reporting in India. The study will focus on the implementation of AS-9 in companies in the edtech sector, such as BYJU'S, and analyze the challenges and opportunities presented by the standard. The paper will also provide recommendations for companies to effectively implement AS-9 and improve their financial reporting practices.

AS-9 Status Quo in India

The accounting standard 9 [1] provides guidelines for the recognition, measurement, and disclosure of revenue in India. The standard is crucial for ensuring transparent and accurate financial reporting by companies in India. This research paper aims to analyze the current status quo of AS-9 implementation in India and the challenges faced by companies in complying with the standard with reference to Bjus. AS 9 was introduced by the Institute of Chartered Accountants of India (ICAI) in 1985 and was later revised in 1991, 2000, and 2017. As per the current status, AS 9 is still in force in India, and it is mandatory for companies to follow it while recognizing revenue in their financial statements. In fact, the Indian Accounting Standards [5], which were introduced in 2015, have retained AS 9 with some modifications. "AS 9 Revenue Recognition is a key accounting standard in India. It outlines the principles for recognizing revenue from the sale of goods, rendering of services, and for interest, royalties, and dividends. AS 9 continues to be relevant even under the new Indian Accounting Standards [5] notified by the Ministry of Corporate Affairs." –ICAI Additionally, a study conducted by KPMG India in 2020 found that AS 9 was among the most significant and relevant accounting standards for companies in India, as it deals with the core issue of revenue recognition. The study also highlighted that the adoption of India AS has brought in some changes to the requirements of AS 9, but the standard remains applicable in its basic form.

There is a need for proper implementation and compliance with AS-9 to ensure transparent and accurate financial reporting by companies [6]. The study highlighted the need for training and education of professionals and companies to effectively implement the standard. The Securities and Exchange Board of India (SEBI) has also emphasized the need for companies to comply with AS-9 and improve their financial reporting practices [8]. The regulatory body has taken strict actions against companies that fail to comply with the standard. However, the implementation of AS-9 has been challenging for companies in India. According to a study by EY, companies have faced challenges in the interpretation and application of the standard, the identification of performance obligations, and the timing of revenue recognition [2]. The study highlights the need for companies to develop robust policies and processes to comply with the standard. The current status quo of AS-9 implementation in India shows that while companies have made efforts to comply with the standard, challenges still persist. The need for proper training, education, and guidance for companies and professionals to effectively implement the standard is crucial for ensuring transparent and accurate financial reporting.

Bjyus and Revenue Recognition

BYJU'S is a leading ed-tech company in India that provides online education services to students through various platforms. In 2020, the company faced a case related to revenue recognition under Accounting Standard 9 (AS-9) that led to an investigation by the Securities and Exchange Board of India (SEBI). BYJU'S was alleged to have recognized revenue from its customers before providing the services as per the contract. The SEBI investigation found that the company had recognized revenue based on the amount received from the customers rather than the actual delivery of the services. This practice was in violation of AS-9, which requires revenue recognition based on the delivery of goods or services.

The SEBI investigation also found that BYJU'S had used an accounting policy of "sales return and refund" that was not in line with AS-9. The company had recognized revenue from the customers without providing a proper mechanism for the customers to return or refund the services. As a result of the SEBI investigation, BYJU'S had to pay a penalty of INR 5 lakh for violating the provisions of AS-9 and the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015. In addition, BYJU'S had to restate its financial statements for the year 2018-19 to comply with AS-9. The company recognized revenue based on the actual delivery of services rather than the amount received from the customers.

The case of BYJU'S revenue recognition under AS-9 highlights the importance of complying with accounting standards while recognizing revenue. The SEBI investigation and penalty against BYJU'S serve as a warning to other companies to follow the principles of AS-9 while recognizing revenue in their financial statements.

Conclusion and Practical Implication

Revenue recognition is a critical aspect of financial reporting for companies in India. Accounting Standard 9 (AS-9) provides guidance on the recognition of revenue in financial statements. This standard has practical implications for companies, and compliance with it is essential to maintain transparency and accuracy in financial reporting. The case of BYJU'S revenue recognition under Accounting Standard 9 (AS-9) highlights the importance of compliance with accounting standards while recognizing revenue in financial reporting. The investigation by the Securities and Exchange Board of India (SEBI) established that BYJU'S had recognized revenue based on the amount received from customers rather than the actual delivery of services, which was a violation of AS-9. As a result of the SEBI investigation, BYJU'S had to pay a penalty and restate its financial statements for the year 2018-19 to comply with AS-9. This case highlights the practical implications of AS-9 on revenue recognition for companies in India.

Compliance with AS-9 is essential for Indian companies to maintain transparency and accuracy in financial reporting. Companies need to recognize revenue at the time of delivery of goods or services and follow the accounting policies and disclosure requirements under AS-9. Failure to comply with AS-9 can lead to penalties and legal actions by regulatory authorities. Moreover, the case of BYJU'S revenue recognition under AS-9 serves as a warning to other companies to follow the principles of AS-9 while recognizing revenue in their financial statements. Non-compliance with accounting standards can damage the reputation of companies and erode investor trust and confidence.

The case of BYJU'S revenue recognition under AS-9 highlights the importance of compliance with accounting standards for financial reporting in India. Companies need to follow the principles of AS-9 while recognizing revenue and ensure transparency and accuracy in financial reporting to build trust and confidence among investors and other stakeholders. Revenue recognition policies can significantly impact the financial reporting of companies, particularly those in the technology industry. The adoption of appropriate accounting standards, such as AS-9, can ensure that companies recognize revenue accurately and transparently, which can enhance stakeholder trust and support investment decisions [4].

For instance, in the case of EdTech companies, revenue may be recognized from various sources, such as subscriptions, course fees, and other income streams. By adopting AS-9, EdTech companies can ensure that revenue is recognized only when it is earned and realized or realizable. This can improve financial reporting accuracy and transparency, which, in turn, can have positive implications for business operations and growth.

The adoption of AS-9 can help EdTech companies comply with regulatory requirements and establish robust internal controls and systems to prevent fraud and errors in financial reporting [6]. Though there is limited data and research available on the specific implications of adopting AS-9 by EdTech companies in India, it is evident that revenue recognition policies can significantly impact financial reporting and business operations. Adopting appropriate accounting standards, such as AS-9, can ensure accurate revenue recognition, compliance with regulatory requirements, and enhanced transparency, which can support business growth and stakeholder trust.

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Sustainability in E-commerce: Trends and Innovations in India

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Abstract— Now a day changing sustainability is not just a moral responsibility but also a smart business decision. E-commerce businesses that prioritize sustainability can reap the benefits of cost savings, customer loyalty, and a better future for all. Service provider is expected to grow at a faster rate over the forecast period after Covid-19. How new digital technologies adapted by innovation of service provider, which boost service sector in e-commerce opportunities. The B2B get benefited by new technology. Sustainable packaging trends in Indian e-commerce are a positive step forward in reducing the impact of e-commerce on the environment. By adopting these trends and innovations, businesses can not only meet the demands of eco-conscious consumers but also reduce their carbon footprint and contribute to a more sustainable future. Sustainable fashion in Indian e-commerce is not just a trend, but a necessity for a better future. It is heartening to see many brands taking up the responsibility to create a more sustainable and responsible fashion industry. With the growing awareness and demand for sustainable products, we can hope to see more innovations and trends in this space in the near future. Sustainable materials and practices are becoming increasingly important in the Indian e-commerce industry. Consumers are becoming more conscious of their impact on the environment, and businesses are taking steps to meet their demands while also making a positive impact on the planet. Consumer awareness and behavior are key drivers for sustainability in e-commerce. As consumers become more conscious of their impact on the environment, e-commerce companies need to adapt to meet their demands and promote sustainable behavior. The analysis is performed as part of the organic growth study. The results thus provide many interested parties with valuable information. In fact, despite some limitations, the India can be considered a reference for a strategic approach to digitization since its ecosystem is particularly fertile for the development of e-commerce and the growth of corporate sales.

Keywords— E-Commerce, Sustainable packaging trends, Innovations in renewable energy, Consumer awareness and behavior, Government policies and initiatives etc.

1. Introduction

The e-commerce industry in India has grown significantly in recent years, as more and more people turn to online shopping for convenience and accessibility. However, with this growth comes a responsibility to address the environmental impact of the industry. Sustainable practices are essential to reduce carbon emissions, energy consumption, and waste generated by e-commerce operations. We will explore the latest trends and innovations in sustainability practices in the e-commerce industry in India. From eco-friendly packaging to green logistics solutions, we will highlight some of the ways in

which e-commerce companies in India are taking steps towards a more sustainable future. Join us as we research into the world of sustainable e-commerce practices and discover how these innovations are changing the ready in India.

India has more than 100 million internet users and there are alternative e-commerce platforms (instead of traditional physical ones) for almost every area, starting with the purchase of home appliances. Regular use and ends with online brokerage. E-commerce is still not widely adopted compared to other established markets such as the US and UK, but it is growing significantly faster than in the past.

India has yet to achieve breakthrough success in e-commerce, especially online retail. Especially in the field of online shopping, India has not yet achieved breakthrough success in e-commerce. More and more young people are choosing to pursue technology skills related to e-commerce, as e-commerce in India is opening more and more job and educational opportunities.

Sustainable packaging trends in Indian e-commerce

Sustainable packaging is becoming increasingly important in Indian e-commerce. With the rise of eco-conscious consumers who are concerned about the environmental impact of their purchases, businesses are finding innovative ways to reduce their carbon footprint and minimize waste. One trend that has emerged in recent years is the use of recyclable and compostable packaging materials. Made from plant-based materials such as corn starch, these materials break down naturally in the environment, reducing the amount of waste that ends up in landfills. Another trend is the use of recycled materials in packaging. Many companies are now using recycled paper, cardboard, and plastic in their packaging, reducing the need for virgin materials and conserving natural resources.

In addition to these trends, some businesses are taking a more radical approach to sustainable packaging. For example, some companies are exploring the use of edible packaging made from seaweed or other natural materials. While this technology is still in its early stages, it has the potential to revolutionize the way we think about packaging and waste. Overall, sustainable packaging trends in Indian e-commerce are a positive step forward in reducing the impact of e-commerce on the environment. By adopting these trends and innovations, businesses can not only meet the demands of eco-conscious consumers but also reduce their carbon footprint and contribute to a more sustainable future.

Strategies to reduce carbon footprint in logistics

As e-commerce continues to grow in India, companies are becoming increasingly aware of the need to reduce their carbon footprint in logistics. Here are some strategies that e-commerce companies can implement to reduce their carbon footprint:

1. Optimize delivery routes: E-commerce companies can reduce their carbon footprint by optimizing delivery routes. By using software to plan the most efficient routes, companies can reduce the number of miles driven and the emissions that result from transportation.
2. Use eco-friendly packaging: Packaging is one of the biggest contributors to waste in the e-commerce industry. E-commerce companies can reduce their carbon footprint by using eco-friendly packaging, such as biodegradable or compostable materials.
3. Use electric vehicles: Another way to reduce the carbon footprint of logistics is by using electric vehicles. E-commerce companies can switch their delivery fleet to electric vehicles to reduce emissions and contribute to a cleaner environment.

4. Encourage customers to choose sustainable delivery options: E-commerce companies can also encourage customers to choose sustainable delivery options, such as delivery by bicycle or public transport. By offering incentives for sustainable options, companies can reduce their carbon footprint and promote a greener way of doing business.

By implementing these strategies, e-commerce companies in India can reduce their carbon footprint in logistics and contribute to a more sustainable future for all.
(Reducing Carbon Emissions, 2010)

Innovations in renewable energy in e-commerce

As sustainability becomes a key focus in e-commerce, companies are looking to renewable energy sources to power their operations. Many e-commerce businesses are now investing in solar panels, wind turbines, and other renewable energy sources to reduce their carbon footprint and become more eco-friendly.

One of the biggest advantages of renewable energy is that it helps businesses reduce their energy costs in the long run. The initial investment in renewable energy systems may be high, but the savings on energy bills over time can be significant.

In addition to reducing costs, renewable energy initiatives also improve brand image and reputation. Customers are becoming increasingly aware of the impact of their purchases on the environment and are more likely to support businesses that prioritize sustainability.

Another innovation in renewable energy for e-commerce is the use of electric vehicles for transportation and delivery. Many e-commerce companies in India are now using electric vehicles, which significantly reduces their carbon footprint by eliminating emissions from traditional fuel-powered vehicles.

Overall, investing in renewable energy is not only a way for e-commerce businesses to become more sustainable but also a way to improve their bottom line and brand image. As more companies adopt these innovative solutions, we can expect to see a significant reduction in the carbon footprint of the e-commerce industry. (Miller, 2011)

Consumer awareness and behavior towards sustainability in e-commerce

Consumer awareness is a crucial factor when it comes to sustainability in e-commerce. In recent years, consumers have become more conscious of the impact of their actions on the environment. This awareness has led to a shift in consumer behavior towards more sustainable choices. Consumers are now looking for eco-friendly products and packaging, and they are willing to pay a premium for them. E-commerce companies have recognized this change in behavior and are now offering more sustainable options to their customers. From recycled packaging to sustainable sourcing of materials, e-commerce companies are taking steps to reduce their environmental impact and meet the consumer demand for sustainability. (Sustainable E-commerce, 2018)

Role of government policies and initiatives in promoting sustainability in e-commerce

The role of government policies and initiatives cannot be underestimated when it comes to promoting sustainability in e-commerce. In India, the government has taken a proactive approach towards promoting eco-friendly initiatives and sustainable practices among

businesses, including e-commerce companies.

For instance, the government has launched the 'Swachh Bharat Abhiyan' campaign, which aims to make India clean and green. This campaign has encouraged e-commerce companies to adopt sustainable practices such as reducing plastic usage, implementing waste management systems, and promoting the use of eco-friendly packaging materials.

The government has also launched the 'Make in India' campaign, which seeks to promote local manufacturing and reduce India's dependence on imports. By promoting local manufacturing, the government is reducing the carbon footprint associated with transportation and logistics, leading to a more sustainable e-commerce sector.

Moreover, the government has introduced various tax incentives and subsidies for businesses that adopt sustainable practices. These incentives and subsidies have encouraged e-commerce companies to invest in sustainable infrastructure, reduce their environmental impact, and promote sustainable consumption among their customers.

Overall, government policies and initiatives play a crucial role in promoting sustainability in e-commerce. They provide a framework for businesses to adopt sustainable practices, incentivize sustainable behavior, and create a more eco-friendly and sustainable e-commerce sector in India. (Achieving Sustainable E-Commerce in Environmental, Social and Economic Dimensions by Taking Possible Trade-Offs, 2018)

2. Objectives:

- a) To study the current & future need of e-commerce in the Innovation of Sustainable Development in India.
- b) To focus on Innovations in renewable energy in e-commerce.
- c) To take the review of Consumer awareness and behavior towards sustainability in e-commerce.
- d) To understand the Role of government policies and initiatives in promoting sustainability in e-commerce.

Review of Literature:

E-Commerce's huge growth and advantage: The economic advantages of the manufacturer as a whole, convenience, standard shipping, self-learning and other rewards such as the diversity of available content have made e-commerce a primary concern for many companies. Most discussions of e-commerce adoption focus on technology. There is no doubt that companies are paying more attention to e-commerce than ever before. An independent research firm that helps companies assess the impact of technological change on their operations surveyed e-commerce executives from 40 Global 2,500 companies and found that all but one company had online initiatives (Dalton 2000). Learning technology providers tout their ability to "deliver cost savings and broader benefits, build integrated products and provide innovative ways to enable e-commerce." But how can e-commerce leaders determine which educational products and learning technology providers are truly effective? How to balance electronic value and product quality? According to the new company, "today's information technology companies understand that quality bitterness continues after forgetting low sweets." Managers need clear actions to carry out E-trade programs.

Anukrati Sharma (2013) has thrown light on various aspect and changes in commerce. E-commerce is one of them Indian e-commerce plays a significant instrument in making inclusive growth in business and it will observe greater changes in the coming years. It is contributing to the economy in a significant manner and has increased. Its popularity due to the fast development in the area of information technology. The focus is on how E-commerce technology is useful increase online shopping in India. It is

mentioned that there is 128% growth in 2012. (Sharma)

2) Abhijit Mitra (2013) was found that the role of geographic distances in forming business relationships is reduced. E-Commerce is the future of shopping. With the deployment of 3G and 4G wireless communication technologies, the internet economy will continue to grow robustly. IN the next 3 to 5 years, India will have 30 to 70 million internet users which will equal, if not surpass, many of the developed countries. Internet economy with the rapid expansion of Internet, E-commerce is set to play a very important role. (Nisha Mittal, 2019)

Importance of sustainability in e-commerce

Sustainability is no longer a buzzword but a necessary step towards a better future. E-commerce, being a rapidly growing industry, has a significant impact on the environment. From the production of goods to packaging and delivery, every step of the e-commerce process has an environmental footprint. Therefore, it is crucial for e-commerce businesses to prioritize sustainability in their operations. Apart from the environmental impact, customers are also becoming more conscious of their purchases and are looking for sustainable options. A survey conducted by Nielsen found that 81% of Indian consumers feel strongly that companies should help improve the environment, and 73% of them are willing to pay more for sustainable products. This means that incorporating sustainable practices in your e-commerce business can not only help the environment but also attract and retain customers.

Sustainability can also bring cost savings in the long run. For instance, using eco-friendly packaging materials might cost more initially, but it can lead to significant cost savings by reducing the weight of the package and minimizing shipping costs. In conclusion, sustainability is not just a moral responsibility but also a smart business decision. E-commerce businesses that prioritize sustainability can reap the benefits of cost savings, customer loyalty, and a better future for all. (Ram, 2019)

Scope of the study

Nowadays, online shopping is a reality in India. The market is flooded with a number of e-commerce options for buyers to choose from. In recent times, the growth of the e-commerce industry in India has been a phenomenon as more and more buyers are starting to experience the benefits of using the platform. There are enough opportunities for future online businesses if they understand the mentality of Indian shoppers and cater to their needs. Here are the reasons that ensure the future prospects of - E-Commerce in India.

- Increasing number of Internet users
- Easy Internet access
- Improved domain name registration
- Internet awareness even in rural areas
- Increasing number of Internet cafes
- Demand e-commerce growing 10 years.

Challenges and opportunities for sustainability in Indian e-commerce

India is a country with a rapidly growing population and with that come a number of challenges and opportunities when it comes to sustainability in e-commerce. One of the biggest challenges is the need to manage the environmental impact of increasing numbers of deliveries to customers across the country. This is particularly challenging given the

current state of India's infrastructure, with many areas lacking the necessary road networks and transport links to facilitate efficient and eco-friendly delivery operations.

However, there are also a number of opportunities for sustainability in Indian e-commerce. One of the key trends is the growth of local, sustainable products that are produced and distributed in a way that minimizes their environmental impact. This is particularly important in a country like India, where there is a growing awareness of the need to reduce waste and minimize carbon emissions.

Another opportunity lies in the use of innovative technologies to improve the sustainability of e-commerce operations. For example, the use of electric vehicles and drones for delivery can help to reduce the environmental impact of the delivery process. Similarly, the use of data analytics and machine learning can help to optimize delivery routes and reduce waste, leading to more sustainable and efficient operations.

Ultimately, the challenge for sustainability in Indian e-commerce is to balance the need for economic growth and development with the need to protect the environment and ensure a sustainable future for generations to come. By embracing new technologies, promoting local, sustainable products, and working together to find innovative solutions to the challenges we face, we can create a more sustainable and prosperous future for all.

Research Methodology

Secondary Data: Secondary data will collect through Reference Books, Research Papers, and Internet. It is important basically for theoretically framework of the study and knowledge updating.(C.R.Kothari)

Limitations:

- a) It is difficult to integrate existing databases and transaction processing software designed for the sustainable of e-commerce.
- b) Traditional commerce into the software supporting the e-commerce.
- c) Many businesses face cultural and legal barriers when conducting e-commerce
- d) Lack of adequate security, reliability, standards and communication protocols.
- e) Cost of Internet access, whether dial-up or broadband.

Conclusion and Recommendations

In conclusion, sustainable e-commerce is not only a growing trend but also a necessary practice for businesses to implement. By incorporating sustainable practices into e-commerce, businesses can not only contribute to a better environment but also appeal to the values of their customers. The future of sustainable e-commerce looks bright, with more businesses recognizing the importance of environmental protection and social responsibility. This is also driving innovation, with new technologies and strategies being developed to minimize environmental impact, such as green logistics and circular business models. However, sustainable e-commerce is not without its challenges. Businesses must make a genuine effort to implement sustainable practices rather than just using it as a marketing tool. Furthermore, consumers must also play a role in driving sustainable e-commerce by making conscious choices and supporting businesses that prioritize sustainability. India's sustainable packaging industry is expected to grow at a CAGR of 7.24% between 2023 and 2028. Overall, the future of sustainable e-commerce depends on the collective effort of businesses, consumers, and policymakers to work towards a more sustainable and responsible future. By working together and embracing innovation and analysis, we can revolutionize e-commerce and drive sustainable development globally.

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An appraisal of dynamic trend of E- Commerce in India

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Abstract

The role information technology is indispensable to growth of Indian Economy. In present trend about 622 million peoples are doing e-commerce in India. The numbers of users are estimated to 900 million approx. in India till 2025. Now a day's e-commerce becomes a part of our lives and to fulfil our requirement of products and services. In India, almost every company or firm at any scale doing e-commerce. To fulfil the study researcher reviewed various study related to e-commerce in India. And researcher found that there is no earlier study or researches have been done in context of same topic. So researcher need or required to done this study to analyze dynamic trend of e-commerce in India. But studies reviewed by the researcher make help in the present study. For appraisal of dynamic trend of e-commerce in India researcher uses last five years secondary data i.e. 2017 to 2022. For the appraisal of this study researcher framed an objective i.e. to analyze the yearly information of trend of e-commerce in India. To achieve this objective researcher uses various graphical methods and charts to make better interpretation of data used. And after analysis researcher concluded the study and achieved mentioned objective to fulfil the appraisal of dynamic trend of e-commerce in India.

Introduction

The age of globalization is now and in this globalization environment, organizations have made significant adjustments at all levels. Due to the variations in the political, economic, cultural, social, technical, and regional environments, there is a great deal of diversity and complexity in international commerce. Globalization is resulting in the shrinking of distances between countries, facilitated by advancements in telecommunications and transportation. Globalization can be better defined as the merging and coexistence of the world's economies. The global economy has undergone significant transformations due to breakthroughs in information and communication technology (ICT), particularly the revolutionary mobile and internet communications. Businesses are utilizing ICT to distribute their goods and services to distant locations. This process is commonly known as "e-commerce," which offers greater convenience and cost-effectiveness. E-commerce states the online buying and selling of products and services, and it encompasses six primary types of groupings: Business to Consumer (B2C), Consumers to Consumers (C2C), Business to Business (B2B), Business to Government (B2G), Consumers to Business (C2B), and Consumer to Government (C2G). One of the significant benefits of e-commerce is that it operates without any restrictions or

barriers, enabling it to function globally and at a lower cost. Consequently, e-commerce has accelerated the pace of global trade.

E- Commerce in India

With the advent of e-Commerce, a huge number of individuals have purchased goods through online stores. This is due to how quick and simple it is to buy products online. By 2026, the ecommerce sector in India alone is projected to generate staggering \$200 billion in sales. Despite the fact that the number of online shoppers is rising quickly, it has been noticed that it is increasingly harder to convince newcomers to embrace the system. To further simplify ecommerce and entice more online shoppers, new trends are always emerging. Some of the most well-liked e-commerce trends for 2019 that are emerging in India. Indian e-commerce websites provide a broad array of goods and services, such as men's and women's clothing and accessories, health and beauty products, computers and computer peripherals, books and magazines, cars, consumer electronics, collectibles, software, home appliances, audio/video products, jewelry, gift items, property sector and related businesses/services and employment opportunities, airline tickets, matrimonial services, and many other products. Examples include, www.rediff.com, www.khoj.com, www.indiatimes.com, www.sify.com, and www.indiaplaza.com.

Scope of the study

Now a day's e-commerce becomes a part of our lives and to fulfil our requirement of products and services. In India almost every company or firm at any scale doing e-commerce. To fulfil the study researcher reviewed various study related to e-commerce in India. And researcher found that there is no earlier study or researches have been done in context of same topic. So researcher need or required to done this study to analyze dynamic trend of e-commerce in India. But studies reviewed by the researcher make help in the present study.

Objective of the study

For the appraisal of this study researcher framed an objective i.e. to analyze the yearly information of trend of e-commerce in India.

Research Methodology

For appraisal of dynamic trend of e-commerce in India researcher uses last five years secondary data i.e. 2017 to 2022. For the appraisal of this study researcher framed an objective i.e. to analyze the yearly information of trend of e-commerce in India. To achieve this objective researcher uses various graphical methods and charts to make better interpretation of data used. And after analysis researcher concluded the study and achieved mentioned objective to fulfil the appraisal of dynamic trend of e-commerce in India.

Review of literature

- The article titled "A Study on E-commerce and Online Shopping: Issues and Influences," was authored by Dr. Anukrati Sharma in 2013 which includes an effort made to examine current customer preferences, influences, and trends with regard to the E-commerce and online buying, as well provided recommendations for improvising the pre-existed e-commerce websites [1]. According to the report, those between the ages of 21 and 30 represent the majority of those making purchase decisions. A highly deliberate and strategic approach must be used when creating websites for online commerce.
- The article titled "E-Commerce in India - A Review" was written by Abhijit Mitra in 2013 [2]. This article makes an effort to evaluate the challenges to E-Commerce in India as well as its current state and enablers in India. It also examines current E-Commerce

developments in India. As per the report, a surge in the implementation of e-commerce has been observed by the businesses in recent times. The survey conducted to discover the big Indian portal websites have switched to the E-Commerce instead of relying on the advertising revenue.

- The article titled "Future of E-commerce in India", authored by Nisha Chanana and Sangeeta Goel in 2012 [3]. This article attempts to examine an overview of India's e-commerce future and highlights the market categories that will see future development. The study discovered the number of elements crucial for the future expansion of e-commerce in the Indian market. The survey depicts India as a developing market will see an exponential growth in overall e-commerce over the next several years.
- Another article titled "Emerging Trends of E-commerce in India: Some Crucial Issues, Prospects, and Challenges", written by Sarbapriya Ray in 2011 [4]. This article aims to provide a historical overview of the development of e-commerce by describing the many types of e-commerce businesses, their categories, and the companies that are engaged in them in India. As per the study, it is essential for the government to establish a legal framework for e-commerce that encompasses fundamental rights such as privacy, intellectual property, fraud prevention, consumer protection, etc. This would allow both domestic and foreign trade to expand their horizons while ensuring that these rights are protected.
- The article titled "Emerging Trends of E-commerce in India", authored by Ms. G. Sivagami in 2019. The exchange of goods and services through computer and online networks is referred to as electronic commerce (EC) [5]. The purpose of this essay is to highlight the numerous difficulties experienced by Indian e-commerce, to identify the vital development drivers required for it, and to discuss its success. The Indian Republic sales of retail ecommerce in India and the Asian nation of Bharat.

Analysis of trend in e- commerce

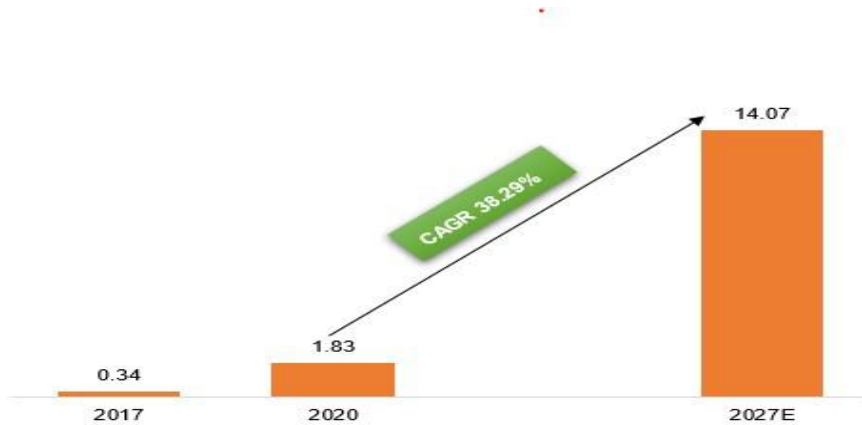
After analyze the various studies and view of various leader of industries the researcher found that there are fourteen types of trends in Indian market are most trending to enhance the e-commerce are as follows:

1. AR enriches the authenticity of online shopping.
 2. The growing number of voice searches.
 3. AI assists stores in understanding their customers better.
 4. On-site personalization leverages these insights to provide tailored experiences to each individuals.
 5. The utilization of big data is crucial in developing personalized experiences.
 6. The shopping experiences are enhanced through the utilization of chat bots.
 7. Mobile shopping continues to gain momentum.
 8. More payment portals were introduced.
 9. Headless and API-driven ecommerce allow continued innovation.
 10. Video content elicits a positive response from customers.
 11. Subscriptions are effective in retaining customers.
 12. The significance of sustainability is increasing.
 13. It is crucial for businesses to optimize their digital strategy for better conversion rates.
- B2B is experiencing growth and transformation.

AR Trend in India

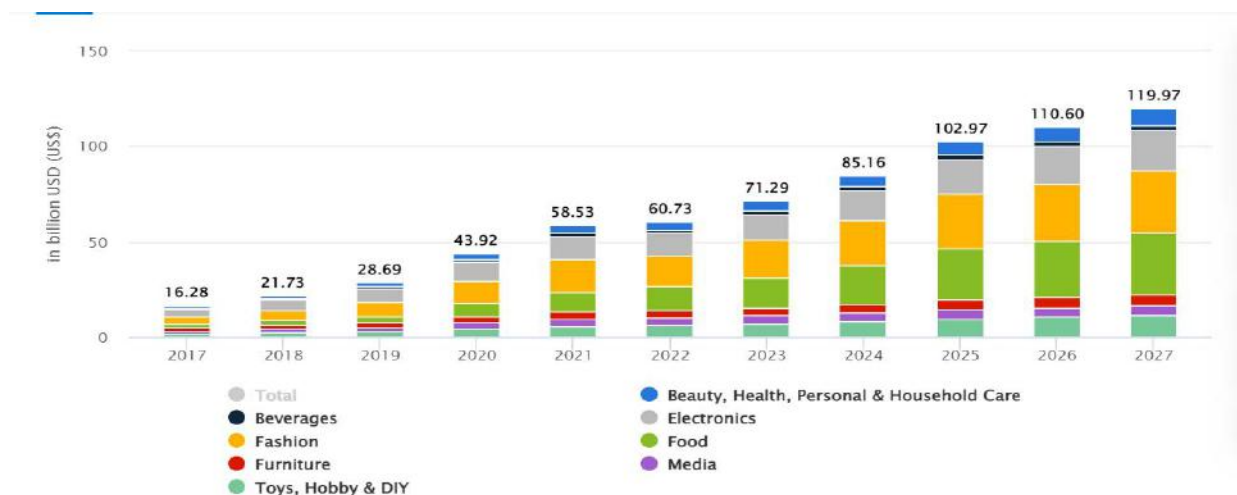
Due to the increasing penetration of smart phones and widespread internet access, the overall market for AR/VR in India is projected to expand at a compound annual growth rate (CAGR)

of 38.29%, reaching US\$ 14.07 billion by 2027, and this trend is expected to persist. 1.2 billion mobile customers, 750 million of whom used smart phones, were registered in India as of 2021. Because of the strong digital literacy of the young people in Tier 2 and Tier 3 cities, businesses and app developers are now able to provide AR-based experiences. Retail, education, gaming, and healthcare all employ AR/VR technology extensively. Due to the decreasing price of wearable, the consumer market has realized a surge in the use of AR/VR headsets. 71% of the AR and VR market in India as of FY20 was dominated by the hardware sector.



Overall Revenue of India from various sectors in e-commerce

The e-commerce market is expected to generate revenue of US\$71.29 billion in 2023. The market is expected to continue to grow, with revenue projected to increase at a CAGR of 13.90% to reach a value of US\$120.00 billion by 2027. The majority of income is produced in China, with a market size estimated at US\$1,487.00 billion in 2023. By 2027, there will likely be 1,090.00 million users in the e-commerce sector. By 2027, user penetration is projected to reach 73.7% from 2023's 57.6% level. An estimated US\$86.61 will be the average revenue per user (ARPU).



Findings and Conclusion

Because the manufacturer may easily disregard them and explicitly vend their products to the retailers and customers, the survival of wholesalers is most at danger in the era of e-

commerce. Wholesalers may benefit from e-commerce by using it to negotiate with reputable producers and connect their company to the internet. By connecting his company with internet distribution, the store can maintain his existence. In addition to fulfilling electronic orders and staying in constant contact with customers, the store may give them extra information on a variety of topics. Hence, the opportunity presented by online shopping is fantastic. By the use of television, newspapers, websites, etc., people are informed about the availability of various items in the marketplace, as well as the benefits of new products its price and other features can be known easily.

Nowadays, e-commerce is an essential component of daily living. For consumers, especially those who live in metropolitan areas, having access to an e-commerce platform is not a luxury but rather a need. The speedy adoption of internet-capable gadgets like tablets and smart phones has led to an unmatched expansion of e-commerce. The development of telecommunications technology has fundamentally altered how we communicate, live, and conduct business, among other things. It significantly affects how we travel, how we connect with friends and family, how we obtain information, and how we buy or sell goods and services. Players from all over the world are becoming interested in India due to the increase of its Ecommerce volumes. E-commerce has opened up new business opportunities, as well as prospects for education and academics. It seems that there is vast potential for providing education on e-business.

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Innovation and Economic Growth in India: An Empirical Analysis

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Abstract

One of the most crucial areas of economic study at the present time is economic growth. It's noteworthy to note that the development of the economy's production possibility frontier is one of the factors promoting long-term economic growth. For countries that guarantee the expansion of employment, sustainable growth, social welfare, and quality of life, innovation is thus the most important component. This paper's objective is to present an outline of innovation and its contribution to India's economic growth. This study is based on the secondary sources of data and investigates the impact of innovation on economic growth of India. The time series data for the years 1996 to 2022 are used in this investigation. From an economic perspective, the 1990s were chosen since this decade saw the emergence of the so-called "New Economy" in this particular year. In this analysis, Gross Domestic Product (GDP) growth rate, Per capita GDP growth rate, research & development (R&D) expenditure as percentage of GDP, Education expenditure as a percentage of GDP and number of patents variables are used. The result shows the positive but insignificant effect of research & development, education and GDP per capita growth rate on economic growth. However, number of patents shows the negative effect on economic growth in India. That is opposite of expectation. It is recommended that Government should support R &D and education sector and spend more money because they contribute to India's long-term sustainable economic growth.

Keywords: Innovation, Research and Development, GDP, Education Spending, Patent Applications

INTRODUCTION

One of the most crucial areas of economic study at the present time is economic growth. It's noteworthy to note that the development of the economy's production possibility frontier is one of the factors promoting long-term economic growth. One of the main elements influencing such a shift in production possibilities is innovation. For the creation

of innovative goods and services, R&D is a requirement. According to Uramova et al. (2003), investment policies and R&D programs encourage the development of new inventions (ideas, processes, etc.), which in turn result in "innovations" in their materialized form. But first, through investment, these must be turned into economic activities. Therefore, the bulk of inventions could not be put into practice without sufficient public and private investment in research and development, and economic output would not be sustainable. The Solow model (Solow, 1957) forms the foundation of the majority of novel ideas for economic growth to a large extent. He was one of the first to take into account how technical advancements might affect economic expansion. The rate of population growth and exogenous technological progress, however, are fully dependent on this paradigm. To study endogenous economic growth, many models such as Romer, 1986; Aghion and Howitt, 1992; Jones, 1995; Samimi and Alerasoul, 2009 and Hunady and Orviska, 2014 saw technological advancement as a production process similar to the creation of output.

The forgoing studies were inspired by the Romer's (1986) growth model which identified that research and development as prerequisites for the existence of technological advancement. The endogenous model postulates that the accumulation of human resources and knowledge leads to technological advancement in research and development. The assumption that returns to scale of knowledge will increase or remain constant as a result of spillover effects or so-called "learning by doing" is another critical component of endogenous growth models. Exponential economic growth is possible even with ongoing R&D expenditures by assuming increasing returns to scale of invention. A rise in R&D spending, however, should guarantee a rise in innovation as well if we take constant returns to scale into account. Because of this, there should be a proportionate rise in productivity, which will allow for steady economic development over time.

In most cases, empirical investigations of endogenous growth models were used to assess how research and development affected economic growth. Romer (1990) also used empirical studies to later corroborate the model's predictions for the majority of developed countries. He was successful in demonstrating how the growth of research and development was beneficial to the economy. This positive relationship was later confirmed by many researchers such as Scherer (1982); Griliches and Lichtenberg (1984); Hall (1996); Aghion and Howitt (1998); Wakelin (2001); Zachariadis (2003); Ulka (2004) and Hunady and Orviska (2014). Contrary to that argument, Jones (1995) disproved them by examining the connection between the number of researchers and economic growth in France, Germany, the United States, and Japan. He found no discernible, significant positive effects of the increase of R&D personnel on economic development. These empirical results prompted Jones (1995), Kortum (1997), and Segerstrom (1998) to abandon the endogenous models in favor of what they referred to as "semi-endogenous models." These models made the assumption that the exogenous effects of population growth and other factors would result in the long-term decreasing returns to scale of knowledge creation. This implied that, according to the assumptions of semi-endogenous models, R&D expenditures could guarantee long-term economic growth. Jones (1995) and other researchers' empirical findings were marginally more clearly explained by Aghion & Howitt (1998). They acknowledged that every new invention renders older technology obsolete and also made the assumption that the effectiveness of R&D expenditure is progressively declining due to the growing variety of products. Expanding the scope of study is necessary for innovation for each of the current products. In this situation, economic growth is only possible in this circumstance if R&D spending remains at the same level compared to the increase of product lines. Additionally, Samimi & Alerasoul (2009) looked at the association between innovation and economic growth in developing

nations, but they were unable to provide reliable evidence of a beneficial relationship between the variables.

R&D statistics had helped an economists to understand endogenous growth theories a little better, but they were not sufficient to fully understand these models. To analyze the factors influencing innovation, which were at the heart of endogenous growth theories, information on both the input and the output of R&D of an innovative activity is necessary. One of the earliest studies to analyze the causes and impacts of innovation using aggregate level patent data was Porter and Stern's (2000) study. They discovered that the nation's knowledge stock and R&D sector were both favorably associated with innovation. Additionally, they demonstrated a significant but weak correlation between innovation and Total factor productivity (TFP) growth. However, Tanane, 2020 discovered a link between patents and the economic growth of developed countries. He discovered that the development of the economy required patents and their uses. The patent can be used as a tool for economic strategy to promote investment in R&D. More inventions result from more patents, and vice versa. Through the encouragement of innovation, the patent served as a driver of economic development.

Most of the empirical evidence on impact of innovation on economic growth has been based on panel data of developed and developing countries but a little attention was given in case of India. Shukla (2017) examined how innovation affects economic growth in the context of India. Her research demonstrated that, unlike many developed countries, India's growth was not fuelled by innovation. The findings indicated that as India's economy grew, R&D spending, education expenditure, FDI, and the number of patent applications submitted in India would all decrease. With this background, the present study attempts to investigate the effect of innovation on economic growth of India. It is challenging to quantify innovation, but there are various factors that can help to do so, such as the quantity of patents, the amount spent on R&D, the amount spent on education, and the growth rate of the gross domestic product (GDP) per capita. In addition, from the point of view of policy makers, it would be desirable to know more about the role of innovation in economic growth of India. For example, the policy makers might be interested in knowing how a permanent increase in research & development expenditure, spending on education, number of patent application is likely to affect the economic growth.

DATABASE AND METHODOLOGY

This paper is based on the secondary sources of data and investigates the impact of innovation on economic growth of India. Data on five variables—gross domestic product (GDP) growth rate, per capita GDP growth rate, expenditure on research and development, expenditure on education, and number of patent applications—have been retrieved for the purposes of this study from the World Bank's World Development Indicators (WDI) database, which covers the years 1996 to 2020. From an economic perspective, the 1990s were chosen since this decade saw the emergence of the so-called "New Economy" in this particular year. In this analysis, Gross Domestic Product (GDP) growth rate and Per capita GDP growth rate are used as a proxy of economic growth in India. However, research & development (R&D) expenditure as percentage of GDP, Education expenditure as a percentage of GDP and number of patents are used as proxy variables for innovation in the economy. Following Romer (1986), this paper uses research & development (R&D) expenditure as percentage of GDP. An economy's level of R&D intensity can be inferred from the size of R&D spending as a proportion of GDP. A higher value for this variable denotes a greater degree of concern with regard to

technological advancement. Given that it serves as "an engine" for an economy's growth in both the economy and innovation, the sign for this variable is anticipated to be positive and significant.

Furthermore, Education expenditure is a percentage of GDP is a second proxy variable for innovation in the economy. As education spending rises, the economy's degree of education rises as well, this encourages more innovation. As a proxy for the quantity of innovation-related research output, the number of patents is also employed in this study since they foster innovation growth, keeps an economy going in the direction of innovation and productivity gains, and result in long-term economic progress. For instance, Zachariadis (2003) asserted that the number of patents reflects the amount of money spent on research and development and patents are helpful for the advancement of technology, which in turn spurs economic growth. Hudson & Minnea (2012) also illustrate a similar effect of patents. In this analysis the data are transformed in natural logs and all of the variables included in the models are compiled in Table1.

Table 1: Description of the Variables in The Model

Variables	Description
Dependent variable	
LGDPGR	GDP Growth Rate
Independent Variables	
LR&D	R&D Expenditure (percentage of GDP)
LEDU	Education expenditure (percentage of GDP)
LGDPCCGR	GDP per capita growth rate
LPT	Patent Application

This study examined how innovation affects economic growth using a multi regression model. The paper's model is presented as follows:

$$LGDPGR = \beta_0 + \beta_1 LR\&D + \beta_2 LEDU + \beta_3 GDPPCGR + \beta_4 LPT + \varepsilon_i$$

RESULTS AND DISCUSSION

Before going to the time series regression analysis, a detailed descriptive statistics analysis is carried out. The description of the traits and characteristics of the model's variables is shown in Table 2. This helps to maintain the variable's variability and setting of data.

Table 2: Descriptive Statistics

Variables	Observation	Skewness	Kurtosis
LGDPGR	24	-0.832756	2.329466
LR&D	24	0.254987	2.141494
LEDU	24	-0.000959	1.586348
LGDPCCGR	24	-0.962569	2.476068
LPT	24	-0.139742	1.666670

To determine whether the statistics were normal, skewness and the kurtosis index were used. According to table 1, since all of the variables' skewness coefficients fall within the allowable ± 1 , the variable cannot be said to be skewed. A closer look at the kurtosis coefficient computed for the variable in the table reveals that it is between ± 2 , indicating that the variable is normally distributed. In order to check the multi-collinearity among the

variables Variance increase factors (VIFs) and tolerance values were investigated. The results for these numbers are displayed in table 3 below.

Table 3: Collinearity Statistics

Variable	Coefficient Variance	Uncentered VIF	Centered VIF	Tolerance
LRD	0.007573	28.41759	1.761806	0.568
LEDU	0.003949	246.5348	2.025031	0.494
LGDPGCR	0.000155	13.71839	1.173454	0.852
LPT	6.46E-05	175.4953	1.322554	0.756
C	0.005612	201.7863	NA	NA

If variance increases factors (VIFs) are equal to or higher than 10, there are multiple relationships among the variables. Table 3 shows that all of the VIF values are lower than 10. In addition to these, no multiple relation between variables is determined if tolerance values are greater than 10. Table 3 shows that all tolerance numbers are greater than 10.

Table 4: Summary Output

Regression statistics	
R	0.997
R-squared	0.994485
Adjusted R-squared	0.993324
F-statistic	856.5479
Prob(F-statistic)	0.000000
S.D. dependent variation	0.316212
Durbin-Watson statistics	1.920807
Breusch-Godfrey Serial Correlation LM Test (Prob. Chi square)	0.8674
Heteroskedasticity Test: White (Prob. Chi square)	0.1583
Observation	25

According to the F statistics = 856.5479, $p < 0.5$, Table 4 clearly shows that the four independent variables in the standard model significantly predict the dependent variable GDPGR. The degree to which the model was able to predict the dependent variable, as a result of the standard regression analysis, was determined to be $R = 0.997$. $R^2 = 0.994$ indicates how much of the dependent variable's variance the model was able to explain. It can be inferred from these coefficient that the model performs exceptionally well at forecasting the dependent variable. The multiple linear models discussed above provide the total goodness-of-fit measurements. If it is determined to be adequate after satisfying assumptions, it can be used with confidence. Regression statistics are used to evaluate the models' adequacy. Multiple R and R square are used to express multiple correlation and determination coefficients, respectively. The dependent variable in this study is the GDP growth rate, and the other independent variables are all highly positively associated, according to the R (.99).

Furthermore, Table 4 shows that the models are free of heteroscedasticity and autocorrelation, because the p-values are 0.1583 and 0.8674 respectively, which are more than the selected significance threshold of 0.05; the inability to reject the null hypothesis implies the absence of heteroscedasticity and autocorrelation. Durbin-Watson statistics also confirms the no serial correlation in the model.

Table 5: Regressions Results

Variable	Coefficient B	B	Std. Error	t-Statistic	Prob.
LR&D	0.095501	.025	0.087023	1.097420	0.2862
LEDU	0.023259	.009	0.062839	0.370142	0.7154
LGDPCCGR	0.700473	1.038	0.012455	56.23910	0.0000
LPT	-0.072390	-.176	0.008037	-9.006945	0.0000
C	1.402020		0.074916	18.71454	0.0000

In Table 5, the absolute value of the coefficient demonstrates how important the independent variables are in relation to one another. The most significant independent variable, in terms of importance, is the one with the highest β value. On examining the contribution made by the independent variables in the model to the model, it was found that the GDP per capita growth rate (GDPPCGR) made the biggest contribution with the value of $\beta=1.038$ following by research & development (LR&D) with the value of $\beta=0.025$. The GDP growth rate and the other independent variables employed in the analysis have a very strong positive connection, as shown by the R (.99). A lower P value indicates that the model is more significant. All the variables show the positive impact on GDP growth rate except LPT that is surprising. That means, increasing number of patent application filed in India will decrease the GDP growth rate that is opposite of expectation. That seems unrealistic.

However, positive coefficients of research & development, education and GDP per capita growth rate imply that increasing spending on R&D, spending on education and GDP per capita growth rate will further help to increase the country's GDP growth rate. All four of the variables mentioned above should be all positive. Even if the LPT value is negative, we are still adopting this model because a lower P value indicates that the model is significant. Based on the results of the regression study, the regression equation was developed, as shown below:

$$LGDPGR = 1.402 + 0.095501 \text{ LR\&D} + 0.023259 \text{ LEDU} + 0.700473 \text{ GDPPCGR} - 0.072390 \text{ LPT}$$

CONCLUSION

The result shows the positive but insignificant effect of research & development, education and GDP per capita growth rate on economic growth. These positive effects imply that increasing spending on R&D, spending on education and GDP per capita growth rate will further help to increase the country's GDP growth rate. However, number of patents shows the negative effect on economic growth in India. That is opposite of expectation. It is recommended that Government should support R & D and education sector and spend more money because of low expenditure on R&D and education the effect of these variables are insignificant. However, positive effect shows their contribution to India's long-term sustainable economic progress. India can encourage invention and move from being a nation that follows to one that leads. As we can say that innovation is a crucial component for economic growth in case of India. Furthermore, the negative correlation of number of patents raises the questions to the policy makers and also invites further investigation into this area. Although this research looks at how innovation affects economic growth in the case of India, it has some limitations. The data's lack of access was the main restriction. There are numerous additional variables that could have been considered for the research, but the lack of data prevented it.

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Measuring Service Excellence of Banks in India: An Empirical Paper

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Abstract

This paper investigates the networks between client satisfaction, service excellence, and loyalty. This paper aims to establish a association between service excellence, client satisfaction, and loyalty. To examine the aforementioned linkage in a developing nation environment, the current SERVQUAL model has been expanded for this purpose. In this paper, a quantitative research strategy is employed. Randomly selected from India's private and public sector banks was a model of 222 bank clients. The results of the paper imply that service excellence factors have a significant impact on satisfaction. Additionally, it has been discovered that client contentment and a bank's reputation foster stronger loyalty. Therefore, the paper's conclusions would provide a new framework for creating funding services in poor nations. Key words: Banks, Client Loyalty, Fulfilment, and Service Excellence. 1. Introduction The service sector has skilled significant growth over the past two decades and now makes up a sizable share of the global economy. Services play a major role in modern businesses. These days, even manufacturers are giving the inclusion of service components in their products more thought. Pricing pressure brought on by intense competition is blamed for this. One of the limited choices left for companies is to set themselves separately in positions of the excellence of client service they offer, as this directly impacts their capacity to make a profit. As a result, the profitability of a business, the expectations of its clients, and its overall performance are all closely related to the level of service. Due to clients' ease of switching to competitors, excellence of services offered is crucial in the funding sector, as it is in many other trades.

INTRODUCTION

The measurable method of evaluating service excellence has a constrained range. However, Parasuraman, et al. (1985) made a substantial contribution in this field. The Service Excellence Model (SERVQUAL), created by Parasuraman et al. in 1988, is frequently employed to calculate service excellence across several corporate professions. This technique has also been adopted by several researchers to gauge and assess the level of service providing by banks. For both commercial and state banks, the issue of service excellence is crucial (Kangis & Voukelatos 1997). From the viewpoint of the consumer, Allred & Addams (2000) analyse the bank service excellence across all of its dimensions. Angur, et al. (1999) investigated the funding sector's service excellence aspects in emerging nations With an emphasis on service excellence, Jham and Khan (2008) measured the link between bank performance and client happiness. However, no such paper linking client pleasure and loyalty to aspects of service excellence has been done. Loyalty and satisfaction are permanently

unidirectional. Client loyalty is thought of as a powerful element for marketing services and is essential to a company's success in today's cutthroat economy. Banks are also no different (Ehigie 2006). India is an underdeveloped nation with dire socioeconomic circumstances. The funding industry in this nation is underdeveloped and underexplored, just like many other economic organisations. However, recent patterns suggest that the industry is moving in a more promising direction. Private Banks have benefited greatly from setting up facilities as a result of the government's implementation of a deregulation and privatisation programme. Many private commercial and investment banks have been founded as a result. As a result, India's funding sector has recently experienced substantial growth. In India, there are four different varieties of scheduled banks. Which are: 1. Public businesses banks 2. Particular banks 3 locally owned businesses banks 4. International business banks. There are 48 banks functioning in the nation as a whole. The remaining 39 banks, of which 30 are in private banks and 9 are foreign banks, are comprised of four publicly owned commercial banks, five state-owned specialised banks, and the remaining 39 private banks (India Economic Survey 2009). The aforementioned finding demonstrates how fiercely competitive the Indian funding industry is. With their various approaches and methods for interacting with clients as well as facing competitors, global funding has seen several changes recently. Given the size and scope of these developments, Indian banks made good adjustments to fit the evolving global financial environment. Modern funding is primarily distinguished by new service provisions enhanced by technology. Banks must make major investments in services and technological infrastructure to meet and exceed clients' expanding needs and expectations. Therefore, banks should prioritise providing high-excellence service. Therefore, measuring service excellence is necessary to ensure client satisfaction and bank loyalty. However, there is a dearth of research on client happiness, service excellence, and faithfulness in India's funding industry.

Although there have been several research on service excellence, client gratification, and faithfulness, no comprehensive paper has yet been done to show a connection between service excellence aspects, client satisfaction, and loyalty. The paper's research question is therefore: What are the many service excellence characteristics in the Indian funding industry, and how do they affect client loyalty and satisfaction? The major goal of this paper is to create a model and exam it using information gathered from the funding industry of a developing nation like India to see if the results are generally applicable.

2. Literature Review

A lot of work has gone into examining funding services in various developed country environments. The analysis of pertinent literature demonstrates that there has been little effort taken to link service excellence, client happiness, and loyalty in the funding industry. In order to synthesise the factors and research contexts relating the service result of both public and commercial banks, this paper incorporates a thorough evaluation of the pertinent literature. One of the crucial factors in determining a bank's performance is the calibre of its services. Due to its unique characteristics, service excellence is challenging to quantify. Contrarily, since things are tangible, objective measures like performance, physical qualities, and durability may be easily used to gauge their value (Hoffman & Bateson, 2002). In actuality, intangible and subjective factors like client attitudes, perceptions, and sentiments are used to gauge service excellence. The importance of the service excellence factor is rising, both for researchers and for service providers. Parasuraman et al. (1985) were the first to establish a conceptual model of perceived service excellence. They list eleven criteria for judging Service excellence includes being dependable, prompt, competent, courteous, trustworthy, secure, accessible, clear in communications, and understanding clients. The paper discovered that the discrepancies between these 10 dimensions' perceived performance and expected performance affect the total service excellence. This idea, however, does not focus on any specific service sector. In a later revision of their earlier conceptual model, Parasuraman et al.

(1988) defined "A general judgement, or attitude, relating to the superiority of the service," was how perceived service excellence was defined. They also created the SERVQUAL, a 22-item tool that is used as a generic tool for assessing service excellence. Five dimensions are represented by the tool items: assurance, responsiveness, tangibles, and empathy. Understanding client expectations and service performance might be based on the theoretical model developed by Parasuraman et al. in 1988. Lee et al.'s (2000) contributions to the literature on service excellence are significant. They determined the factors that determine perceived service excellence using the SERVQUAL model.

They also attempted to connect these factors that determine service excellence to client satisfaction in service-oriented businesses. They discovered that client satisfaction is influenced by perceived service excellence. They neglected to consider, though, whether client happiness and service excellence could ultimately be measured by loyalty.

Additionally, a number of service excellence studies use the several service excellence aspects that researchers discovered as independent variables. For instance, Flavian et al. (2004) defined variables for measuring service excellence, such as availability of services, services offered, security, and reputation. In order to help bank management, authors of this paper assessed company image, particularly in the context of Internet banking. This essay is focused on creating and recommending a trustworthy and accurate scale to assess a bank's online corporate image. The authors of this article disregarded loyalty and satisfaction problems that may have an impact on service excellence. In a conceptual paper, Kangis&Voukelatos (1997) followed Parasuraman et al. (1988) and contrasted the service excellence of public and private banks. They discovered that private banks provide superior service to public banks. However, no model was put forth, and the survey did not include any metrics for client happiness or loyalty. Indicators of service excellence were employed in the banking industry by Joseph et al. (1999). They gauged how technology affected the provision of services. The paper, however, failed to consider excellence characteristics when evaluating the contribution of technology. Similar to this, Jabnoun& Tamimi (2002) conducted a research to assess commercial banks' perceived service excellence in the United Arab Emirates and changed the SERVQUAL model for this purpose. The authors of this paper investigated the relative significance of each aspect of service excellence, but they did not link these aspects to client pleasure or loyalty. Only Islamic banks in the UAE were examined and their service excellence was examined by Tamimi and Amiri in 2003. Dimensions of service excellence were also taken into account in this paper, however they were not linked to client loyalty and satisfaction.

Except for Ehigie's (2006) paper, the majority of the literature surprisingly downplays the importance of loyalty to success in the banking services. This paper looked at how client expectations, service levels, and satisfaction affect bank clients' loyalty. The most important determinants of client loyalty, according to this paper, are contentment and service excellence. Despite being conducted in an African setting, the paper makes a compelling case for using the suggested methodology for the current paper.

3. Conceptual Model and Hypothesis Development

It is evident from the assessment of pertinent literature that the majority of researchers use five factors to gauge service excellence. These appear to be the best indicators of a company's service excellence. Some studies discovered additional relevant elements in the paper of service excellence in addition to the key antecedents identified by Parasuraman et al. (1988), including service availability, reputation, and security (Flavian et al. 2004). In a similar spirit, client satisfaction and client loyalty are determined by service excellence

parameters. Clients become devoted to a business after they are delighted (Ehigie 2006). These determining aspects are part of our model and are theoretically significant as well as conceptual and grounded in actual data. The model shown in Figure 1 shows both direct and indirect associations between the variables.

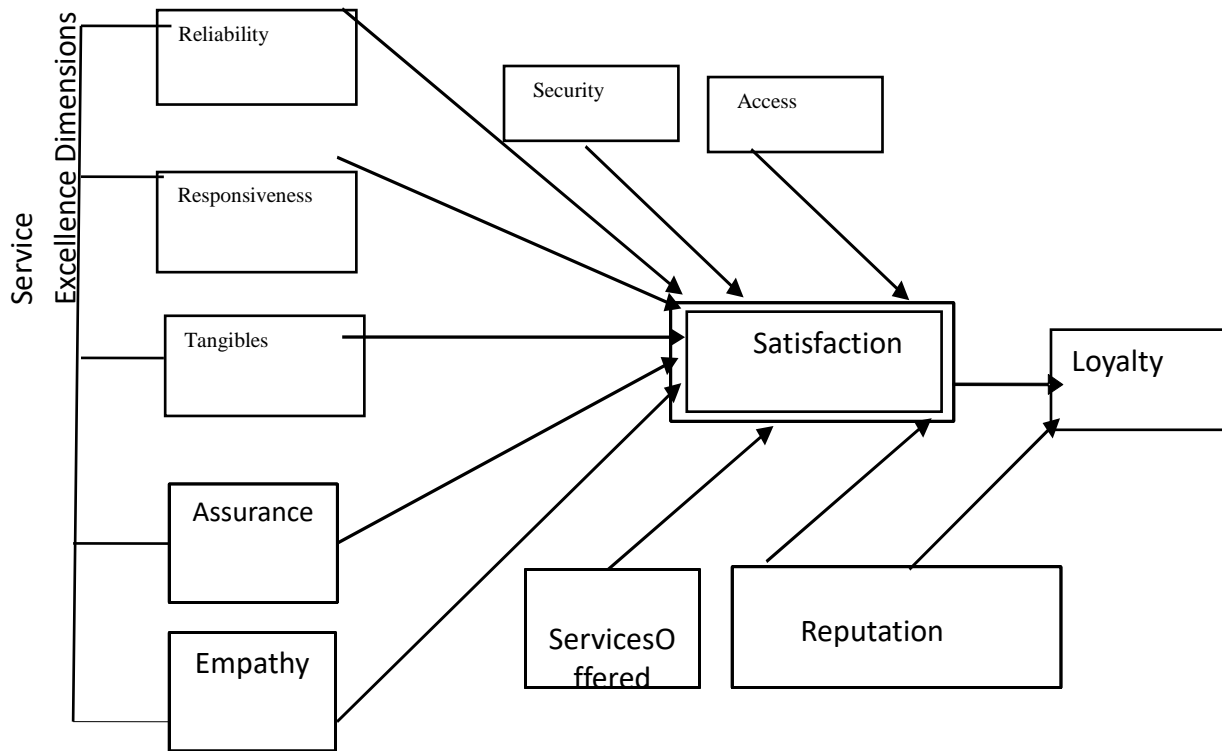


Figure 1: Associations between the Conceptual Framework of Service Excellence Dimension and Client Satisfaction and Loyalty

Theorization of Hypotheses Service excellence: Service excellence is "The consumer's assessment of an entity's overall excellence or superiority," according to Zeithaml (1987). It is a type of attitude that emerges from a comparison between expectations and actual performance assessments. The five components of service excellence—reliability, responsiveness, assurance, empathy, and tangibles—all contribute to the clients' attitude and evaluation of the company. Higher service excellence is indicated by positive scores on each of the five forces. The causal association between service excellence and client happiness is another significant problem. The body of research demonstrates that satisfaction and service excellence are causally related. Additionally, it has been discovered that client satisfaction is a predictor of perceived service excellence (Lee et al. 2000).

Reliability: The works also supports reliability as the most significant aspect of service excellence. It mostly relates to the consistency and precision with which service functions are carried out. Clients assess a bank's service excellence by determining if they can rely on its services because doing so increases satisfaction. Consequently, the following conclusion can be made.

H₁: Client satisfaction will increase with increased client trust in banks.

Responsiveness: It places a strong emphasis on the responsiveness and openness of bank staff. A bank service's willingness and readiness to provide services can also be evaluated. The factor (responsiveness) can be hypothesised as - and has a significant impact on client

satisfaction.

H₂: The more attentive the bank workers are, the more satisfied clients will be.

Tangibles: This dimension has to do with the tools, equipment, and personnel's outward look. The components of the bank and its environments are referred to (Parasuraman et al. 1985, 1988). A well-decorated office can impact clients' perceptions even while tangible factors do not directly influence satisfaction. So, the following is a possible hypothesis:

H₃: The more appealing the tangible components of the banks are, the higher the level of satisfaction.

Assurance: Assurance refers to a bank's capacity to give clients confidence in their transactions and deposits. It involves staff members' expertise, politeness, and capacity to inspire confidence in clients and parties involved (Parasuraman et al. 1985, 1988). Clients will undoubtedly be more satisfied when a bank offers guarantee. Thus, the following alternative hypothesis can be made:

H₄: Client satisfaction will be higher the more assurance banks offer their clients.

Empathy: According to Parasuraman et al. (1985, 1988), this element relates to the degree of concern and individualised attention given to special clients' worries, information of clients' needs, and having a problem-solving approach towards client group. Clients become bonded with a bank when treated with care and given extra attention, which leads to satisfaction. The result is:

H₅: Client satisfaction will increase in direct proportion to the banks' level of client empathy.

Security: It is the absence of risk, uncertainty, and danger. It involves the physical protection, monetary security, and privacy of the client's financial and personal information. Clients prefer a safe and secure atmosphere, according to studies by Flavian et al. (2004) and Parasuraman et al. (1985). It results in the following:

H₆: Client satisfaction will increase when bank transactions are seen as being more secure.

How easily a consumer may obtain a bank service is referred to as access to service. It denotes approachability and accessibility. The satisfaction of clients rises as accessibility increases (Flavian et al. 2004). The following is the theory in this case:

H₇: Client satisfaction with the bank will increase as bank services become more accessible to clients.

Services offered: In the viewpoint of its clients, the bank's service must be appealing. It includes awareness salaried on savings, fees levied for facilities, interest on loans, etc. Variety in service offerings improves client satisfaction. Consequently, the following assertion is made:

H₈: Client satisfaction will increase as the services given by banks become more appealing.

Reputation: In any sector, reputation promotes a positive organisational image and goodwill; funding is no exception. Client perception of a bank is founded on its reputation for doing business well, which improves client happiness. The following is the hypothesis as stated:

H₉: Client satisfaction will be higher the more well-known the bank is.

Once extra, a bank's customers are likely to be more devoted if it has a stellar standing and association. They believe that reputable banks can offer more sophisticated services. It

makes a stronger bondage and a closer bond with the bank possible. Additional hypotheses are as follows:

H₁₀: Client loyalty will be higher the more well-known the bank is.

Satisfaction: Clients' general sense of satisfaction or dissatisfaction with the bank's services is referred to as satisfaction. A consumer is happy when she believes that a certain bank is her best option, considering the calibre of service she has gotten (Ahmed 2002, Jham& Khan 2008, and Lee et al. 2000). According to Ehigie (2006), client loyalty is significantly predicted by client happiness and service excellence. Consequently, it can be assumed that

H₁₁: Client loyalty will increase when client satisfaction with bank services increases.

Loyalty: The primary dependent variable in this paper is loyalty, which is affected by satisfaction and reputation. Satisfaction is influenced by the other FOUR variables and ALL FIVE aspects of service excellence. Therefore, the TEN variables that were employed in this paper to assess client loyalty to each bank. Here, loyalty indicates the excellence of the bond between a bank's clientele. Clients and bank(er) are bound together. The likelihood of the bank succeeding in its funding endeavors increases with the number of devoted clients it has.

5. Research Methodology

Research Setting

The paper will use an empirical research methodology. Over the past three decades, the use of the service excellence model to gauge a company's general level of client service has grown significantly. However, writers have expanded and added certain new features to the previous model, which are the contributory aspects of this paper. Several academics have undertaken research linked to the SERVQUAL model.

Unit of Analysis

Bank clients' perceptions of the service excellence outcomes of commercial and public banks in India serve as the paper's analytical unit. Defendants were chosen at random to complete a questionnaire about how they felt about each statement of measurements for this reason.

Sample and Research Design

All customers of public and private banks could be included to define the demographic based on the research title. Ten banks, both public and private, make up the database that is used as the paper's sampling frame. Their databases were largely used to lure in about 1000 clients. 500 information able defendants who agreed to take the poll were found after randomly calling 700 defendants. Finally, they received the questionnaires via postal mail and personal delivery. In four weeks, 258 responses were obtained from the defendants after a follow-up phone call and in-person contact. 36 surveys were removed from the collection because defendants couldn't complete them, gave unintentional answers, or there was a lot of missing data. As a result, the sample size is 222, with a response rate of 44%.

Dimension Development

Based on the body of existing information, measures for every construct in the questionnaire were created. All of the variables were operationalised using multi-item rules (seven point Likert scale) response forms. The following is a description of the dimensions for each theoretic construct: Reliability: Five characteristics were used to operationalized reliability: promised, dependable, consistent facility, correct, and error-free transactions.

According to Parasuraman et al. (1994; Kangis&Voukelatos (1999), the things promised

and dependable service, accurate and error-free transaction were borrowed from. "Consistent service" is a phrase coined by Allred and Addams (2000). The five indications were combined together to produce a very good composite score (Alpha=0.90).

Responsiveness: Additionally, it comprises five indicators, such as rapid and quick service, client assistance, prompt response, client communication, and decreased waiting time. The paper used one item from Kangis&Vaokelatos (1999) and four items from Parasuraman et al. (1994) for this construct. The overall result for the exams was quite good (Alpha=0.94).

Tangibles: This construct incorporates five different measurements, including contemporary equipment, attractive décor, employee tables, and properly attired, businesslike staff. Two of the elements in this example were collected from Kangis & Voukelatos (1999), and the remaining three things were taken from Parasuraman et al. (1994). The five-item measure's total value was very satisfactory (Alpha=0.94).

Assurance: The expertise, courtesy, capacity to project confidence, confidentiality, and safety of employees are all included in this dimension. Measures from Parasuraman et al. (1994) and Kangis & Vaokelatos (1999) were used for this construct. The total score for the five items was acceptable (Alpha=0.88).

Security: It indicates five steps, including financial data security, transaction security, deposit security, entry and exit security, and personnel desk and table security. Indicators from Allred & Addams (2000) and Flavian et al. (2004) were used to create this construct. The sum of the five measures' scores was satisfactory (Alpha=0.87).

Access to service: It refers to how convenient, accessible, and contactable a service is. It comprises accessible time for transactions as well as convenient office time. From Flavian et al. (2004), four calculating substances for this hypothesis were taken. On the basis of the writers' own understanding, one item was created. It was determined that the total score for all dimension items under this concept was quite satisfactory (Alpha=0.90).

Service offered: All service correspondences, including interest supplied, interest accused, commission charged, alluring services, and the amount of services offered, are included in this concept. From Flavian et al. (2004), all of the measuring items for this construct were taken. The overall result for these measurement items was very good (Alpha=0.94).

Reputation: Measures for this hypothesis include goodwill, image, mass appeal, reputation for dealing with beneficiaries, reputation for honouring promises, and reputation for keeping commitments. All indicators for this construct were taken from Flavian et al. (2004). All indicators' combined score was satisfactory (Alpha=0.89).

Satisfaction: It means that clients have no complaints against the bank and are happy with the performance, employee cooperation, and office decor. It also means that the bank can better satisfy their expectations. Ehigie's (2006) measurements for this architecture were taken into consideration. The total score for all the metrics was very good (Alpha=0.95).

Loyalty: The primary dependent variable in the paper is loyalty. This measure includes five variables, including client satisfaction, continued usage of the bank, referrals of the bank to others, and perceptions of high-excellence services. The measurement parameters were all culled from Ehigie (2006). The total score for all the metrics was very good (Alpha=0.94).

Questionnaire Development and Pre-examine

To determine whether the metrics were applicable, a pilot questionnaire was created. This research tool has undergone numerous iterations to achieve perfection. The paper pre-examined the questionnaire for appropriateness, clarity, and relevance before performing the final poll. The paper used a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree) for its questionnaire format.

Method of Data Collection

To gather data, a postal survey as well as in-person interviews was done. In the beginning, 300 surveys were sent to defendants in various parts of the nation, while 200 surveys were delivered physically to defendants in a large metropolis. 95 surveys with responses were obtained. Out of 200 surveys that were personally distributed to defendants, 163 were collected after four weeks.

6. Data Analysis and Results

Demographic and Personal Information

Seven items pertaining to the defendants' demographic and private traits were included in the questionnaire. Accordingly, these traits are examined as follows:

194 (87.4%) of the 222 responders were men, and 28 (12.6%) were women. The majority of the responders were in the 22 to 29 age range. The age group with the highest frequencies, 25 years old, revealed 23 defendants. According to the results, the majority of the responders were young. Additionally, it was discovered that 56.3% of defendants were married and 43.7% were single. We discovered that 45.9% of the defendants had a graduate degree. 120 defendants, or the majority, have accounts with private banks, while 102 defendants or the remainder, are clients of public banks, with respective percentages of 54.1% (private) and 45.9% (public).

Measurement Model

The measurements were refined for each construct using CFA (Confirmatory Factor Analysis), item-to-item entire connections, and single measurement models. Four measuring pointers from the eleven concepts were removed in light of the analyses and suggested changes. All CFA-refined measures were examined against the proposed SEM model using standard SEM (structural equation model) techniques. Table 1 displays the correlations for the construct measurements.

Structural Model

SEM (structural equation model) has been employed by the authors of this work to examine the suggested model and its hypothesized routes. Good model fit is evident from the SEM analysis (CMIN/DF= 1.994, IFI=.900, TLI=.891, CFI=.900, and RMSEA=.068). Additionally, the results of the hypothesis examine (shown in Table-2) indicate that seven out of eleven hypotheses are supported. This explicitly shows that the impacts of reputation and satisfaction on loyalty are considerable as well as the unintended belongings of empathy, reaction, declaration, and status on client satisfaction.

According to the conclusion of Hypothesis 1, there is no significant association between dependability and satisfaction ($= -.24, p.196$). Therefore, there is no empirical evidence to support Hypothesis 1. According to the outcome of Hypothesis 2, responsiveness ($=.682, p.001$) considerably increases satisfaction. As a result, Hypothesis 2 is true. In regards to Hypothesis 3, the evidence indicates that tangibles ($=.09, p.268$) do not significantly increase client satisfaction. As a result, Hypothesis 3 is disproved. Pledge, understanding, and safety are strongly associated to approval, according to Hypotheses 4, 5, and 6, which have respective values of ($-.367, p.027$), ($.341, p.022$), and ($.30, p.021$). In light of this, Hypotheses 4, 5, and 6 are supported. According to the findings of Hypotheses 7 and 8, access and the excellence of the services provided do not significantly affect satisfaction (p values of $-.084$ and $.032$, respectively). As a result, hypotheses 7 and 8 are disproved. Reputation has a significant impact on satisfaction, according to Hypothesis 9 ($=.274, p.018$). Hypothesis 10 states that there is a strong correlation between reputation and client loyalty ($r =.313, p.001$). Finally, Hypothesis 11 suggests that consumer loyalty may increase as a result of satisfaction ($=.612, p.001$). As a result, these findings imply that Hypotheses 9, 10, and 11 are supported.

7. Discussion and Conclusion

The issue of service excellence is undoubtedly significant in the modern funding industry. Existing research demonstrates that client loyalty, perceived service excellence, and client happiness are key factors in the success of today's funding industry. When clients evaluate a bank's standard, the major determining factor is the excellence of the service. This paper looked at how the three factors—service excellence, client satisfaction, and loyalty—are related by discovering and measuring the factors that underlie these associations.

Nine factors in particular have been found to increase client happiness. Five of these pertain to service excellence, including dependability, receptiveness, tangibles, pledge, and understanding; the remaining four are client satisfaction-related, including security, access to facilities, facility provided, and standing. Also sketched in this case are nine possibilities, five of which are approved. It leads to the conclusion that client pleasure is significantly influenced by responsiveness, assurance, empathy, security, and reputation. This further bolsters Lee et al. (2000)'s argument. Strong client bonding is facilitated by banks with highly attentive staff. Clients are more satisfied with institutions that offer certainty, compassion, and a secure environment. The outcome demonstrates that client happiness is strongly influenced by banks' reputation. These top five factors might be highly advised as being crucial to client happiness. The bankers should therefore give these factors careful thought. Reliability, tangibles, access to services, and services offered were the four paper hypotheses that were denied, showing that they had no appreciable influence on consumer satisfaction with banks. The authors speculate that there may have been some variance in how bank clients perceived certain geographic and cultural factors. These variables require additional research in order to draw a firm conclusion.

According to the findings of the other two hypotheses (H10 and H11), client loyalty is significantly influenced by both satisfaction and reputation. Ehigie (2006) asserts that client loyalty is strongly influenced by client pleasure. H10 and H11 were approved as a result. In light of this, the paper's findings indicate that the suggested organizational and dimension perfect provides good model fit.

8. Contributions

This essay adds to the body of information already available in the literature on service excellence. The research suggests that the SERVQUAL model can be expanded to include additional aspects like security, access, service provided, and reputation. The system for measuring service excellence will undoubtedly be expanded by these new dimensions. The paper's conclusions will provide a new framework for creating financial services in developing nations like India. Additionally, it will instruct bankers on how best to service both current and potential clients. The paper will make it easier for banks to establish a solid organisational reputation or image, which will increase consumer satisfaction and foster bank loyalty. In reality, the paper's methodology gives bankers a framework for determining the best way to provide high-excellence service. The paper will also aid future academics who wish to conduct comparable studies in the area of service marketing. The research's conclusions also aid in the development of fresh perspectives and comprehension of bank service outcomes.

9. Limitations and Future Research Scope

Only bank clients from the private and public sectors are permitted for the paper, which restricts how broadly the results may be applied. The survey also disregards bank clients who are located in rural portions of the nation. Since information was gathered from clients of both private and public banks, a comparison paper to assess service excellence, client

satisfaction, and client loyalty would be intriguing. Similar investigations would be carried out across the nation by the researchers of the future. In the current SERVQUAL model, the novelists have added four more variables (safety, admittance to facilities, facility provided, and standing), but upcoming investigators can include more variables like promise and announcement to add to the body of information. This might prompt additional studies in this area to be conducted using the suggested model. Future academics are encouraged to exam the suggested paradigm in any other service industry. In this manner, the paper will support ongoing research in the relevant sector.

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Secure Data with Steganography

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ABSTRACT

The science which deals with hiding the information embedded cover messages without changing is called Steganography. The information is in the form of text, images, videos or voice in a digital form. In this paper I am proposing to hide the information or data. This research paper help students and researchers to understand the facts that through Steganography technique we hide text in a picture format or image format. I am describing different methodologies and tools which is beneficial for researchers in the area of Steganography.

Keywords: Steganography, Stego, Encrypt, Decrypt, Hidden Data

INTRODUCTION

In digital era, we have many electronic modes of communication through which we transform the data or information and the problem starts when we send sensitive data or information which hacked by any means. For data protection, we secure communication medium and channel. The Steganography and Cryptography are two techniques which resolve our problem and make data to be secured. Cryptography is the mathematical science in which data is encrypted and decrypted. It enables to store crucial data and transfer it through online networks so that no one can read except the casual recipient. Stego is the branch in which data and information hiding is there. The main objective of Steganography is to transfer the data securely in a completely unpredictable manner. In Steganography, data, files and information that has been put inside a digital medium either image, video or audio.

Steganography technique is crucial when the data has been send through Internet because very important information must be secured and privacy should be maintained when we use open systems. The data is hidden inside another file so that any information must be seen by receiver and sender. In this paper, I detail the methods and techniques of steganography. It is quite feasible method to transform the data without changes it and send in safe form.

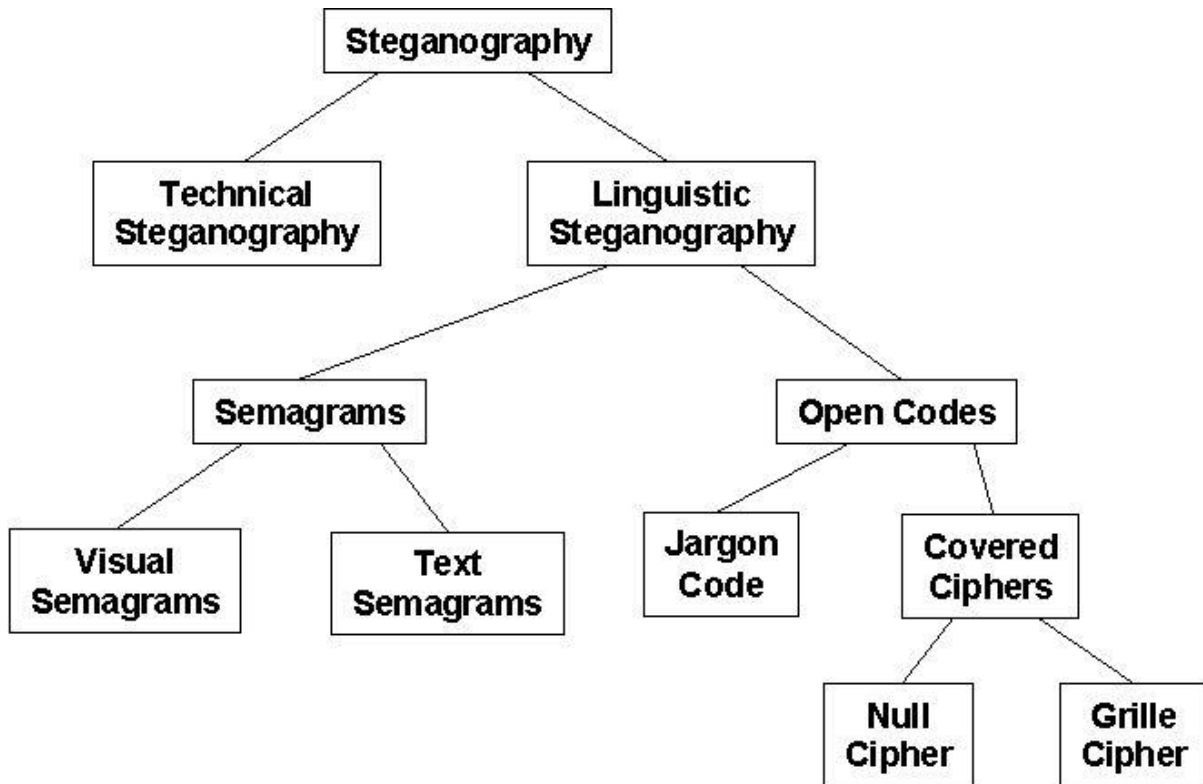
DEFINING PROBLEM

In a Steganography, text steganography can be engaged to change the format of file and to change the codes within text. Also to generate random sequence of characters and using grammar to generate authentic material. Storing files require less system memory and this is faster and easier method of communication that makes only by stego. Unperceivable changes can be made in files such as image, audio, text and even additional letter, grammar or punctuation can be marked by casual user. Text stego uses two methods – Replacing the format and replacing the meaning.

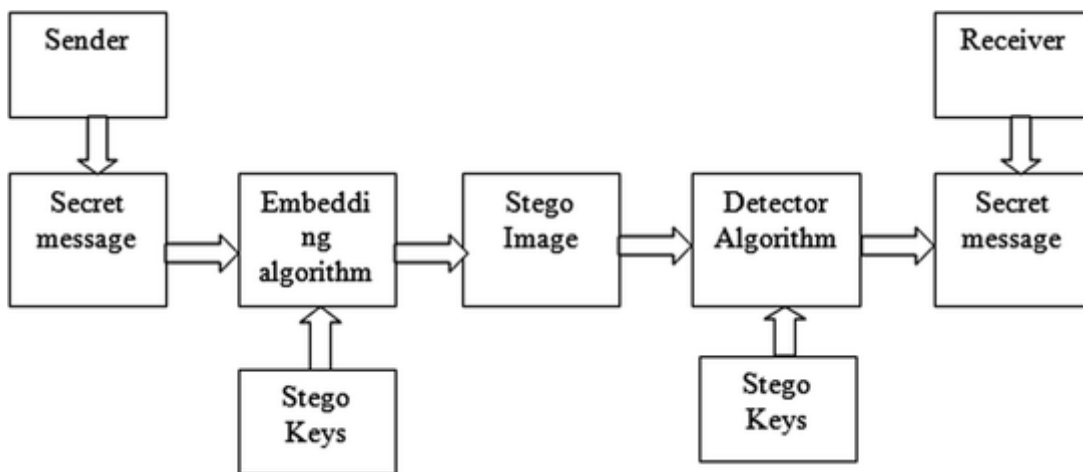
STEGANOGRAPHY TYPES

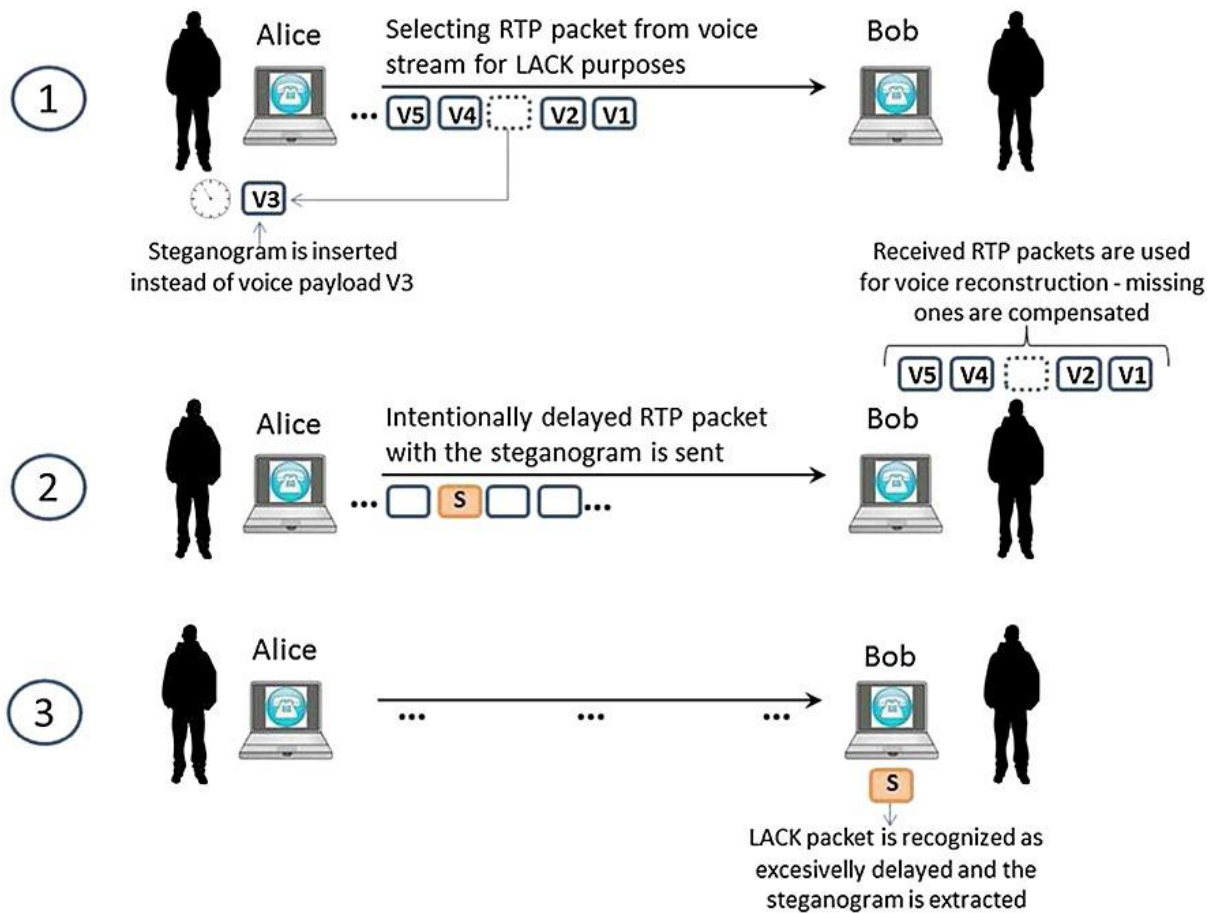
- 1) Technical Steganography
- 2) Linguistic Steganography

- a) Semagrams
 - (i) Visual Semagrams
 - (ii) Text Semagrams
- a) Open Codes
 - (i) Jargon Code
 - (ii) Covered Ciphers
 - (A) Null Cipher
 - (B) Grille Cipher



MECHANISM OF STEGANOGRAPHY





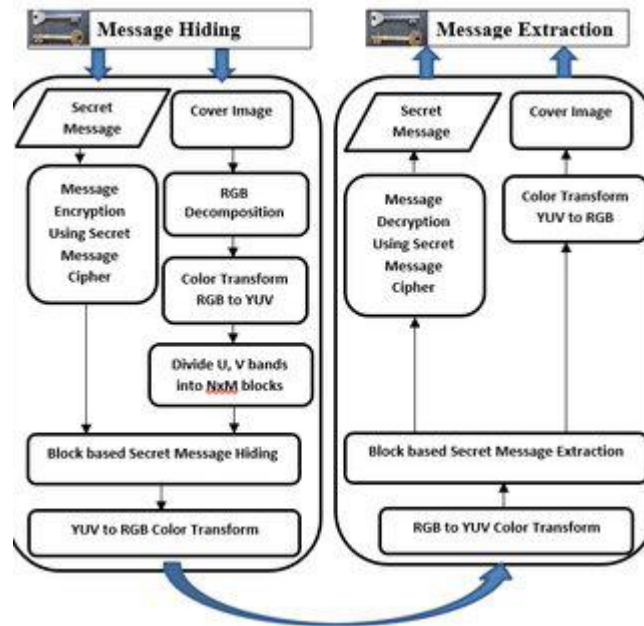
Steganography methods are based on cover media as follows:

- Protocol Steganography
- Audio Steganography
- Image Steganography
- Video Steganography
- Text Steganography

APPLICATIONS OF STEGANOGRAPHY

Agencies that use data based on Steganography are -

1. Healthcare
2. Navy and All Intelligence Bureau
3. To fetch criminals
4. Law enforcement and counterintelligence agencies
5. Online voice call and Web proxies
6. Digital elections and cash
7. Marketers use email forgery techniques
8. Scanning (Finger/Thumb/Hand/Body/Retina/etc.) prints & forensic
9. Mobile Companies
10. Digital communications and storage



CONCLUSION

The Steganography technique become more popular in computing system when there was issues of data transform to be secured when digital medium has been used. The bench mark is to evaluate the techniques and should become more standardised of robustness is required to overcome this problem

FUTURE SCOPE

This methodology not save the data in between sender and receiver but also secure the system as well as path from the hackers. Even important data will not be depictable by casual user or hackers. Through this method many companies are running their own mail server and keep their documents confidential from being inadvertently exported.

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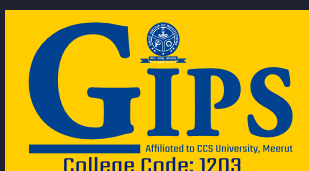
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