BUSINESS FRONTIERS

CONTEMPORARY TRENDS IN MANAGEMENT AND COMMERCE

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BUSINESS FRONTIERS CONTEMPORARY TRENDS IN MANAGEMENT AND COMMERCE

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PREFACE

In today's rapidly changing business world, it is essential to stay ahead of the curve to remain competitive. As businesses continue to evolve, new trends and innovations emerge, transforming the way we operate and interact with customers. One of the most significant recent trends in business is the emphasis on innovation. Companies are increasingly focused on driving change and creating new products and services to meet evolving customer needs. This focus on innovation has led to the emergence of new technologies and business models that are transforming the way we do business.

One way that businesses are driving innovation is through the use of design thinking. This approach places the customer at the center of the innovation process, focusing on understanding their needs and preferences to create products and services that meet those needs.

Another way that businesses are driving innovation is through the use of agile methodologies. This approach emphasizes collaboration and flexibility, allowing teams to quickly respond to changing market conditions and customer needs.

This book has invited chapter which will explore the latest trends in the world of business, including the importance of innovation, emerging technologies, sustainable business practices, and adapting to the digital revolution.

The readers will not only get a insight of the recent trends in the business, but also will be able to develop new ideas to do research through various methodologies used in the articles published.

We wish all our readers all the best !! Soon we will announce about the upcoming publication.

Regards

Prof. (Dr.) Manvinder Singh Pahwa
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The Next Frontier: Exploring AI's Impact on Education

Saloni Kabra[*]

Introduction

Artificial Intelligence (AI) has emerged as a transformative force in various industries, revolutionizing the way we live, work, and interact. With its potential to automate tasks, analyze vast amounts of data, and make intelligent decisions, AI has sparked curiosity about its impact on education. This introduction provides an overview of the current landscape and explores the potential of AI in reshaping the educational landscape. [1]

The advent of AI brings forth exciting possibilities for enhancing the educational experience through personalized learning. Traditional education often employs a one-size-fits-all approach, where students progress through standardized curriculum regardless of their unique needs and abilities. However, AI-powered technologies, such as adaptive learning algorithms and machine learning techniques, have the capability to analyze individual student data, identify learning gaps, and deliver personalized content and feedback. This tailored approach has the potential to revolutionize education by catering to diverse learning styles and maximizing student engagement and academic outcomes.

Moreover, AI has the capacity to automate administrative tasks that have long burdened educators, freeing up their time to focus on more impactful interactions with students. Grading assignments, scheduling classes, and managing administrative paperwork can now be delegated to AI systems, enabling educators to dedicate their efforts to providing individualized support and fostering critical thinking and creativity. Additionally, AI-powered virtual assistants and chatbots can provide immediate assistance to students, answering their questions and offering guidance, thereby promoting accessibility and inclusivity in education.

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While the prospects of AI in education are promising, its implementation also presents notable challenges and ethical considerations. Data privacy, security, and algorithmic bias are concerns that must be carefully addressed to ensure the responsible use of AI technologies. Transparency and accountability are key factors in mitigating potential risks and avoiding the reinforcement of existing inequalities within educational systems.[2] Furthermore, the successful integration of AI in education requires strategic planning, professional development, and collaboration among stakeholders to harness its full potential while upholding ethical standards.

In conclusion, the convergence of AI and education represents a next frontier that holds immense possibilities for transforming traditional teaching practices, personalizing learning experiences, and empowering educators. By leveraging AI's capabilities, education can evolve into a more inclusive, adaptive, and effective process, providing students with tailored learning experiences and educators with valuable tools for enhanced instruction. However, it is crucial to navigate the challenges surrounding AI implementation, ensuring that ethical considerations, transparency, and equity remain at the forefront. Through careful exploration and collaboration, we can unlock the full potential of AI in education and pave the way for a future where learning is truly transformative for all learners and educators.[3]

Issues for Consideration

Artificial intelligence has emerged as a powerful tool in education, with the potential to transform teaching and learning. Despite the opportunities presented by AI in education, there are several challenges that need to be addressed for its successful implementation and integration into educational systems. The use of AI in education in India brings both opportunities and challenges. While there are potential benefits, such as improved access to quality education and personalized learning experiences, there are also adverse effects that need to be considered. Here is a more in-depth look at the adverse effects of AI in education in India:

- **Technological Divide**

India is a diverse country with varying levels of access to technology and internet connectivity. While AI-powered educational tools have the potential to enhance learning, the adverse effect lies in the digital divide. Students from economically disadvantaged backgrounds or remote areas may lack access to the necessary infrastructure, devices, or reliable internet connections to fully benefit from AI-based education. This disparity can widen the educational gap and perpetuate inequalities.[4]

- **Language and Cultural Biases**

AI algorithms are often trained on data predominantly from Western countries, which can introduce biases and inaccuracies when applied to the Indian context. The Indian education system is multilingual and multicultural, with diverse regional

languages and cultural practices. AI systems may not adequately recognize or cater to these nuances, leading to language biases and cultural insensitivity in educational content. This can hinder students' comprehension and engagement with the material.

- **Curriculum Standardization**

    The Indian education system is complex, with a diverse range of regional boards and curricula. AI in education may lead to a push for standardization, where the focus shifts towards aligning education to a narrow set of predetermined standards. This can limit the flexibility and adaptability of education to local contexts and individual needs[5]. It is important to ensure that AI systems accommodate the diversity of Indian education and provide localized, contextually relevant content and assessments.

- **Teacher-Student Relationship**

    AI has the potential to support teachers in various ways, but there is a concern that excessive reliance on AI tools may undermine the teacher-student relationship. Education is not just about knowledge transfer but also involves mentorship, guidance, and social-emotional support. If AI takes over tasks traditionally performed by teachers, such as grading or providing feedback, it may reduce the opportunities for personalized interaction and human connection, impacting students' overall learning experience.

- **Job Displacement**

    One of the concerns associated with AI in education is the fear of job displacement among teachers and educators. While AI can automate certain administrative tasks and provide support, it cannot fully replace the expertise and empathy of human educators. However, if not implemented thoughtfully, there is a risk of reduced employment opportunities for teachers, particularly in areas where AI systems are heavily relied upon. It is important to strike a balance between AI and human involvement to ensure the continuity of teaching professions.[6]

- **Data Privacy and Security**

    AI in education requires the collection and analysis of vast amounts of student data, including personal information and learning data. Adverse effects arise when proper data privacy and security measures are not in place. Inadequate data protection can result in the unauthorized access, misuse, or breach of sensitive student information, leading to potential privacy concerns and identity theft. Robust data privacy policies, encryption techniques, and secure storage systems are necessary to protect student data.

- **Socioeconomic Implications**

    AI-powered educational tools and platforms often come with a cost, which can create disparities based on socioeconomic status. Students from economically

disadvantaged backgrounds may face limited access to AI-enabled resources, creating an additional disadvantage in their educational journey[7]. This can perpetuate existing inequalities in education and hinder efforts towards inclusive and equitable access to quality learning opportunities.

Addressing these adverse effects requires a comprehensive approach that considers the specific context of the Indian education system. This includes ensuring equitable access to technology and bridging the digital divide, addressing language and cultural biases in AI systems, accommodating diverse curriculam and local contexts, preserving the teacher-student relationship, safeguarding data privacy, and mitigating socioeconomic implications through inclusive policies and initiatives

Recommendations

As technology continues to transform various aspects of human life, education is one area that has not been left behind. The emergence of Artificial Intelligence has brought about numerous possibilities for improving the quality and effectiveness of education. Several studies have highlighted the intersection of AI and education, showing that it has transformative potential in assisting teachers with tutoring, contextualizing student learning, and creating assessments.[8] Following are some recommendations to combat the above mentioned challenges.

- **Ethical AI Development**

Developers and researchers should prioritize ethical considerations in AI system design. This involves addressing bias, promoting transparency, and ensuring accountability. For example, AI algorithms used in grading systems should be carefully designed to avoid biases based on factors like gender or race. Regular audits and evaluations can be conducted to identify and mitigate biases in AI algorithms. Additionally, transparency in the design and operation of AI systems can help build trust among educators, students, and parents.

- **Robust Data Privacy Measures**

Education institutions and AI providers must implement strict data privacy policies and adhere to relevant regulations. They should ensure that student data is collected, stored, and used securely, with explicit consent from students and their parents or guardians. Anonymization techniques can be employed to minimize the risk of personal information exposure. For example, data encryption and access controls can be implemented to protect sensitive student information. Additionally, clear data retention policies can be established to ensure data is only stored for the necessary duration.

- **Balancing AI with Human Interaction**

AI should be used as a tool to enhance education, not replace human teachers. Educators should receive training on how to integrate AI effectively into their

teaching practices. For instance, AI-powered adaptive learning systems can provide personalized recommendations to students, but teachers should also engage in one-on-one discussions to understand students' individual needs and provide support accordingly [9]. This combination of AI and human interaction ensures a well-rounded learning experience.

- **Continuous Monitoring and Evaluation**

Educational institutions should regularly monitor the impact of AI systems on students' learning outcomes, engagement, and well-being. This evaluation process can help identify any unintended consequences or negative effects and guide adjustments and improvements to the AI implementation. For example, collecting feedback from students and teachers on their experience with AI-powered tools can provide valuable insights for refinement.

- **Promoting Digital Literacy**

Promoting digital literacy among students, teachers, and parents is essential to ensure they understand AI and its implications. This includes educating them on how AI algorithms work, how data is collected and used, and how to critically evaluate AI-based educational tools. For instance, workshops and training sessions can be conducted to enhance the digital literacy skills of educators and parents, empowering them to make informed decisions about AI adoption in education.[10]

- **Diverse and Inclusive Data**

To mitigate bias in AI algorithms, it is crucial to have diverse and inclusive datasets. Developers should strive to collect data from a wide range of sources and ensure representation of different demographics and perspectives. For example, when developing language processing AI models, using diverse texts from different cultures, genders, and backgrounds can help avoid biases. Additionally, involving diverse stakeholders, such as educators, students, and parents, in the development and testing of AI systems can help identify and address biases.

- **Redundancy and Alternative Approaches**

Having backup plans and alternative approaches in place can mitigate the impact of technical failures or errors in AI systems. Institutions should ensure that traditional teaching methods and resources are readily available to students, allowing them to continue learning even if AI tools are temporarily unavailable. For instance, if an AI-powered learning platform experiences a technical glitch, teachers should have access to physical textbooks, supplementary materials, and offline activities to continue the learning process seamlessly.

By implementing these recommendations, education systems can harness the benefits of AI while minimizing the adverse effects, leading to more inclusive, equitable, and effective learning environments.

Conclusion

The integration of Artificial Intelligence (AI) into education represents a transformative frontier with the potential to revolutionize traditional teaching practices, enhance personalized learning experiences, and empower educators. However, along with the numerous benefits that AI brings, there are also significant challenges and ethical considerations that must be addressed to ensure responsible and equitable implementation. One of the key challenges is the need to navigate issues related to privacy, data security, and algorithmic bias. Safeguarding student data and ensuring transparency in AI systems are essential for building trust among students, educators, and parents. Additionally, efforts must be made to identify and mitigate biases that may be embedded in AI algorithms, to prevent exacerbating existing inequalities in education.

Strategic planning and collaboration among stakeholders are vital for successful integration. Educational institutions should invest in professional development programs to equip educators with the necessary skills and knowledge to effectively leverage AI technologies. Collaborative partnerships between educators, researchers, and industry experts can foster innovation and ensure that AI is applied in a manner that aligns with educational goals and values. To harness the full potential of AI, it is crucial to strike a balance between automation and human interaction. While AI can automate administrative tasks and provide personalized feedback, it should not replace the essential role of human educators. Maintaining a human-centric approach, where educators provide guidance, mentorship, and critical thinking opportunities, is vital for creating a holistic learning environment that nurtures creativity, empathy, and social skills.

Ultimately, the successful integration of AI in education hinges on ethical considerations and a commitment to equity. It is essential to ensure that AI-driven educational opportunities are accessible to all learners, regardless of socioeconomic status, geographical location, or other factors. Close attention must be paid to prevent the exacerbation of existing educational disparities and to create a level playing field for all students. By embracing the potential of AI while addressing the associated challenges, education can be transformed into a more effective, inclusive, and engaging process. AI has the capacity to personalize learning experiences, empower educators, and unlock the potential of every student. Through thoughtful implementation, ongoing research, and collaboration, we can shape a future where AI is harnessed to create equitable, student-centered educational environments that prepare learners for the complexities of the 21st century.

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Economics and Financial Stabilization

Prity Kumari[*]

Introduction

An Economics stabilization policy is a macroeconomics strategy enacted by governments or central banks to stabilize economics growth and prevent fluctuations from occurring. Economic stabilization or macroeconomic stability is a situation when an economy output matches its productions capacity, its labour resources being fully employed and inflation being at lower levels. The main purpose of economics stabilization is to stabilize the economy so that it can steady development growth without significant fluctuations. Stable economy is constituted by consistent gross domestic product growth, high employment, and adequate individual income levels.
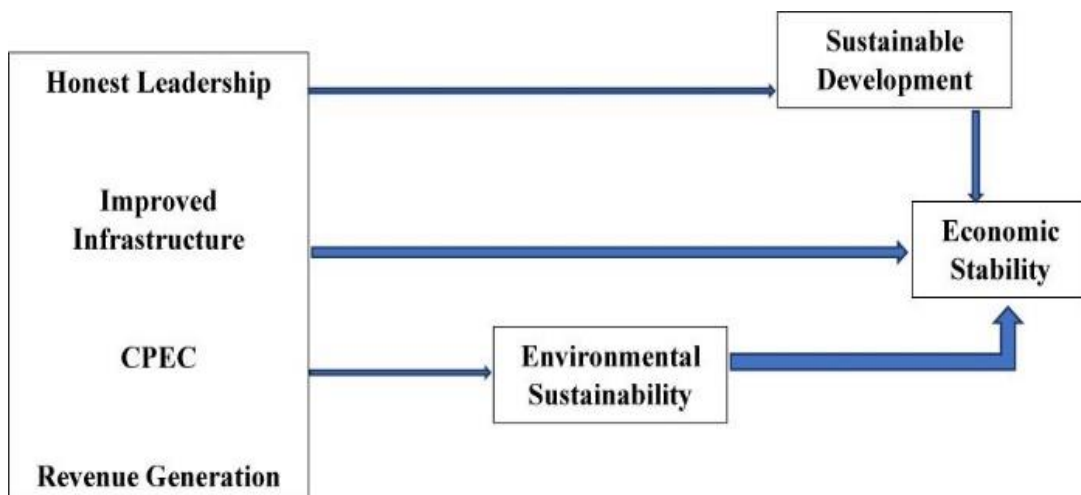
[*]   Assistant Professor (Guest Faculty) & Research Scholar, LNMU, Darbhanga, Bihar, India.

Financial System

Stability is one of main objectives of the central bank. A stable financial system is capable of mobilising savings and allocating them to productive investments, managing risks and settling payments without materially affecting economic growth and welfare of the people, even during economics shocks and stressful circumstances. Financial stability is an essential requirement not only for price stability or the policy goal of the central bank, but also for healthy development of the economy.

Stabilization Policy

Stabilization policy refers to the tactics that a government implements in order to achieve its goals pertaining to economics and financial stability. The respective purpose of these policies related to releasing money into the economy making it easier for people to borrow and spend money and aiding markets. Without the government stabilization policies, the economy will be left to completely balance itself out.

Policy Approaches

The business cycle plays a prominent role in economic and financial stabilization. It refers to the continuous expansions and recessions an economy moves through. It is the prime factor that determines the government's approach to policy implementations. When the cycle is at a peak the government should theoretically consider setting policies that would balance out the economy. When the cycle is in a depression, the government could look at policies that would stimulate the economy.

Major Objectives

- To stabilise, prevent and control wide fluctuations in the price level.
- To achieve full employment or to prevent in voluntary unemployment.
- To achieve steady growth.

To Achieve Objectives

The following instruments are used to attain the objectives of economic and financial stabilization particularly control of trade cycles, relative price stability and attainment of economy growth:

- Monetary policy

- Fiscal policy

Monetary Policy

The most commonly advocated policy of solving the problems of fluctuations is monetary policy. Monetary policy pertains to banking and credit availability of loans to firms and householders, interest rate, public debt and its management and monetary management. However, the fundamental problem of monetary policy in relation to trade cycles is to control and regulate the volume of credit in such a way as to attain economics stability. During a depression, credit must be expended and during an inflationary boom, its flow must be checked.

Fiscal Policy

Today foremost among the techniques of stabilisation is fiscal policy. Fiscal policy as a tool of economic and financial stability, however, has received its due importance, under the influence of Keynesian economics only since the depression years of the 1930. The term fiscal policy embraces the tax and expenditure policy of the government. Thus, fiscal policy operates through the control of government expenditures and tax receipts.
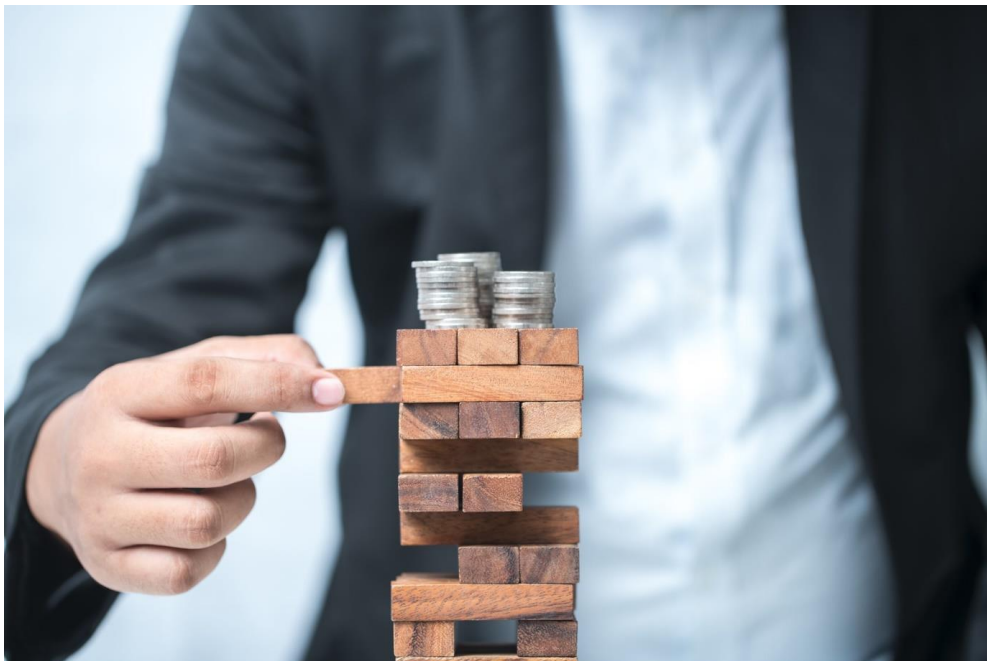
Policy makers create economics policies such as fiscal policy and monetary policy in order to stabilize the economy. These are macroeconomics policies that are implemented by the federal government and central banks with the aim to create stability and sustainable growth.

Conclusion

Although explanations which are shown above supporting the vies that a stable financial market is crucial for a healthy economy, in conclusion, financial system to allocate the scare to the most profitable project to create the necessary value-added activities into the economy.

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The Scope of Blockchain Technology in HR: An Exploratory Study

Vichandana Bothra[*]
Dr. Ranjeeta Phukan[**]

Introduction

Blockchain is the collected term for technologies created with the purpose of synchronizing data that has been stored on different computers and/or servers via a network in a way that enables it to remain the same (Audia, 2018). A consensus protocol is used to guarantee the integrity of the content of the data, in which cryptography plays a big part.

This technology is a radical innovation which can redefine the management of businesses. Therefore, it has attracted the attention of companies, governments, venture capitalists and even skeptics.

In 2008, when the financial industry crashed and people lost confidence in the economic and financial system of the world, an anonymous entity named Satoshi Nakamoto developed a protocol for digital cash that used an underlying technology called blockchain to make a cryptocurrency named Bitcoins. It enabled people to establish trust and carry out transactions without a third party. Cryptocurrency is just one application of this new technology – BLOCKCHAIN.

Blockchain is an internet of value, a vast global distributed ledger running on millions of computers, available to almost everyone. Every asset from money to music could be stored, moved, transacted, exchanged, and managed- all without powerful intermediaries.

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For the first time in human history, people everywhere can **trust** each other and transact peer-to-peer. This trust is established not by some institution, but by collaboration, cryptography, and clever coding.

It is important to understand that Bitcoins and other Cryptocurrencies are just assets. They are not fiat currencies controlled by governments. The bottom line of these Cryptocurrencies is **Blockchain, the underlying technology.**

The Indian government proposed a law in 2019 titled —*Banning of Cryptocurrency & Regulation of Official Digital Currency Bill, 2019.* Later, it replaced the draft bill with *'The Cryptocurrency and Regulation of Official Digital Currency Bill,* 2021 which omitted the words "banning of" in the title. But despite the name change, the bottom line is that the government discourages cryptocurrency trading but is very keen on exploring areas of the application of the underlying tech i.e., blockchain.

Under this technology, digital assets like money, music etc. is not stored in a central place. They are redistributed across a global ledger using the highest level of cryptography. And when a transaction is conducted, it gets posted globally, across millions and millions of computers.

This technology includes high-powered computers which have 10 to 100 times bigger computing power than Google worldwide. They are known as miners'. Miners validate new transactions and record them on the global ledger (blockchain). On average, a block is mined every 10 minutes. Miners compete to solve a difficult mathematical problem based on a cryptographic hash algorithm. The solution found is called the Proof-of-Work. When the blockchain is solved, the transactions contained are considered confirmed and miners receive a reward in the form of digital currency which can be called as their transaction fees.

The key part is that the new block created is linked to the previous block, and the previous block creates a chain of blocks. Every block is time stamped meaning that to hack a block, the person will not only have to hack one particular block of information but all the preceding blocks- the entire history of commerce on that blockchain, not just on one computer but across millions of computers simultaneously all using the highest level of encryption. This makes this technology highly secure and transparent.

This paper attempts to explain the working of Blockchain. It assesses its application in Human Resource Management and the benefits it will entail to the businesses. Specifically, the study analyses the application of blockchain technology in the screening process of HR through the case study of Rabobank – A Dutch multinational banking and financial services company headquartered in Utrecht, Netherlands.

Literature Review

SopraHR Software (2019) describes how blockchains would have a profound impact on HR in the years to come based on the analysis of conference proceedings dedicated to innovation in HR organized by the Sopra HR Lab themselves. It finds that blockchain technology can be used to manage data for individuals which can be deployed on a large scale basis and be tailored to the needs of companies.

NASSCOM Avasant India (2019) in its report explains how 2018 has been a tipping-point year for Blockchain investments globally. Global blockchain investments through venture capitalist and initial coin offerings reached over USD 20B and covered a wide range of industries, technologies and use cases. At the same time Indian start-ups have not been able to tap into the global investment surge in blockchain, cornering only about 0.2% of the investments because of India's cautious approach towards using blockchain technology.

A People Matters Research (2019) finds that among the various technologies like AI, Chatbots etc, Blockchain has emerged as the least mature technology because 39 percent of the respondents are not well-versed with it. The research also includes a case study on VLCC. It explains how in four phases, the blockchain technology is being used by employees which provides them decision-making ability in the company. It helped VLCC to make timely decisions with respect to recruitment, training, absenteeism, productivity, candidate fraud, and employee satisfaction.

Nagpal (2019) explains ten things one must know about the Govt. of India Blockchain Report. The report states that blockchain / Distributed Ledger Technology (DLT) is — "an important new and innovative technology, which will play a major role in ushering in of the digital age." The article explains how the government has given a boost to the blockchain sector in India but simultaneously proposing to ban bitcoins, ripple and other cryptocurrencies.

Blockchain Conference (2019) includes the talk of Marc Jenson (Executive VP of HR) on the application of Blockchain technology at Rabobank on Digital CVs that certifies people's educational and professional qualifications on Blockchain. The same talk has been analyzed from the perspective of its valuable use in HR and included in the paper.

Onik et al. (2018) identifies the status of the usage of Information Technology in the domain of Human Resource Management and how Blockchain can help achieve a smart, cost-effective, efficient, transparent, and secure factory management system. They have proposed a Blockchain based Recruitment Management System (BcRMS) as well as Blockchain based Human Resource Management System (BcHRMS) algorithm. From the analysis of the results obtained through the case study, it is evident that the proposed system holds definite advantages compared to

the existing recruitment systems. Future research directions have also been identified and advocated.

Bendor-Samuel (2017) answers a pertinent question of how secure blockchain technology is for any company's transactions. It finds that the technology is highly secure based on the analysis of Everest Group's market research wherein more than 60 global banks and financial institutions have researched, experimented and are even currently working on blockchain-enabled applications and use cases.

PwC Blockchain (2017) in their report studies the possible impact of blockchain tech in HR. It is found that blockchain's impact will be transformational for both traditional employees as well as the growing pool of 'talent-on-demand' people. Delloite(2016) finds that blockchain has enabled Business-to-Business and Person-to-Person cross border payments with a 40-80% reduction in transaction costs.

Lowe & Graves (2016) in their book 'Redesigning Work' provides a blueprint for Canada's Future well-being and Prosperity through analysis of an opinion poll by EKOS Research. The study finds that new technologies can help make work more motivating, rewarding, and productive.

Cresby et al. (2016) explain the concept of blockchain technology and some of its compelling specific applications in both the financial and non-financial sectors. Their main hypothesis is that the blockchain establishes a system of creating a distributed consensus in the digital online world. This allows participating entities to know for certain that a digital event happened, by creating an irrefutable record in a public ledger. It opens the door for developing a democratic open and scalable digital economy from a centralized one.

Research Methodology

Rationale of the Study

Blockchain Technology is currently at a very nascent stage in most economies around the world. Any radical innovation needs proper research to analyze its potential and risk characteristics. There is no comprehensive literature available on the same especially when its application in Human Resource Management is perused. This paper attempts to fill this research gap by exploring the scope of blockchain in HR.

Objectives of the Study

- To understand the structure and working mechanism of Blockchain technology.

- To analyze the potential areas in Human Resource Management where Blockchain technology can be applied.

- To provide a solution for the various issues in HR referred to as the HR Pain-Points'.

Sources of Data

The study utilizes secondary data which is purely based on the literature available on Blockchain Technology. Reports and publications of various associations like PwC, People Matters and others have been read and analyzed. A particular talk from the Blockchain Innovation Conference 2019 (Amsterdam) is examined with the perspective of its' valuable use in the current study.

Research Design

The study is qualitative and exploratory in nature. Qualitative data has been used to gain insight into the underlying application of Blockchain Technology in HR.

Limitations of the Study

The paper is purely based on secondary data. Hence, empirical testing of the same is required through primary study. Also, the study of Blockchain Technology has been limited to its possible application in HR, undermining its use in other sectors of the economy.

Key Findings of the Study

Blockchain technology applications have so far been widely known in the financial sector as cryptocurrencies, but their use has been extended to other areas such as healthcare, advertising, security etc across the globe. It is interesting to know how this technology can also be a breakthrough in HR. How can organizations make the most of blockchain's potential in areas like recruitment, cyber security, and fraud management etc, while avoiding the risks that arise with the early adoption of any technology.

Blockchain in HR

- **Employee Recruitment: Trustworthy Verification of Candidates**

Applications (CVs) received during the recruitment process are often overvalued in terms of candidates' certificates, work experience and education. The HR managers rely on reference calls and LinkedIn profiles to verify the information, but it still takes a lot of time and effort on the part of managers.

Blockchain on the other hand guarantees verification of candidates - to check whether the institute actually certifies the diploma, or the professional experience mentioned in the CV. The candidates' information sourced during recruitment can be viewed on blockchain thereby streamlining a huge amount of process. Resumes will be a thing of the past; looking at grades, certificates, and the experience becomes easy to verify. Both employers and individuals benefit from this technology. Fake or fraudulent references can be rooted out making background checks much easier. Also, the employees can update their professional backgrounds from time to time through the blockchain provided by the firm. Their data remains secured and certified.

Rabobank has been building blockchain expertise since 2014 and exploring how it can contribute to an excellent customer experience (rabobank.com). Apart from creating the world's first blockchain solution for international trade transactions-we.trade, it is also exploring ways in which the same technology can be used in HR Department.

Figure 1: Mark Jenson (Rabobank)

Marc Jansen is the Executive Vice President of HR at Rabobank, and he is currently working on a digital CV that certifies peoples' educational & professional qualifications on the blockchain. At the Blockchain Innovation Conference 2019 (Amsterdam), Marc elaborates on how it works, why it is necessary and how it can eventually solve one of the HR problems of Rabobank - bringing screening processes of potential employees from 10 days to 2 days.(Digital CV certified on the Blockchain, n.d.)

Now the major challenge in this area is how to take someone's unverified LinkedIn profile or the CV which every applicant submits and digitize it, with a stamp of approval - a certification that it's true. There is a need to automate this process so that Rabobank can close that screening gap from 10 days to 2 days. And it's not just about making the window smaller, as Marc explained its more about helping people in removing that point of friction, to move from work to work or from one job to another job. This solution can make them the owner of their data. They will decide who sees what, and at what time. They can track the data and trace it at all times for themselves thereby empowering employees.

One of the biggest challenges in today's time in HR is Talent Mobility. Rabobank has also been struggling with this problem for a while – and the solution

identified by them is blockchain technology. Their blockchain acceleration lab builds a system of universal ledger agents that enables employees to gather their own data and store it on multiple blockchains. The acceleration lab open sources everything that relates to this universal ledger agent. This makes it possible for employees to own their data which is completely verified.

Rabobank's vision is to use this technology as a building block for multiple partners and alliances, to come together and help them solve this problem of certified verifications for all employees worldwide.

- **Employee Engagement and a Step towards a Skilled Workforce**

The 4th Industrial revolution is catching up with the present which requires a tech-savvy workforce to meet business needs. Blockchain technology may sound scary to employees, but it can act as a catalyst for making the workforce ready for the future. As Graham Lowe and Frank Graves explain in their book 'Redesigning Work', "For employers, the challenge is to monitor the use of new technology to ensure that their positives - such as efficiencies and flexibility - outweigh their negatives."(Lowe & Graves , 2016)

The company needs to make sure that the tech is being used by employees and that they participate in the decision-making process. Employees will not adopt any technology unless they feel there is an advantage attached to it making their work easier. Let them participate in the process with the team of blockchain experts and help them see the bigger picture so that they can incorporate the use of blockchain in day to day activities.

A practical example of a successful application of Blockchain technology is **VLCC** (Vandana Luthra Curles and Curves) which used this technology to get access to better data concerning recruitment, training, absenteeism, productivity, candidate fraud and employee satisfaction. (State of HR Technology in India 2019-20)

- **A Solution to the Problem of the Gig Economy**

Gig economies have got a larger liquid workforce that could be called upon for projects that require fewer permanent people and short-term job contracts.

Blockchain provides scope for a more autonomous organization where the focus is on building a network of teams rather than leading employees. Basically, blockchain sets a decentralized protocol to connect and manage freelancers with potential employers. ***Talao****is a company that publishes freelance software with the use of blockchain.* It offers private marketplaces that can be used as white-label products for the company. Freelancers can thus have their professional experience certified by the companies during their job assignment and thus ensures that their CVs are fully certified. (Talao, n.d.)

- **Management of Data and Cyber Security/Fraud Prevention**

Even after the digitization of HR functions and the wide use of Artificial Intelligence, one cannot neglect the fact that AI systems are centralized. The concentration of power is in the hands of a few organizations that can source and process a large amount of data. Blockchain, on the other hand, relies on distributed ledger meaning the change of records is subsequently stored across a large network of independent computers. This ledger is maintained and updated communally by a group of connected computers, and all parties have an identical copy of the ledger.

For example- Company X in Singapore and Company Y in India see the exact same information in one place. This decentralizes and encrypts the data making it safe and secure.

Simply put, in case of crisis and natural disasters – data is not stored in a single location; hence it can be preserved. CIO reported that global banks and other institutions have been rigorously testing blockchain solutions at scale and finding them remarkably secure (Bendor-Samuel, 2017)This can particularly help Small and Medium Enterprises (SMEs) who are largely unprepared for cyber threats.

- **Streamlining Payroll**

One of the common cases for the application of blockchain in HR relates to streamlining payroll, contractor payments and vendor tracking. Blockchain has the power to replace many of the manual tasks and eliminate time lags with current payroll systems. It offers 'Smart Contract' solutions that provide companies to automate secure payment mechanisms. Smart Contracts are digital contracts (agreements between two or more parties) that self-execute and handle enforcement and performance.

In the blockchain, all process entirely depends on a set of protocols coded in the chain. These protocols are irreversible meaning that one cannot violate an existing code unless they update the existing contract. In short, 'Blockchain enables you to take the written word and codify it in technology.'(Blockchain technology impact on HR and the world of work, 2017)

- **Cross Border Transfers**

International payments through established channels are a complex, multistep process that involves several intermediaries.

Example – If Company X in India wants to pay Company Y in the US; Company X first asks the Indian bank to send payment overseas. The Indian bank partners with a correspondent bank to facilitate the transfer, and a respondent bank in the US receives the funds and then transfers it to company Y's bank account. This whole process is costly and time consuming.

Blockchain solves this challenge by streamlining the process and storing transactions in a secure distributed ledger. Deloitte estimates that B2B and person-to-person payments with blockchain result in a 40-80% reduction in transaction costs and take an average of four to six seconds to finalize the transaction (compared to two to three days using the standard transfer process). (delloite, 2016)

- **Automate Taxes and mitigate the strain of Audits**

Blockchain has the ability to record any data thus it can help companies update employee tax considerations and provisions, thereby streamlining and securing the taxation process. Also, audits can become stress free as blockchain keeps everything in one place. It helps in sharing records securely with regulators in near real time.

The above arguments clearly explain the areas where blockchain can revamp Human Resource Management. Blockchain has the potential to solve various issues in HR. These problems are referred to as 'HR Pain-points'.

A comprehensive Blockchain solution for these HR Pain-points is summarized as follows:

HR Pain-Points	HR Function Involved	Blockchain Solution	Benefit
Candidates Frauds	Recruitment	The candidate information sourced during the recruitment phase can be saved and viewed on the blockchain. It allows verification of an individual's background and work experience.	• Candidates' details cannot be falsified. • Aids in managing employer brand for the company.
Optimum Human resource utilization	Human Resource Planning	The blockchain can be used to store biometric data such as fingerprints or iris scans for employees and use it to track attendance. This concept can also be used to maintain timesheets.	• Productivity gains.
Building Trust	Employee Relations	Blockchain allows employees to update their professional background whenever they complete an assignment or take part in training or learn a new skill, through the blockchain provided by the firm.	• Data security and certification. • Increased employability as employee gets a certified resume which further helps them to develop their career path.
Building and Maintaining a satisfied and satisfactory workforce	Preventing Employee turnover and absenteeism. Training and development	Employees work with blockchain experts and learn the new technology. It fulfills their 'self-actualization need' to some extent. This technology gives a sense of globally accepted identity to the employees with utmost privacy and sense of ownership.	• Frictionless job to job transfers/employee mobility. • Training tool. • Empowers employees and boost their confidence.

Payroll System	Wage and salary administration	Blockchain can be used to implement 'smart contracts' between employer and employees, making it possible for the workforce to be paid automatically.	• Hassle-free payroll process, saving time for more important tasks
Cross border Transfers	Organizing	Blockchain streamlines the payment process and store transactions in a secure distributed ledger. No middlemen - no delays. Also, blockchain can keep a check on cross border expenses. Blockchain could embed restrictions on how much employees can spend; and where-with lists of approved suppliers, hotels, etc.	• Cross border payments become cost effective, almost immediate, secure and transparent. • Once a payment is entered it cannot be reversed or changed in ledger fostering accountability in transactions.
Gig Economy	Managing Employees	The company can use blockchain to setup a decentralized protocol, to connect and manage freelancers or sub-contracting workers with potential employers. Peer-to peer architecture ensures transparent and reliable exchange without intermediaries and gets the work done.	• Blockchain helps establish a platform for freelancers with reliable and certified skills fulfilling company's needs effectively.
Cyber Security Threats	Processing data	Blockchain is a decentralized database. For a block of transactions to be verified, it must be validated by all cryptographic nodes in the network thus making it difficult to hack. It allows data to be stored in a transparent, safe and unforgeable manner.	• Data remains secure. • Blockchain is immutable thereby providing assurance to users that their wealth and information cannot be tempered with.

Conclusion

Blockchain technology can be deployed on a large scale basis to manage data for individuals and can be tailored according to the needs of the companies. This is a real revolution that will have a profound impact on business ecosystems, creating new opportunities.

- Human Resource Department can benefit from more secure transactions, information sharing, and record keeping.

- Blockchain shall fix people problems by healing the HR pain points of organizations. The race to seize competitive advantage through blockchain has begun and HR functionaries should join it.

- The Indian government can adopt some very apposite attributes from the Blockchain models of Estonia and Dubai. Blockchain can be introduced in many areas such as e-governance, cyber security, power distribution, healthcare, etc; driving growth opportunities in various sectors of the economy. The government needs to be a regulator as well as a consumer of Blockchain solutions to reap its full advantages.

While mainstream news coverage still focuses on the price swings of cryptocurrencies, the possibilities of its underlying technology are limitless. HR sector should also embrace the technology with open arms.

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Innovative Management Practices for Sustainable Development

Arzoo Agarwal[*]

Introduction

According to the report 'Our common future' by Ms. Harlem Brundtland, sustainable development is defined as development that satisfies the needs of the present without compromising the ability of future generations to satisfy theirs. This report, published in 1987 by the United Nations World Commission on Environment and Development, insists on the need to protect the diversity of genes, species, and all terrestrial and aquatic ecosystems in nature. It implies rational use of human, natural and economic resources that aim to satisfy the needs of humanity for a very long term. But in the field of sustainable development, there are many challenges that need to be addressed. The major conflict faced by sustainable development is with the industrial growth and corporate performance and competitiveness.

Industry and corporate sectors plays a major role in the development of nations and has a profound effect on improving the quality of human life. Industry and corporate sectors are responsible for the current environmental crisis through their management practices of production and consumption. Management practices have adverse effects on sustainable development. To achieve sustainability, industry requires adopting an internal sustainability concept focused on minimal use of energy and eco-friendly practices. Therefore, it requires firms to apply voluntary self-regulatory practices to limit their impact on the environment. Management practices must be harmonized across the different sectors of society which would result in improved sustainable development. There is a need to measure the economic development on one hand, and the growth in favor of a society that is more economical about its raw materials and energy consumption on the other. The study here will discuss about certain elements of management practices surrounding sustainable development.

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Scope of the Study

The world is getting competitive and with each passing day new firms keep adding to the race to be on top. In order to achieve this, firms need to develop new ideas, empower management skills, introduce new products, generate capital formation, etc. For this firms make use of the available resources from the environment. But these resources are limited in nature and may exhaust with time. With the growing rate of industrialization, the exploitation of resources has also increased. This directly affects the policy of sustainable development. This has always been a burning issue. The world is trapped between its want for economic and industrial growth and at the same times its need to preserve resources.

Objectives of the Study

- To create awareness about the need and scope of sustainable development.

- To develop a culture of management practices committed towards the environment.

- To guide new and existing corporate sectors in formulating ideas and implementing them to achieve organizational goals as well as sustained growth.

Contribution of Organisations

Faced with the over-exploitation of natural resources that accompanied economic and demographic growth, the Club of Rome, created in 1968, advocated zero growth. This group unites scientists, economists, national and international civil servants, and industrialists from 53 countries. In 1971, this private international association sounded an urgent alarm by publishing 'The Limits to Growth'. Broadly speaking, it presented current economic development as being incompatible with the long-term goal of sustainable development and protection of the planet. . It considers the complex problems that all societies face, due to the irrational use of resources and their poor management by the industries.

The United Nations Conference on the Human Environment in Stockholm in 1972 gave birth to the first true notion of sustainable development, which was called 'eco development' in those days, which can now be termed as innovative management practices for preserving the environment. This founding conference was held in an atmosphere of conflict between the ecology and the economy. This conference led to the integration of social equity and ecological caution and they were incorporated into the economic development models for North and South. This resulted in the creation of the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP).As the years have passed, the elements of civil societies, with timid support from governments, have been waking up to create awareness regarding the need harmonize the industrial and management practices to deal with the risks of chaos disturbing nature's balances.

Following the Rio conference of 1992, most countries undertook to draw up a national strategy for sustainable development. The implementation of these strategies has turned out to be tricky, because it must address very serious issues within economic and political contexts that are marked by strong inertia. It more or less constrained free market practices, a desire to place people at the heart of the economy, the greater or lesser determination of the various countries in the world, and the balance between short, medium, long, and very long-term interests.

The aim of sustainable development is to define viable schemes combining the economic, social, and environmental aspects of human activity. These three areas must therefore be taken into consideration by communities, companies, and individuals. The ultimate goal of sustainable development is to find a coherent and long-lasting balance between these three aspects. Therefore, a consideration of good governance is required from growing industries and management, which is essential to the implementation of policies and actions with regard to sustainable development. Governance consists in the procedures of the decision-making process. In matters of sustainable development, the consensus of all the industrial and economic participants of society is required in order to define objectives and implement them with improved ideas and practices.

Analysis and Study

Requirements for Achieving Sustained Innovative Practices

Sustainable development can be achieved by management by adopting innovative management practices which are committed towards sustained development. Management needs to step out from its pre-determined areas of action and formulate new ideas which would contribute towards sustainable development. The practices should be such which would not only be sustained and eco-friendly but at the same time would be strong enough to maintain the competitiveness of the business in the long run. This is where the management faces obstacles. A pre-determined plan though may overcome these obstacles. A detailed study of the present scenario, position of business, expectations from future market, availability and non-availability of avenues, clearly defined goals and the steps to achieve them would enhance the ability of the management to introduce innovative management practices. Here, the management can work with the 3 A's, i.e. AWARENESS, ANALYSIS AND ACTION.

Corporate management essentials that targets sustainable development

Awareness

The stimulus to start with an innovative idea or process may come from different internal and external sectors of the organization. What is required is to be aware of the potential of the idea which can take social and environmental responsibility. New ideas may arise from different sources such as suppliers, clients and competitors, enterprises in other sectors, the firm's personnel, and work done by other institutions, such as universities or research centers. On the other hand, awareness of the potential opportunities, identifying the available sources, how firms come into contact with these sources and their commitment towards sustained growth are stimulants to formulate new ideas and which can vary widely. The internal inspiration of one or several persons, contact with external organizations, offers from technology licensors, visits to trade fairs, enrolment in seminars and events, interchanges at business associations, and technical and market oriented publications may act as an important agent for creating self-awareness for managers.

Corporate socio-environmental responsibility is a continuous and progressive process of involvement and development of the firm's citizenship competencies, with the discussion of social and environmental issues related to all the audiences with which the firm interacts: its personnel (internal audience), shareholders and partners, suppliers, clients and consumers, market and competitors, government powers, press, community and the environment itself. Moreover, it is necessary to take into account the need to align competitive strategies with the three sustainable development dimensions: the economic, social and environmental aspects. The origin of the concept dates back to the late 1960s, when social insurgence movements appeared and started creating awareness and putting pressure on large corporations, demanding that they will be held accountable for the direct consequences of their activities that effect the environment. The two subsequent decades (1970s and 1980s) witnessed the birth and growth of several organized groups within society. During this time, the processes of transformation of many firms intensified, which affected their business performance and a change in the processes of these firms which were more devoted towards the environment was witnessed.[1]

Many institutions like the OECD (Organisation for Economic Co-operation and Development) and the European Union have been engaged in the process of creating awareness among industries and corporate sectors. These institutions designed a broad strategy for the development of socio-environmental management. First, guidance was provided for environmental policies that complemented economic development and the fostering of environmental businesses, changing firms' views of the legislation and acting as a stimulus for innovative technologies and practices.

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1.   [1]http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0718-27242011000200008

Then, in the 1990s, emphasis was placed on technologies geared to sustainable development and on proposing systemic innovation for the integration of R&D efforts, in order to reduce costs and increase the speed of innovation processes. The environment became an important market. At a later stage, environmental management started to be understood within a broader setting, which was connected with environmental policies. This period strengthened the integration of efforts among homes, firms and the government. Knowledge based on improving the business network became a fundamental issue. Finally, starting in 2001, the role of IT and of communication technologies was made explicit, with a view to fostering the efficient use of energy and to monitoring resources and costs in intra-firms cooperation networks in order to reduce environmental impact. Four new environmental paradigms appeared: command and control; market instruments; hybrid approaches; and knowledge management.

The influence of stakeholders in creating awareness and the development of R&D projects evidences the interference of sustainable development principles with firms' actions. Thus, creating awareness about sustainable strategies in corporate practice and adopting the same in order to face the challenges of the millennium has become fundamental.

Analysis

Analyzing independent and dependent variables makes understanding the connection between managing technology for sustainable development and innovative practices that reflect commitment to sustainable development easier. Analysis of the sustainability issue and its influence on the competitiveness of organizations, from a microeconomic point of view, noted how product and process innovations may help to improve firms' management performance and while also driving them to achieve benefits or advantages, such as lower costs, greater productivity or entry into new markets. These innovations provide them with competitive positions ahead of their competition. Many of the firms that adapted to environmental legislation requirements committed to sustained development ended up developing technological innovations, as they took advantage of the opportunities that arose as they reviewed their traditional products, processes and operating methods. These innovations, in turn, enhanced the competitiveness of such firms.[1]

Several areas have been focusing on and showing concern about the issue. Analyzing various authors, it is evident that there are several approaches to the theme: ecological and environmental, human, social and citizenship-related, operations- and production-oriented, involving production processes and the development of technologies related to streamlined production, and works that link competitiveness with the economy, environment and society, or with organizational

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2.   [1]http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0718-27242011000200008

strategies, innovation processes and learning, that aim to quantitatively show organizations' commitment to sustainable development. Thus, one sees that the idea that sustainable development can be tied to organizational competitiveness actually has a logical basis.

The approaches can be analyzed in a complementary manner. However, it is fitting to conduct a critical analysis of what global competitiveness consists of, since its conceptualization and its measuring are still vague and inadequate. Firms create competitive advantages through international strategy and the strengthening of their internal competitive advantages. To be competitive, a firm must make strategic plans involving a series of studies on how best to join international trade. This strategy may help it to maintain the competitive advantages that it has already acquired in the domestic market while contributing potentially towards the sustainable development.

It becomes necessary for corporate sectors to employ several types of analytical tools and models to evaluate the strategic decision and to constantly monitor such matters and the prevalence of the management's analytical skills in this process. Modern firms need to unfold their resources effectively, which implies in both the firms and their management having entrepreneurial characteristics, such as concern for the organization's quality, the capability to devise and implement complex strategies, learning about the environment on an ongoing basis, suitable development of the strategies, and the effective use of resources.

Action

 "***Some might think that 'innovation process' is an oxymoron, but you need a fairly structured process to drive innovation or you have little chance of collecting great ideas and no chance at bringing them to market***," explains Ben Chamberlain of UMT.

Proper knowledge, fresh ideas and effective analysis of all the variables may contribute towards the achievement of sustainable development but only when this plan is given a working framework. Great ideas are worthless until they are brought to action. What firms need is a well defined and structured process and its implementation to bring into action the innovative practices which are responsible for achieving sustainable development. Thus, the best result would be to take action by offering innovative technological solutions that show commitment to the environment.

In order to implement effective plans, as a general rule, any policy involving a strategy in favour of sustainable development must include the following guidelines:

- Becoming more responsible with regard to the future and future generations.

- Taking into account the three aspects already mentioned, in a balanced manner, which includes the 'environmental responsibility', 'economic capacity', and 'social solidarity'.

- Incorporating sustainable development in all areas of politics. All activities and all processes in the city must be concerned.

- Increasing the co-ordination between political areas and improving consistency. Transparent decision procedures and the involvement of all participants concerned, as well as the prior determination of conflicts of interest.

- Achieving the sustainable development objectives through partnership. All institutional levels must work together constructively and fully assume their role as an interface with civil society and the private sector.

The process to undertake any innovative plan can be divided into various stages[1], which are discussed as follows:
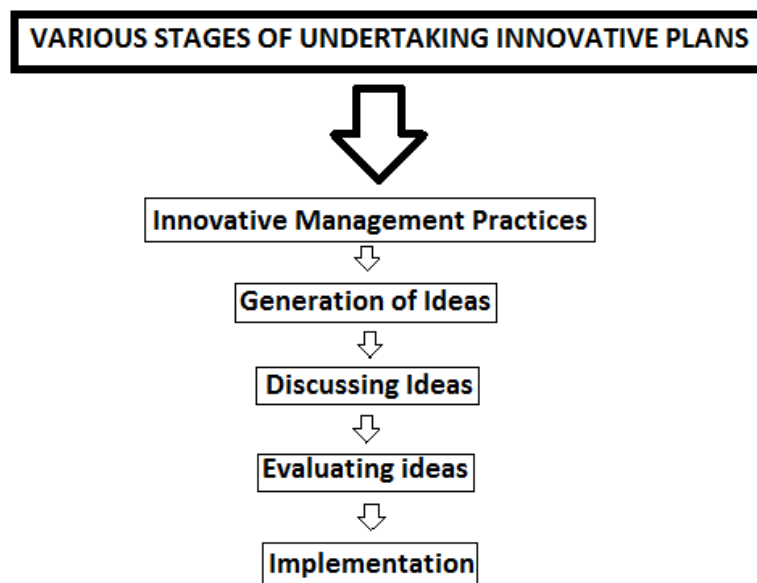
- **Stage I:** The first stage is the most critical stage of setting up of innovative management practices. Innovation is critical to achieving the goals of the modern business strategy. Accenture's Overcoming Barriers to Innovation reports that more than 60 percent of companies indicate that their organization's strategy is either totally or largely dependent on innovation. The first stage should put in place the strategy and plan to achieve the innovation goals in the business strategy. The innovation strategy starts right below the corporate strategy, taking growth targets and business goals from the business planning process to drive acquisition, IT, and product strategies inculcating the goals to achieve sustainable development.

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3.   [1]Best Practices for Innovation: Microsoft's Innovation Management Framework June 2013: Page no. 7 – 11

- **Stage II:** The second process is the front end of innovation where ideas are generated. In this process, companies engage employees, customers, and partners in an innovation community to capture and share new ideas which are not just committed towards organizational goals but at the same time are responsible to achieve sustained growth. The aim is to formulate a proactive approach that effectively produces targeted ideas. The goal is to generate ideas that will drive new business value. One of the difficulties companies face in this stage is generating the right kind of ideas. Without the ability to develop truly innovative ideas, companies will continue to suffer from too many products, minor product enhancements, and line extensions which results in mis-management or wastage of resources or unnecessary depletion of resources instead of breakthroughs that drive higher margins and growth.

- **Stage III:** The third stage takes the output of the second stage to the next level. In this process, companies evolve ideas– as individuals or as teams – to increase their quality and value. Capturing ideas is not enough. Early feedback allows great ideas to be improved upon and issues to be raised so they can be resolve.

- One of the biggest fallacies of innovative management is that having a good idea is enough to ensure success. Most ideas serve as the seed from which a fully formed innovation grows. In order to get the most out of ideas, they need to mature. While the ultimate goal is typically to develop a specific innovation to achieve sustainable development, companies can gain value by developing insights into their organization, gathering information regarding the root causes of over-exploitation of resources and poor management practices, creating validated proposals of projects for sustained growth, or other valuable information that helps them meet their innovation objectives.

- **Stage IV:** Simply discussing ideas is not enough. Unfortunately, many companies are drowning in too many ideas. They want to use the "wisdom of the crowd" to provide some direction on where to focus. The goal is to take potentially thousands of ideas and turn them into a more reasonable number that you can evaluate. Social techniques can help prioritize a more reasonable number of candidate ideas to evaluate.
    - Provide filtering and search mechanisms so people can identify those ideas which are in environmental interest
    - Track which ideas lead to optimum utilization of resources
    - Provide mechanisms for the community to rate the ideas
    - Provide a secondary review process where a panel of environmental experts can provide more detailed feedback and begin to develop the elements of a business case for those ideas that promise sustained growth.

- **Stage V:** All of the best ideas, proposals and business plans in the world are of no value unless they can be turned into a reality. The final stage takes the input from the previous processes and executes a formal project to further develop the idea or commercialize it.

The companies face challenges in the execution phase. While this may seem trivial when compared to the strategic value of innovation, it's important to recognize that effective execution drives faster time-to-market and ensures that resources are used efficiently so companies can introduce more innovation to market and contribution to sustained growth.

Methodology

- My data is of secondary nature.

- To fulfill the purpose, detailed study of the work of the existing institutions were conducted and suggestions were provided on the basis of the inferences drawn.

Conclusion

Sustainable development did not just appear out of thin air. The concept of sustainable development is based on a set of requirements. It must allow the basic needs of present and future generations to be fulfilled with regard to demographic constraints, such as: access to water, education, health, employment, and the fight against hunger or malnutrition.

Concern about the environment is permanent in the so-called developed countries. The European Union studies the current and future impact of technology upon the environment by means of technological foresight activities. Based on this, environmental conservation guidelines are issued. Furthermore, the social dimension of sustainability is studied. This involves the social aspects and the drivers underlying social changes.

This debate was born out of the original Sustainable Development concept, as put forth by the World Commission on Environment and Development (The Brundtland Commission) in 1987. This commission considered it technically feasible to meet the minimal needs of a global population twice as large as it then was, in a sustainable way and with no ongoing degradation of global ecosystems, to "fulfill the needs of the present generation without jeopardizing the capability of future generations to meet their own needs". Ever since, several studies and tools have been developed. They determine the conduct of the organizations that wish to tread the path of sustainable development.

Many competitive strategies have been developed based on sustainable development theories. However, only a few focus on project innovation and introduce innovative management practices committed towards sustainable development. The

aim of this type of development is to improve quality of life, which involves easier access to medical care, social services, culture, and therefore also social well-being. In addition, promotion of new forms of renewable energy such as wind, solar, and geothermal power, are important aspects of sustainable development. Sustainable development must allow the planet's resources and condition to be protected for future generations. The aims of sustainable development must be considered by individuals, by companies, and on a planet-wide level.

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A Study of Rural Marketing in India: Innovation for Sustainable Growth

Huidrom Michael[*]

Introduction

With the initiation of various rural development programmes and the steps taken by the Government of India to initiate proper irrigation, infrastructure developments, prevention of flood, grants for fertilizers and various schemes to cut down the poverty line have improved the condition of the rural masses and there have been an upsurge of employment opportunities for the rural poor.

Table1: Rural India Market

Rural	Number of Villages	Population Size	Per cent of Population	Total GDP Size	India's per Capita GDP
	650,000	850 million	70 %	Around Half of India's GDP	12.3 % growth between 2009-10 to 2015-16, contributed by RuralGrowth

Source: www.ibf.org

The annual real income per household in rural India is forecasted to rise to 3.6 per cent in 2015 from 2.8 per cent in the last 20 years, stated by Market research firm Nielsen. The rural market as seen in the above table has maximum proportion of Indian population and areas and it is obvious that rural market has maximum consumer size. However, the urban market is nearly reached the saturation point. So, the corporates are eyeing to this rural market offering a plethora of investment opportunities in contrast to urban sector. This is proven by the statistical figure:

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Figure 1: Rural FMCG market (US$ billion)
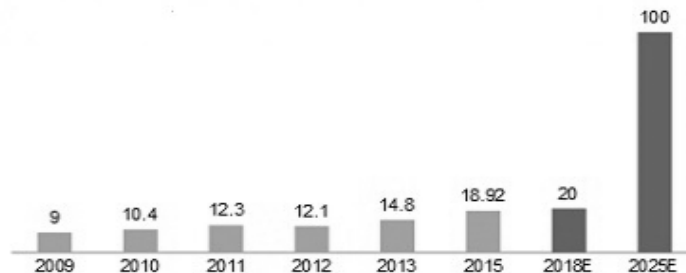
Source: AC Nielsen, TechSci Research, Dabur Reports
Note: E-Estimate

This indicates the Fast Moving Consumer Goods sector in rural India is estimated to cross US$20 billion by 2018 and US$ 100 billion by 2025.

The rural FMCG market expanded at a CAGR of 13.2 per cent to US$ 100 billion during 2009-15.In rural markets, durables like refrigerators and consumer electronic goods are likely to witness growing demand in the coming years as the government plans to invest significantly in rural electrification.

Apart from the opportunities, the corporates have to face the prevailing challenges like logistic problems, poor infrastructure, promotion, language factors, etc. However with innovative marketing strategies, the marketers has to capture the rural market with the objective of sustainable growth.

Literature Review

Sachin (2015) studied role of MART research agency in rural area. And concluded that with economic reforms in India, there is need for appropriate marketing strategy with the help of the state marketing board or federation or market committees.[10]

Kumar (2013) explained about the challenges and opportunities of Indian rural market and mentioned the rural market is the future but tapping this market requires a clear understanding of the current and future expectations of the rural consumers.[6]

Harpreet (2012) noticed that with increasing GDP growth, the purchasing power of rural is increasing and non-consumers of yesteryears are now entering as first time buyers in rural market for large number of products in bulk amount. This indicates the time to shift the management thinking approach from gross margin to higher profit from high value unit sales to game of high volumes, capital efficiency and from one solution fits all thinking to market innovation.[1]

Pawan & Neha (2013) documented that marketers are unable the vast rural opportunities due to the challenges such lack of infrastructure in rural market.[5]

Sivanesan, (2014) proposed the potentiality as well as problems of India rural market and noted that the differences in occupations options affect the rural consumer behavior which is sparkly and fundamentally different from the urban.[12]

Rajesh and Abhishek (2012)stated that packages in rural market should be small in size for trial of new products catered by the fact that the rural consumers have low disposable income.[9]

Santosh (2014) said that innovative techniques of distribution and marketing of products in rural can make the companies earn greater profits than the ordinary way.[11]

Ravisankar and K. Ashok Vardhan Reddy (2016) revealed that in this changing world, the long term organizational goal with customer satisfaction is achievable through innovation business models in rural marketing.[8]

Sunil V. Chaudhary (2004) stated that the products in rural market should be affordable and acceptable to the rural consumers in addition to right time and right place availability.

Masese (2016) mentioned about innovation in rural marketing and concluded greater strategic attention to the unique demands of designing, positioning and promoting the product in rural market, greater the chances of the product's success in this market.[2]

Neetu and Meenakshi (2015)said that the Indian rural market is a market for the truly creative markets.[4]

Nancy and Swati (2013) quoted that the problems of rural marketing can be solved by improvement of infrastructure, transportation, communication, warehousing and packing facilities but there should be only internal competition and no external system should be allowed to interfere the rural market in the larger interests of the nation.[3]

Rai (2013) said Indian rural innovation will show the path of development for the underdeveloped, developing as well as developed societies.[7]

So, the previous studies mentioned the challenges and need of innovation in rural marketing but not about what exactly the type of innovation is need in the rural marketing and what strategy to implement this type of innovation required towards rural market which will foster a roadway to sustain. The present study will fill this research gap seen in the literature review.

Objective of the Study

The objective of the study includes the following:

- To study the concepts and aspects of rural marketing.

- To explain the importance of reverse innovation in rural marketing.

- To highlight the steps of reverse innovation in rural marketing.

Research Methodology

The study is conceptual, exploratory cum descriptive. It is based on secondary data availed from various research works done in rural marketing, journals, magazines, research articles and e-books.

Rural Marketing and Reverse Innovation in Marketing–Concepts

Innovation and marketing are pair of gears that work together to move the business forward. In today's century, marketing should always go in collaboration with innovation. Marketing researchers may find out what is need, what is going on, but the innovation team will give the ideas and the possible solutions. Innovation is broader concept which includes not only creating, launching and marketing new products, but also imparting information, making mental suspicion and induce sale action improving the customer's overall experience. Marketing innovation refers to applying creative marketing method including significant and appreciable changes and modification in product design or packaging, product placement, promotion or pricing with integration of marketing with technology.

Innovative marketing of products signifies about leveraging the 4 P's of marketing mix in such a way that has never been adopted before by the corporate exercising the innovation. These P's mean Product (Design and Packaging), Price, Place and Promotion.

There are different types of innovation to achieve different objectives:

- **Incremental Innovation:** Small changes in existing products and services by means of technological improvement or modification in business model

- **Breakthrough Innovation:** Significant changes to either technology or business model of a product or service.

- **Radical Innovation:** Substantial changes to both technology and business model. It creates new markets. Breakthrough innovation or Radical innovation is generated from R&D and other creative activity.[25]

According to Ram Kishen Y, Reverse Innovation in Rural Marketing is "Understanding the psyche of rural consumer and designing products and services, pricing strategy, distribution channels, promotional aspects by identifying his needs & wants and creating demand so as to generate value to the company as well as to the consumer".[22]

This definition clears two points about Reverse Innovation in Rural Marketing viz.

- Involvement of R&D to know the consumer buying behavior

- Innovative marketing mix strategies i.e., creative strategies in 4 P's based on target customer.

Reverse innovation isn't optional. It is oxygen. It is the strategy of innovation adopted initially in rural market and then scaling up the same in urban market, as stated by Vijay Govindarajan.[23]

Table 2

Sources	Rural India Meaning	Limitations
Census	- Population < 5,000 - Population density<400/km^2 >25% of male working population engaged in agriculture - No existence of Municipality or board	No consideration of total population
NSSO	- Population <5,000 - Population density<400/km2 - At least 75% of male working population employed as agriculturists.	
Planning Commission	Towns with population less than or equal to 15000	No consideration of town characteristics

Rural marketing is about doing business activities such as marketing of goods and services from urban places to rural customers as well as delivering non-agricultural products manufactured in rural places to urban areas. In this, the dominant participant is from rural area. Rural marketing under Indian economy covers two categories:

- Market for consumer durable and non-durable products

- The one for agricultural inputs like fertilizers, pesticides, seeds, etc.

Affordability, Awareness, Acceptability and Availability are determinants of rural consumers buying behavior. Radical change with affordable cost and not substandard for rural market has to be framed but not as extension of urban market because the lifestyle, needs, wants and buying behavior of rural is drastically different from urban consumers. The rural consumer hardly changes the brand once selected.

Importance of Reverse Innovation in Rural Marketing

Importance of Reverse Innovation in rural marketing are as follows:

- **Rural consumers buy low price but not substandard** i.e., suited to rural income but no compromise in utility and convenience. For example, Nokia 1110; Rs 5 strategy of coca cola ; Good Night Fast Card, developed by GCPL which costs just one rupee, which overcomes the price barrier and does not require electricity.

- **They go for small unit and low priced packing:** Since the rural are mainly daily wages earner and have seasonal income sturdy products fitted to rural lifestyle as exemplified by Philips and Exide batteries, Chik shampoo of CavinKare (Sachets).

- **Rural market is scattered:** Distribution system need to be innovative like E-Choupal by ITC, Project Shakti by HUL, etc. The urban distribution strategy won't work in rural market.

- **Promotion is necessary in their own language:** Radio, audio-visuals, non-conventional interactive media forms in their own language for comprehension of the product. For example, Hindustan Unilever started a brand awareness campaign called Operation Harvest that uses audiovisual media and delivery vans for mobile entertainment interspersed with the company's add distributing free samples. This promotes product trials and identify key distribution and retail points based on audience interest.

- **Ethnography**: Association with their culture with the myriad rituals, celebrations, festivals, melas, nautanki, haats etc where the rural population assemble to promote brand.

Suggestions for Strategic Framework for Reverse Innovative Rural Marketing

An above normal monsoon as predicted by India Meteorogical Department (IMD), could boost rural demand, Corporates are eyeing to the vast opportunistic rural market. The following suggestions may help corporates to tap the rural market:

- **Knowledge about the Importance of Reverse Innovation and R&D of needs in Rural Marketing**

Earlier the companies understand the importance of reverse innovation in rural marketing, better their success in rural market. This is because the product in urban market cannot be simply marketed in rural. To explore the untapped rural market, marketing strategy should take care about the lifestyle, affordability and needs of the rural consumers.

ITC, Philips, Nokia recognized this strategy much ahead of its competitors.

- **Adopting Reverse Innovation 4 P's Strategies**
    - **Regarding Product:** The marketers need to live with the rural people and think like them to know their needs. The product should be socially and economically acceptable by the rural customers. Rural consumers prefer

small unit and low priced packing affordable to rural consumers ;avoid sophisticated packaging; develop refilled and reusable packaging ;new product design sturdy products fitted to rural lifestyle as exemplified by Philips and Exide batteries

- **Regarding Pricing**: The marketers must be aware that rural market is heterogeneous. The targeted customers need to be segmented asrural rich, rural above poverty line or rural below poverty line. So, the marketer has to know the target customer affordable price but not substandard i.e., suited to rural income but no compromise in utility. Application of Value Engineering is about substituting the costly raw material with cheaper one with no declination in quality as in milk-soya protein.

- **Regarding Distribution:** The marketers must use those distribution network directly accessible and ecologically acceptable to the rural consumers. Engaging local communities as partners, utilization of company delivery van can serve two purposes: it can take the products to the customers in every nook and corner of the market and establish direct contact of the firm with them. Haats, the mobile supermarket of rural held once in a week and Mandis, the agricultural markets can be used effectively by corporates at low cost distribution channel ITC's Chaupal Sagar and Project Shakti by HUL are able to reach the interior.

- **Regarding Promotion:** For market creation, promotion to create awareness through right media is mandatory**.** The promotion will have greater effect if it can touch the sensitive mind and emotion of the rural people. Radio, audio-visuals, non-conventional interactive media forms like folk dances, puppet shows, haats etc which are familiar to rural people can be used for effective campaign. . For examples, Maruti has been arranging road shows with film screenings inside a TATA truck fitted with a Samsung LCD TV. The film strikes the villagers emotion as it tells a story of an average villager who buys a Wagon R after being persuaded by a friend who also bought the same. But no substitute for word of mouth marketing promotion for customer loyalty. Mahindra, to sell its Super Turbo 595 DI tractor, organized interactive discussions between the company and its target customers like farmers and opinion leaders. It also gave free test rides and sell initially to them. Then, after using the tractor for reasonable time, the initial buyers expressed their positive word of mouth about the tractor to their friends, relatives, neighbors. This innovative promotion increased the sale of the tractor in Maharashtra, Haryana and Punjab.

- **Application of the Reverse Innovative Design**

It is time to implement the design to lunch the rural product in a rural test market after designing the above strategies. After collecting the correct feedbacks from the various departments, salesman, and the tested rural customers, the marketer should refine better. If the strategies give the expected result in the test rural market, the product can be distributed to other markets in full swing in such a way to capture the maximum rural market share**.**

- ▪ **Check the possibility of placing the same product in urban**: The Company should not be satisfied with rural success. If possible, the company should attempt to position or replicate the same rural successful product in urban also with commitment by overcoming troubles in the way.

- ▪ **Targeting Sustainable growth:** Continuous Reverse Innovation is the key to sustain.

- ▪ **Give and Take Approach:** Not only applying reverse innovation in rural marketing, the corporates should create a sense of interconnectivity with the rural customers through give and take approach. A give and take two approach should replace the current one-way exploitation. The salesman should be selected from the educated unemployed villagers, by giving training and the villagers should be educated to save them from spurious goods and service. The corporates should also operate imperatively with economic, social and environmental responsibility to sustain in rural market.

Scope for Future Research

Not much study has been carried out to study reverse innovation in rural marketing. The marketers, scholars and researchers should contribute their knowledge in this concept.

Conclusion

The rural India no doubt is the futuristic targeting market for companies but at the same time the companies must be aware of the innovative strategies to capture this virgin market. The most crucial question is what that type of innovative strategy is needed and the answer goes like this- reverse innovation in rural marketing is the sustainability mantra to success. Sustainability is going to play a major role in all sectors including the FMCG sector. In order to differentiate, the products should add value in terms of environmental and social benefits to the customer. The industry should adopt triple bottom-line approach which encompasses ecological (Environmental), social (Equity) and financial (Economic) standards of performance, as exclaimed by Pikender Pal Singh, Regional Director, CII NR.[24]

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Marketing of Petroleum Products in Rural India: Problems Faced by Oil Marketing Companies

Mr. Migam K K Pegoo[*]

Introduction
Brief Introduction of Petroleum Industry

Petroleum products are used across the entire economy in every country. Oil is the world's most internationally traded commodity. The top 3 (three) petroleum companies are amongst the world's top 10 largest private corporations by market capitalisation. Out of the entire range of petroleum products, gasoline (petrol) and diesel are the primary fuels. These fuels are used mostly in road transport, agriculture and power generation. Households use a variety of petroleum products: kerosene is used for lighting, cooking, and heating water; LPG / PNG for cooking and heating.

Petrol and diesel are sold into a highly competitive marketplace with a small profit margin on sales. Retailers therefore use various marketing strategies and skills to maximise their profitability. To maximise profitability and sustainability, major thrust is given to increase revenues through non-fuel items and services; network expansion more aggressively in the rural sector. Due to stiff competition in urban areas, OMCs have started penetrating the rural markets. The major thrust of the OMCs is to increase revenues and this is achieved by offering products and services in the rural and semi-urban areas.

In India, marketing of petroleum products was in complete domain of 3 (three) Public Sector Units (PSUs), viz. Indian Oil Corporation Ltd. (IOCL), Hindustan Petroleum Corporation (HPCL) and Bharat Petroleum Corporation Ltd. (BPCL). In 2002, Government of India (GOI) has deregulated the Administered Pricing Mechanism (APM) in retail petroleum, thereby; it had allowed new players tenterer market.

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Rural India

A large portion (68.84%)[1] of India's population leaves in rural areas. According to NCAER (National Council of Applied Economic Research) 2002, in India there are 6.38 lakhs villages out of which 90% population leaves in villages with a population less than 2000. Whereas, in Assam, around 86% of population live in the countryside, revealed the recently released 2011 census report.

The rural urban distribution ratio currently is 68.84% and 31.16% respectively.

Table 1: Rural Urban Population Distribution

	2001 (in Crore)	% Distribution	2011 (in Crore)	% Distribution
Rural	74.3	72.21	83.3	68.84
Urban	28.6	27.79	37.7	31.16
India	**102.9**		**121.0**	**100.0**

Source: Census of India 2011

From the Table I above, it is observed that even though the rural population share is decreasing, the rural population has been increased by 9 crore from 2001 to 2011 which shows greater opportunities for rural marketers.

The number of rural middle class households is approx 27.4 million which is almost equal to that of urban households which is 29.5 million. Rural market in India accounts for 50%[2] of the GDP of India. Similarly, more than 50% sales are contributed by the rural markets in FMCG and durable products. The consumption pattern in rural India is changing towards the urban consumption pattern. Due to urbanization, the rural markets of India are developing fast, thereby the consumption in the rural areas have increased considerably. The urbanization level has increased from 27.81% in 2001 to 31.16% in 2011.

As per the McKinsey report of 2007, even after urbanization and migration, rural population will still hold 63% by 2025. Therefore, the rural market will remain vital and important for Indian economy. As per the report, the rural consumption will continue to grow more than its urban counterpart and its growth will increase from 3.9% in the last two decade to 5.1% by 2025.

Considering the vast potential in the rural market, companies are trying to click growth in the rural market. The FMCG in rural and semi-urban market are likely to touch US$20 billion in consumption by 2018 and US$100 billion by 2025.

Due to change in spending habits and lifestyles, use of brands were also found changing in the rural consumers. The consumers of rural market desire to have branded products, superior quality products as used by their peers of urban cities. It is found that the rural youth have more acceptability to the new concepts and brands as against the elderly rural persons.

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[1] http://censusindia.gov.in/2011-prov-results/paper2/prov_results_paper2_india.html
[2] http://www.ibef.org/industry/indian-rural-market.aspx

There are various factors including macro and microeconomic conditions of the rural consumers that affect the consumer's buying behavior and making decision towards any product. The individual and environmental factors also influence the consumer behavior. Often, consumer in India purchases the goods and services, which they want others will like it. The rural buyer along with the product features also desires to know how the product will benefit them.

Rural India in Petroleum Marketing

Rural consumers have to travel a long distance to get fuel for their transportation and agricultural needs. It has been observed that villagers unnecessary waste lot of time and fuel to refuel their vehicle. Therefore, they prefer buying adulterated fuel from small unorganised vendors who sells petroleum products in bottles. The quality of the products of these vendors is also not assured as these vendors are unreliable intermediaries. This is the main reason why OMCs have decided to open outlets in the rural areas so that the villagers get the assured quality and quantity of products. The main advantages for the OMCs are - to reach the rural consumers and to take advantage as a first mover in the long run.

The investment in a rural outlet of OMCs is on a low scale in the range of Rs.15-20 lakhs as against an urban or highway outlets where the investment arein the range Rs.1.50 – 2.0 crores. Therefore, the pay back of a rural outlet is only 3-4 years.

HPCL is the first company to setup its rural outlet in Ashwi village in Maharashtra in Jul'2003. In the same track, BPCL and IOCL have also focussed their attention towards the rural market. BPCL had started with the outlet in Panipat and IOCL with Nagpur had joined the brigade in 2003. While, HPCL has branded its rural outlet as *'Hamara Pump'*; IOCL as *'Kisan Seva Kendra'*. These rural outlets besides having petrol and diesel, also has the facilities to provide non-fuel items viz: seeds, fertilizers, manures, stationeries, FMCG products etc.

Considering the initiative taken by IOCL in rural markets, the company was awarded as the 'Most Admired Retailer of the Year' award in the category of rural initiative by the Indian Retail Forum (IRF) which is one of the most intellectual platforms for retail business of India. The award was conferred in Sept'2007.

Rural markets are virgin markets and therefore, have sea of opportunities for various brands. Government of India has planned to provide and improve the infrastructure in rural areas. This will increase the movement of goods, services resulting in increase in earnings of rural which will finally improve the consumption. Few important initiatives of GOI are:

- Electrification of all un-electrified villages in the country by 2017.
- Purchase of around 80,000 mini-buses, to connect over 125,000 villages to markets and thereby provide access to better job and education prospects.

- Creation of smart villages through National Rurban Mission which will complement the smart cities initiative.

- Plans to construct 2.23 lakh km of rural roads with an estimated of Rs.27,000 crore (US$ 4 billion) until March 2017.

- Under the 'Digital India' initiative, e-commerce players viz: Flipkart, Snapdeal, Paytm etc. with the initiative of government, plans to reach rural areas by connecting with the government's common service centres (CSCs).

- Moreover, with the initiative of government of India, corporate houses and entrepreneurs have drawn out plans to train 500 million rural people by 2022.

Characteristics of Rural India

Rural area is an area that is located outside towns and cities; which is under developed and non-civilised. It includes "all population, housing, and territory not included within an urban area. Therefore, whatever is not included in urban is considered rural. Rural areas have a low population density and small settlements. Agricultural is the main source of income. Rural market is the real market. Few characteristics of rural market are:

- Agricultural based: Rural markets are agricultural based with low per capita income group, poor living standard and socio-cultural backwardness.

- Sources of income. The main source of income of the rural consumers is agriculture.

- Seasonal income: Crop production fluctuates on seasonal basis. Accordingly, the income also varies seasonally.

- Large and scatter: Rural markets are large in size and are geographically scattered.

- Differ in cultural and religious: Each rural market shows differences with linguistic, religious and cultural diversities; and economic disparities.

- Low purchasing power: Rural consumers have low purchasing power and therefore, rural markets are under developed.

Problems Faced by OMCS in Petroleum Rural Marketing

The poor people and underdeveloped markets characterize the rural markets. Rural areas are developing fast and moving towards urbanization. However, the rural markets are not bed of roses for OMCs. The challenge is product availability and reaching the villages. During the study, the problems faced by OMCs in petroleum rural marketing were explored and are cited below:

- **Irregular Demand:** Rural people have low per capita income with respect to the urban people. Demand depends on income of rural customers, and income is quite uncertain because they depend on agriculture production, which again

depends on the monsoon. Rural demands are therefore, seasonal, unstable and irregular. So, companies find it difficult to concentrate on rural segments as it is difficult to plan in advance. They don't have stable and predicted behaviour which have direct effect on fuel consumption.

- **Inadequate infrastructure:** The problems encountered while setting up and managing the rural outlets are primarily of inadequate infrastructure, which includes electricity, mobile connectivity and low bandwidth; road connectivity etc. Due to which, OMCs are finding difficult to set up outlets in rural areas. In addition, there is the challenge of imparting skill training to the first time internet users in remote and inaccessible areas of rural India.

- **Lack of Proper Transportation:** Transportation is the heart for any type of business and so is an important factor for accessibility and development of a rural area. Presently, the transportation facility is very poor in rural India. Most of villages are not connected with all weather roads. Many of these village roads are with kutcha roads and prone to become unserviceable during the monsoons. Because of this reason, most of the villages are not accessible to the marketers and therefore are not connected. Apart from above, many rural areas are still not connected by rail transport. Lack of proper transportation obstructs sales and distribution activities. The agro-based products from the rural areas cannot be sent to marketing centers. Similarly, the industrial products from the urban areas cannot be supplied to rural population on time. This has direct affect on the consumption of fuel.

- **Non Availability of Storage Facility:** Agricultural commodities are produced seasonally although the demand is continuous. The storage facility makes available the desired quantities and in suitable time. But the storage facility is a problem in rural areas. The central warehousing corporation and state warehousing in India, have not extended their network of warehouses to the rural parts. Without storage facilities, it is almost difficult to maintain and distribute commodities effectively in the interior areas. Therefore, inventories are being found maintained in urban areas only. This limits the movement of transportation which has a cascading affect on the fuel requirement.

- **Low Dealer Commission:** Petrol and diesel are sold under low margin irrespective of the outlets located in urban or rural. Considering, low volume of the rural outlets, the existing dealer commissions which are at par with urban are not attractive for the rural outlets. Some of the rural outlets are not viable.

- **Low Media Coverage:** For the development of the rural economy, it is necessary that the service sector improves the quality of life of the rural consumers. It is observed that many rural areas experience a low attention by media when compared with urban and semi-urban life conditions. All electronic

media in the country reach to only 30 % of the rural population, out of which, the print media covers only 18 % of the rural population. Similarly, the radio network, covers 90 %, but the actual listenership is much less. DTH are not available in most of interior areas due to non-availability of mobile network. Though, the cinema is a good medium for rural communication, but is not available in rural areas. These affect the awareness campaigns targeted for the consumer

- **Psychology of Rural Consumers:** Psychology of rural consumers is different from that of the urban counterpart. Therefore, understanding their psyche is required while marketing in rural markets. As a thumb rule, the advertisement in rural markets should be more personal intensive than in urban areas. It is effective to associate with the rural folks in their language and gradually reach them.

- **Inadequate Communication:** Postal and mobile connectivity are the main components of the communication infrastructure. These facilities are extremely inadequate in the rural parts of our country. Therefore, DTH and other media, have limited scope in the rural areas. Rural India has low literacy rate. This is another reason why the Marketing communication in rural markets suffers from a variety of constraints. Besides low levels of literacy, the cultural differences and overall economic backwardness add to the difficulties of the communication. In India, there are 18 recognized languages. Apart from these, there are local dialects spoken in rural areas. English and Hindi are not understood by many people in many rural areas. The languages and dialects vary from state to state and region to region. Since messages have to be delivered in the local language, it is difficult for the marketers to design promotional strategies for each of these areas. Due to these problems, unlike urban consumers, rural consumers do not have exposure to new products.

- **Wide and Scattered Villages:** Most of the villages in India are small with population less than 500 people and scattered. Approximately, 60 % of the villages are in the population group of below 1,000. Due to which the distribution cost in rural areas is high and are uneconomical. It is a challenging task to choose target markets and to serve them effectively.

- **Heterogenous Markets:** Rural population is scattered over a large area, and it is almost impossible to ensure the availability of a brand all over the country. Local village fairs viz: weekly, fortnightly are periodic and occasional in nature. Manufacturers and retailers prefer such occasions, as they allow greater visibility and capture the attention of the target audience for larger spans of time. Advertising in such a highly heterogeneous market is also very expensive.

- **Rural Sales Force:** Rural marketing involves a great amount of personal effort compared to urban marketing. It is important that the rural retail outlet dealers must be able to guide the rural customers. In most of the cases, the rural outlet dealers do not properly guide and motivate the consumers. It is required for them to spend quality time on consumer visits to gain a favorable response from them. In many cases, dealers with required qualities are not available. Getting educated person to work in outlets is a problem.

- **Dedicated Team:** Rural market is a sensitive market and has specific needs. To meet the needs, separate rural team is required. Companies therefore, required creating a dedicated and empowered team for the rural markets. The team will be fully responsible for the market needs and would prepare strategies based on the ground realities. However, such dedicated team is not available with any of the OMCs.

- **Low Volume Sales:** Most of the rural outlets have low sales volume and therefore, the sites are not attractive. For business model to be attractive, the model should be accessible, affordable and available. In addition, the business is required to be self sustaining and commercially viable. Due to low viability, rural people with good entrepreneurship background do not come forward for dealership.

- **Inadequate Banking Facilities:** Banking service penetration in rural India is low and inadequate. Villages covered by bank are only 7%[1].Similarly, 80% of villages do not have banks within 2 km radius. The rural outlets require support from bank for banking and credit for their remittance for replenishment of stocks. This is a handicap in distribution. Dealers are unable to maintain optimum stocks in the absence of adequate credit facilities. As a result, they are not able to offer credit to the rural consumers. All these problems lead to low marketing activities in rural areas.

- **Low Visibility of Brands:** Branding is required for conveying the message of the products and its quality to consumers. However, brandings are found implemented on a very low scale, resulting in low visibility. 'Jo Dikta Hai Woh Bikta Hai'. In some of the locations, product availability is not displayed adequately and therefore, products do not get sold.

- **Spurious Products:** Rural consumers travel a long distance to get fuel for their transportation and agricultural needs. Therefore, they compel to buy adulterated fuel from small unorganised vendors who sell products in bottles. As, these vendors are unreliable intermediaries, the quality of the products is not assured.

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[1] Rural Marketing by Pradeep Kashyap

- **Different Lifestyle:** Lifestyles of the peoples of rural and urban are different. The choice of brands that an urban customer enjoys is not available to the rural customer. Similarly, the usage and consumption pattern of fuel is different both in rural and urban. As such, the rural customer maintains a fairly simple thinking and their decisions are still governed by customs and traditions. It is difficult to make them adopt new practices.

- **Low Living Standards & Backwardness:** Rural customers have low income, low purchasing power, low literacy rate, and therefore, low standard of living and are economically backward. Low standard of living restricts their buying ability and usage. Poverty limits them to spend even for basic necessities. But now, the picture is changing and marketers can have better opportunities than ever. Their poor purchasing power and rigidity are main constraints for marketers to serve them.

- **Inadequate Marketing Support:** Companies extend support to dealers in the form of credit, financial assistance, and other facilities depending upon the sales volume of the outlet. Unlike dealers of urban areas, rural outlets do not meet the minimum norms and therefore, do not qualify for availing these facilities. In the same way, the rural dealers are not given sufficient time by the oil companies in designing overall marketing programme.

- **Frequent Flood:** Floods during monsoon are common in eastern and southern India. During monsoon the rivers inundate most of the rural areas and snap the road connectivity to these rural areas. Thus it affects the transportation which has a cascading affect on the sales.

- **Growth of e-rickshaws:** The Motor Vehicles Act, 1989 (amended in March 2014) incorporated e-rickshaws as vehicles. With the government promoting the e-rickshaws, there is a sudden rise in demand for e-rickshaws especially in the rural areas. Awareness level of pollution amongst the rural people has increased, and therefore, people have now adopting environment friendly vehicles. With the growth in e-rickshaws and being cheaper, the rural people prefer and opt for these vehicles rather than petroleum fuel vehicles. Thereby, there will be decline in demand for petroleum products in the near future.

Conclusion

Rural India has a population of 83.3 crores spread across 6,38,000 villages. Rural markets are major markets and hence cannot be neglected. These areas are decreasing due to urbanization. Population in rural areas is decreasing as because people are moving for small municipalities for search of jobs or business, if they are not located near to big city area. Rural people are comparatively illiterate. Hence, systematic vocational trainings on use of organic farming, bio fertilizers, hybrid seeds; and impact of the Green revolution can give a leap. Regular awareness campaigns of

spurious products and their impact needs to be educated. Another important area is tourism, which has become importance as it can offset losses in agricultural sector. Under this sector, rural outlets may be developed as tourist information hub to increase visibility and attract consumers.

Broadly there are two characteristics of rural consumers. First, rural consumers are not discriminating and loyal. Therefore, they easily develop affinity towards a particular product. Hence, once they are satisfied, they become loyal to the brand or product. Another characteristic is that rural consumers are not particular about quality and packaging. There is huge buying power of the rural consumer having large untapped potential compared to the urban market. With increasing literacy level and media coverage, the change in lifestyles of the rural consumers are taking place. In addition, 'word of mouth' publicity and 'touch and feel' factors play a major role in rural markets.

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A Study of Factors Influencing Customer Satisfaction for Agri- Equipment in Gujarat

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Introduction

The mechanization of agriculture has made great strides in recent years. The vast majority of farmers in the nation have already begun automating their manual farming processes. The agricultural community commonly uses automatic equipment for a number of farm tasks, including tillage, sowing, irrigation, plant protection, and threshing, among others. In recent years, the agricultural equipment industry has grown quickly as farm mechanization tendencies have developed. Several factors, including easy access to financing, government incentives, rising agricultural production, the end of contract farming, rising rural incomes, etc., are currently driving this sector.

Agricultural Equipment Market Drivers

- **Labor Shortage:** Farmers' trend toward farm automation has been significantly influenced by the labor shortage. Due to substantial rural-to-urban migration and a number of rural employment initiatives, there is a labor shortage in rural areas.

- **Ease of Financing:** Numerous banks and microfinance institutions have just lately been founded in rural India. This has made it straightforward for farmers to get financing for the purchase of farm machinery.

- **Government Incentives:** The Indian government's incentives, such as subsidies, affordable import tariffs on farm equipment, and straightforward financing schemes, have also considerably expanded the nation's market for farm equipment.

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- **Rising Incomes:** As a result of a strong economic boom and high agricultural output, rural families' income levels have been consistently increasing over the past few years. Because of increased income, farmers have been able to significantly increase their investment on agriculture mechanization.

Background of Industry

The size of the global market for agricultural equipment was expected to be USD 155.68 billion in 2021, and from 2022 to 2030, it is anticipated to grow at a CAGR of 5.0%. The expansion of mechanization in the agricultural sector and the increase in farmer income are two key variables anticipated to fuel the increase.

The demand for farm agriculture equipment in India has increased as a result of the decrease in the usage of animals and human labor in the agricultural sector. The primary factor causing this trend has been the emigration of young people from rural areas to metropolitan centers. Due to migration, there is a shortage of inexpensive labor in rural areas, which has created numerous chances for the growth of the Indian farm and agricultural equipment market.

Government policies that are supportive, increasing farm incomes, and the importance of mechanization for productivity in India are some other important elements that are propelling the Indian agricultural machinery business. For instance, to boost farm mechanization throughout the country, the Government of India introduced the "Sub Mission on Agricultural Mechanization (SMAM)" program in 2014–15. Between 2014–15 and 2020–21, the scheme made funding totaling INR 4556.93 crores (USD 554.9 million) accessible to the States and other implementing institutions. Over 275,000 bespoke hire businesses have been established, and more than 13 lakh agricultural machines have been made available. For 2021–2022, the SMAM budget grew from the previous year to INR 1050 crore (USD 127.7 million).

Rational of Study

- **Labor Supply:** For farmers, a labor shortage is a major issue. Climate is a factor in the process of agriculture. Farmers need to work quickly because of a sudden shift in the climate, but because of a labor shortage, they are unable to do so and their crops deteriorate.

- **Equipment Subsidies:** Equipment subsidies are a program that are based on government policy. A subsidy is a financial aid given to farmers. Farmers often buy expensive equipment where subsidies are high because they cannot afford it. As a result, the government offers subsidies.

- **Rental Purpose:** Equipment is often made available to farmers for rental purposes because not all farmers are able to afford to buy their own equipment. For farmers, this has evolved into a modest source of income.

- **Fast Process:** There are numerous pieces of equipment that make farming simpler and faster, allowing farmers to produce more quickly and choosing to purchase such items.

- **Saving Money:** Farmers can save money by using a variety of farming tools. Farmers are improving their bottom line, which also improves their standard of living.

- **Local Repair Shops and After-Sales Services:** Farmers' satisfaction with the company is increased when companies offer facilities for them to use when their equipment breaks down while they are farming.

- **Resale Value of Equipment:** Equipment resale value varies by firm; some companies' equipment has a high resale value, and farmers respond favorably to these sorts of equipment. Such equipment is preferred for purchase.

Litreture Review

Zehua Fan, Nannan Zhang, Xiao Zhang(2023),This study focussed on agricultural machinery, equipment, and information networks using data mining Data Resource agricultural mechanization and equipment are crucial building blocks for altering the course of agricultural development and fostering the growth of agriculture sustainably. They serve as the focal points and the foundation for advancing agricultural modernisation.

N. Boomath , K.Brindha (2023), found thatcustomer satisfaction and customer relationship management Customer relationship management (CRM) was the collection of practices, strategies, and technologies that businesses use to manage and analyze customer interactions and data throughout the customer lifecycle, with a focus on agriculture equipment dealers in Tamilnadu. The objective of CRM is to improve customer service relationships, support customer retention, and stimulate sales growth.

N.Sathya Sonia (2022),Consumer behavior with regard to agricultural machinery in the erode district The Indian economy is based mostly on the agriculture sector, which is the country's primary industry. The quality of its farms is second in the world. Even when compared to nations with a lengthy history of tractor production, the expansion of the Indian tractor is unparalleled. It is a typical industry where technology has been developed to meet the total national requirements of the nation using both imported and locally produced technology.

M. Dehghanpour, M. Yazdanpanah , M. Forouzani , G. Abdolahzadeh(2022) Farmer Satisfaction and Loyalty to Agricultural Extension Programs: Factors Agricultural extension is essential in educating farmers on how to adapt to and mitigate climate change as well as developing their sensitivity to it. The degree of

technological adoption is increased by extension services, which empower farmers by educating them on optimum agricultural practices.

Njabulo Lloyd Ntshangase, Brian Muroyiwa and Melusi Sibanda (2018),Despite the technology's obvious economic and environmental advantages, adoption of conservation agriculture among small-scale farmers is still low. Farmers' Perceptions and Factors Influencing the Adoption of No-Till Conservation Agriculture by Small-Scale Farmers in Zashuke, KwaZulu-Natal Province.

Tatiana N. Litvinova, Elena S. Kulikova, Viktor P. Kuznetsov, and Pavel M. Tarano (2017)Marketing as a Factor in the Development of the Agricultural Machinery Market Despite the fact that the agricultural machinery industry has been the subject of numerous studies, the role of marketing in this market has not been thoroughly examined. Most studies solely include domestic issues and concentrate on a limited analysis of the market. This article focuses on aspects of the worldwide agriculture market, including global economic trends, country integration on a global scale, and global rivalry.

Identification of Research Gap

Identification of research "A study of factors influencing customer for Agri-Equipment in Gujarat"was the outcome of a detailed literature review in this domain.

The research gap in Factors Influencing Customer Satisfaction in agriculture equipment could be an area where limited studies were conducted and it hassome potential aspects to explore following areas which may include the followings:

- **Comparative Analysis:** Investigating the differences in customer satisfaction levels among various types of agriculture equipment, such as tractors, harvesters, or irrigation systems. In the agriculture equipment market have core competition and many company are provide services.

- **Regional Variations:** Examining how customer satisfaction varies across different geographical regions, taking into account factors like climate, soil type, and farming practices.

- **Technological Advancements:** Assessing the impact of new technologies and innovations in agriculture equipment on customer satisfaction and their willingness to adopt these technologies.

- **Service and Support:** Delving into the role of after-sales services, maintenance, and customer support in influencing satisfaction levels and long-term loyalty.

- **Cost-benefit Analysis:** Studying the relationship between the initial cost of equipment and the perceived value and satisfaction among farmers.

- **Environmental Impact:** Investigating how environmentally friendly agriculture equipment influences customer satisfaction and its potential role in promoting sustainable farming practices.
- **Perception of Brand Reputation:** Analyzing how the reputation and trustworthiness of equipment brands affect customer satisfaction and purchase decisions.
- **Socio Economic Factors:** Exploring how the socioeconomic background of farmers, such as their income level and access to financial resources, influences their satisfaction with agriculture equipment.
- **Government Policies and Incentives:** Investigating the role of government policies, subsidies, and incentives in shaping customer satisfaction and adoption rates of agriculture equipment.
- **Long-term Performance and Durability:** Assessing the impact of the durability and reliability of equipment on customer satisfaction and their likelihood of recommending the brand to others.

Research Objective

- To find out the reasons for buying agriculture equipment and evaluate its relationship with purchase decision of agriculture equipment.
- To study the factors of satisfaction toward agriculture equipment.
- To assess the purchase process of farmers in purchasing agriculture equipment

Research Methodology

Population

In Gujarat almost 80 lakhs people were farmers. The accessible population was the population in research to which researchers couldapproach.

Sample

Sample size was 227

Sampling Methods

The current study, which was not based on any prior research, employed an exploratory approach in order to collect data from respondents selectively.

Data Collection

Primary as well as secondary. A close-ended questionnaire with multiple choice options was used to obtain primary data.

Data Analysis Methods

The statistical tools and techniques like mean, standard deviation, and chi-square test were employed as necessary for the analysis of the data. The study's data were categorized using percentage analysis. SPSS and MS Excel were used for the same.

Hypothesis Formation

H₁: There is significant impact of pricing policy and satisfaction for agriculture equipment.

H₂: There is significant relationship of land area and having tractors.

H₃: There is significant relationship between satisfaction to use agriculture equipment and recommendation to other for purchase decision.

Data Analysis & Intrepretation

• To validate the questionnaire, the face validity method was used.

Data Evaluation

This was a reliability and validity check for the study.

Chi –Square

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
What you think about your equipment pricing policy * what is your opinion about used of any agriculture equipment	225	99.1%	2	0.9%	227	100.0%

What you think about your equipment pricing policy * what is your opinion about used of any agriculture equipment Crosstabulation

Count

		What is your Opinion about used of any Agriculture Equipment				Total
		Highly Satisfied	Satisfied	Netural	Dissatisfied	
what you think about your equipment pricing policy	Very High	4	4	4	0	12
	High	6	40	11	8	65
	Moderate	14	94	23	4	135
	loSs	0	6	7	0	13
Total		24	144	45	12	225

Chi-Square Tests

\	Value	Df	Asymp. Sig. (2-Sided)
Pearson Chi-Square	28.541[a]	9	.001
Likelihood Ratio	25.741	9	.002
Linear-by-Linear Association	.030	1	.863
N of Valid Cases	225		
a. 7 cells (43.8%) have expected count less than 5. The minimum expected count is .64.			

Interpretation

7 cell had expected count less than 5 and it means no significant relationship between the pricing policy and satisfaction equipment usage. It showed the different factors other than the pricing policy was affected to satisfaction toward use of agriculture equipment.

Do you have tractor * what is your land area Cross tabulation

Count

		What is your land area				Total
		less than 3 acres	3 to 5 acres	5 to 7 acres	more than 7 acres	
Do you have tractor	yes	13	99	63	10	185
	no	16	16	6	3	41
Total		29	115	69	13	226

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.522[a]	3	.000
Likelihood Ratio	26.552	3	.000
Linear-by-Linear Association	13.085	1	.000
N of Valid Cases	226		
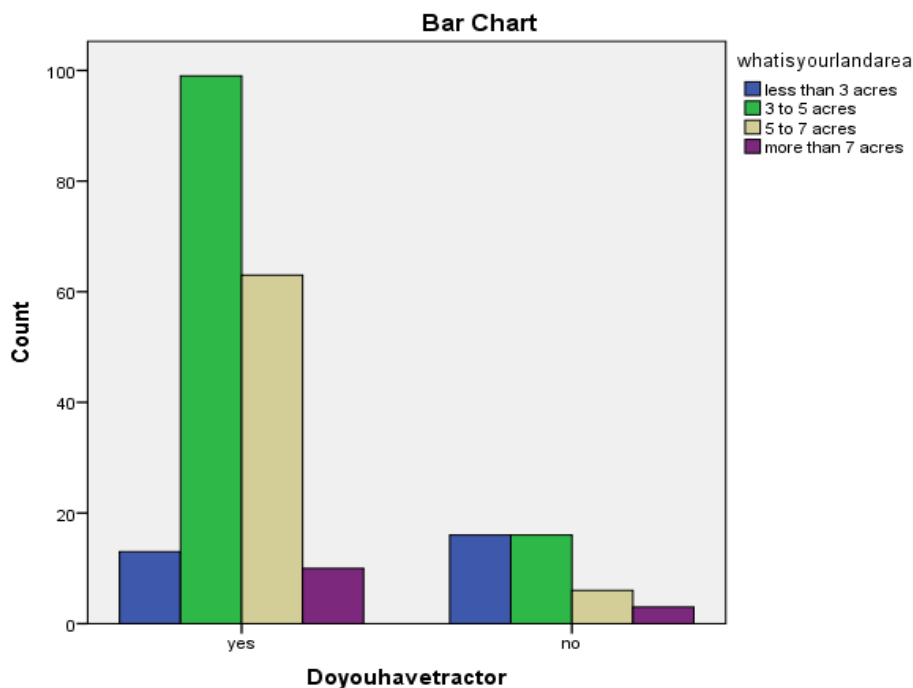
Interpretation

Here check the relationship between the land area and farmers have tractors show the bar chart less than 3 acres land area they have no tractors respondents are high at the 3 to 7 acres land areas farmers are more who have tractors and more 7 acres land areas farmers have tractors. Show its show that it is related with each other.

What is your opinion about used of any agriculture equipment * Do you recommend your agriculture equipment to 6s for purchase Cross tabulation?

Count

		Are you recommendy our agriculture equipment to 6s for purchase			Total
		Yes	**no**	**Maybe**	
What is your opinion about used of any agriculture equipment	Highly Satisfied	13	4	7	24
	Satisfied	116	19	10	145
	Netural	12	21	13	46
	Dissatisfied	6	3	3	12
Total		147	47	33	227

Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-Sided)**
Pearson Chi-Square	51.033[a]	6	.000
Likelihood Ratio	50.061	6	.000
Linear-by-Linear Association	9.841	1	.002
N of Valid Cases	227		
a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 1.74.			

Bar Chart
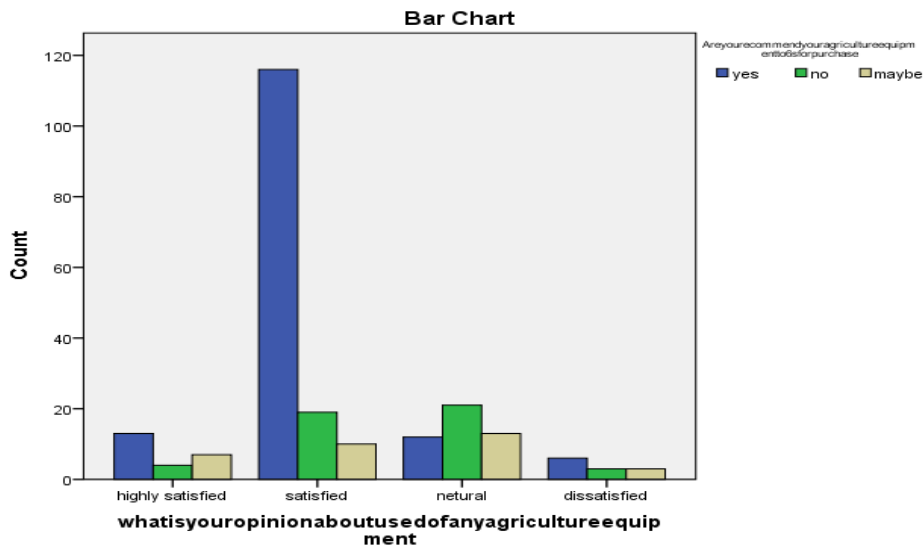
Interpretation

Here the check the relationship between the satisfaction of use of equipment and the recommend of equipment to other as depicted in chart satisfied respondents are say yes to recommended to other.

Results & Findings

Results and findings of study was to know the perception of farmers for use of agriculture equipment. What they were thinking to purchase of agriculture equipment. If they were using any agriculture equipment, if yes, then they are satisfied or not with company. Knowing some common factors for influencing the customer for agriculture equipment. Study found that some common factors were influencing the customers for purchasing agriculture equipment.

Study also found that farmers preferred multipurpose use of equipment and some facilities were expected by farmers in any agriculture equipment. Through Chi-square techniques, findings explained that there was no significant relationship between the pricing policy and satisfaction for use of the agriculture equipment.

Conclusion

The study had focused on the essential aspect of satisfaction with agricultural equipment. Through complete analysis and interpretation of gathered data, it was obvious that the level of satisfaction among farmers significantly influenced their use of agriculture equipment. The study identified key factors impacting satisfaction, including equipment performance, stability, easiness of use, and after-sales services. Moreover, the research highlighted the pivotal role of technological advancements in enhancing equipment design and functionality. By integrating user feedback into the development process, manufacturers can align their products more closely with farmers' needs, subsequently fostering higher satisfaction levels. Additionally, understanding regional variations in agricultural practices and preferences was crucial for tailoring equipment solutions effectively.

The findings highlight the necessity of a holistic approach to addressing satisfaction concerns. Collaboration among manufacturers, farmers, and policymakers can facilitate the creation of innovative, sustainable, and user-centric equipment. Improved satisfaction not only elevate the farming experience but also contributes to the sector's growth and food security. In closing, this research underscores the obscure relationship between agricultural equipment satisfaction and its impact on the industry at large. As technology continues to evolve, opportunities arise for both manufacturers and farmers to work together in shaping a more efficient, productive, and satisfying future for agriculture.

Limitations of the Study

- **Sample Bias:** The results may not be applicable to the larger agricultural community if the study was conducted with a particular set of farmers or in a particular area. The sample may be biased toward a certain climate, socioeconomic group, or style of farming.

- **Self-Reporting Bias:** Participants might not always give honest or accurate comments due to self-reporting bias. Due to social desirability bias, they may overstate or understate their level of contentment, depending on their individual circumstances. The accuracy of the information gathered may be impacted by this.

- **External Factors:** Aside from the equipment itself, other variables that may affect farmer happiness include the weather, market prices, and governmental regulations. It could be difficult to isolate the effect of equipment on its own.

- **Recall Bias:** If the equipment has been in use for a while, participants may find it difficult to recollect their experiences with it accurately. The accuracy of the data gathered might be impacted by this.

- **Cultural variations:** Depending on the place and culture, farming methods and equipment satisfaction can change greatly. If a research endeavor is carried out in a given place, these cultural characteristics could not be captured.

- **Resource Constraints:** Time, money, or participant access restrictions may limit the scope and depth of the research.

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Harnessing the Power of Artificial Intelligence in Higher Education: A Comprehensive Review and Future Prospects

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Introduction

Artificial Intelligence (AI) stands as a frontier of innovation, showcasing remarkable advancements and capabilities in recent years. AI involves the development of computer systems that can perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, and understanding natural language. Its rapid progress, fueled by machine learning, deep learning, and other advanced technologies, has propelled it into various domains, including healthcare, finance, transportation, and education.

In the realm of higher education, AI holds immense promise to revolutionize the way knowledge is imparted, acquired, and utilized. The significance of AI in higher education lies in its potential to augment teaching methodologies, personalize learning experiences, streamline administrative processes, enhance student support services, and accelerate research endeavors. By leveraging AI-powered tools and technologies, academic institutions can optimize resource allocation, improve student outcomes, and contribute to a more adaptive and responsive educational ecosystem. This paper delves into the multifaceted applications of AI in higher education, shedding light on its transformative potential while also acknowledging the ethical considerations that must accompany its integration into the academic sphere.

Literature Review

Historical Context and Evolution of AI in Education:

Artificial Intelligence (AI) has made significant strides in transforming various sectors, including education. The roots of AI in education can be traced back to early

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efforts in the 1950s and 1960s when computers were first used to automate administrative tasks and deliver instructional content (Olive, 2018). However, it was in the 1980s that AI began to see substantial applications in educational technology, particularly through the development of Intelligent Tutoring Systems (ITS) (Corbett & Anderson, 1995).

The advent of ITS marked a turning point, representing AI's integration into educational platforms to provide personalized instruction and feedback to students (VanLehn, 2011). ITS utilized AI techniques to model students' learning patterns, tailor instruction, and diagnose misconceptions, simulating a one-on-one tutoring experience (VanLehn, 2011). Over the years, AI in education evolved from rule-based expert systems to more sophisticated machine learning algorithms, natural language processing, and data analytics. Early AI systems relied on predefined rules and logic to simulate intelligent behavior. However, advancements in machine learning and data analytics enabled AI models to learn and adapt from data, making them more dynamic and effective (Holstein et al., 2019). In recent years, the rise of Big Data and advancements in deep learning have further propelled the field of AI in education. These developments have facilitated the analysis of vast amounts of educational data, providing insights into student behavior, learning patterns, and academic performance (Baker & Siemens, 2014).

Key Applications of ai in Higher Education

Artificial Intelligence (AI) has become an integral part of higher education, impacting various aspects of teaching, learning, and administration. One of the primary applications of AI in higher education is Intelligent Tutoring Systems (ITS). ITS utilizes AI algorithms to provide personalized instruction and feedback to students, resembling a human tutor (VanLehn, 2011). These systems adapt to individual learning styles and pace, enhancing the learning experience and knowledge retention (VanLehn, 2011).Automated essay scoring (AES) is another crucial application, employing AI to evaluate and grade essays efficiently and consistently (Shermis& Burstein, 2013). AI-driven assessment tools not only save time for educators but also provide immediate feedback to students, fostering continuous improvement (Shute & Kim, 2014).

Predictive analytics is emerging as a powerful tool for student success and retention. AI algorithms analyze historical academic data to predict student performance and identify at-risk students, enabling timely intervention and support (Arnold & Pistilli, 2012).Additionally, AI plays a significant role in content creation and curation. AI algorithms generate educational content, ranging from quizzes to entire course modules, based on predefined criteria and learning objectives (Nye, 2015). AI-powered educational platforms curate and recommend appropriate learning materials, tailoring content to meet individual needs (Shute & Kim, 2014).

The integration of AI in virtual classrooms and online learning is transforming the educational landscape. AI-powered virtual classrooms simulate the traditional classroom experience, facilitating interactive and dynamic learning (Huang et al., 2017). AI-driven chatbots and virtual assistants enhance engagement and provide instant support to students and educators (Huang et al., 2017).In summary, AI in higher education is versatile, with applications including personalized instruction through ITS, efficient essay scoring, predictive analytics for student success, AI-generated educational content, and immersive AI-powered virtual classrooms.

Overview of Existing Research on AI in Higher Education

Research on the integration of Artificial Intelligence (AI) in higher education has grown significantly, focusing on understanding its impact, effectiveness, and implications. Several studies have delved into the effectiveness of Intelligent Tutoring Systems (ITS) in enhancing learning outcomes. VanLehn (2011) conducted a comparative study highlighting the effectiveness of human tutoring, ITS, and other tutoring systems. The research demonstrated that ITS is on par with human tutoring in terms of effectiveness, showing the potential of AI to personalize instruction and provide effective support.The effectiveness and reliability of automated essay scoring (AES) have also been a topic of extensive research (Shermis& Burstein, 2013). Researchers have explored the alignment of AES with human grading, providing insights into its accuracy and potential to streamline the grading process.

Studies have also explored the impact of AI on student engagement and academic success. Arnold and Pistilli (2012) conducted research on course signals and how learning analytics, powered by AI, can increase student success. Predictive analytics utilizing AI have been a focus, aiming to predict student performance and identify at-risk students, enabling timely interventions and support (Arnold & Pistilli, 2012).Additionally, the ethical implications of AI in higher education have garnered significant attention. Baker and Siemens (2014) explored the ethical considerations and challenges related to educational data mining and learning analytics. This research emphasized the need for responsible AI adoption and data privacy in the educational context.

Applications of ai in Higher Education

- **Intelligent Tutoring Systems (ITS) and Personalized Learning**

Intelligent Tutoring Systems (ITS) epitomize a revolutionary stride in AI applications within higher education, specifically designed to customize learning experiences for individual students. Through AI-driven algorithms, ITS analyzes the learning patterns and preferences of each student, tailoring instruction and feedback accordingly. By adapting content, difficulty levels, and pace, ITS ensures that the learning process aligns with the student's specific requirements, fostering enhanced engagement, understanding, and retention of academic material.

- **Automated Assessment and Grading Systems**

Automated assessment and grading systems, underpinned by AI, have redefined the evaluation landscape in higher education. Utilizing machine learning algorithms, these systems can efficiently evaluate a wide array of student assignments, including written essays, coding exercises, and more. By automating the grading process, educators can streamline assessments, maintain consistency in evaluation, and provide timely, constructive feedback to students. This technological advancement optimizes resource allocation and supports a seamless assessment workflow.

- **Predictive Analytics for Student Success and Retention**

Predictive analytics, a hallmark of AI applications, enables higher education institutions to foresee academic performance and anticipate potential hurdles for students. Through the analysis of diverse data sets encompassing academic records, demographic information, and behavioral patterns, AI models can predict student success trajectories and detect early signs of academic struggle. This proactive approach facilitates timely intervention strategies, improving student retention rates and fostering academic excellence.

- **AI-Powered Virtual Classrooms and Remote Learning**

AI integration in virtual classrooms and remote learning platforms signifies a paradigm shift in educational paradigms, especially in the digital era. AI functionalities such as chatbots and intelligent virtual classrooms elevate interaction and engagement by providing real-time assistance, answering queries, and delivering personalized guidance. These AI-driven technologies emulate the traditional classroom experience, enriching the remote learning environment and ensuring a fruitful academic journey for students.

- **AI-Driven Educational Content Creation and Curation**

AI's impact on educational content creation and curation is undeniable, automating and enhancing the development and organization of educational resources. AI algorithms can autonomously generate diverse educational materials such as quizzes, exercises, and even complete course modules, aligned with predefined learning objectives. Furthermore, AI-powered curation tools tailor educational content to match the unique needs, preferences, and proficiency levels of individual learners, thereby maximizing the relevance and efficacy of the learning experience.

The applications outlined above exemplify AI's transformative potential within higher education, promising to reshape teaching methodologies, streamline administrative tasks, and provide an individualized and effective academic journey for students. As AI technologies continue to evolve, their influence in higher education is poised to grow, offering new possibilities to elevate the quality and accessibility of education.

Addressing the Challenges and Ethical Considerations Associated with AI in Higher Education

- **Data Privacy and Security**

  Data privacy and security are critical concerns in the integration of AI within higher education. Educational institutions handle an extensive range of sensitive data, including student academic records, personally identifiable information, financial details, and more. Ensuring the privacy and security of this data is not only a legal requirement but also an ethical obligation. Potential risks include unauthorized access, data breaches, identity theft, and misuse of data. Institutions must implement stringent data privacy policies, employ robust encryption techniques, regularly update security measures, and educate all stakeholders about the importance of data security to mitigate these risks effectively.

- **Bias and Fairness in AI Algorithms**

  Bias in AI algorithms is a significant ethical concern. AI models learn from historical data, and if this data is biased, the AI can perpetuate and amplify those biases. In education, biased AI can manifest in unequal treatment regarding admissions, grading, scholarships, or other areas. Ethical AI development requires thorough examination of training data to detect and mitigate biases. Additionally, AI algorithms should be regularly audited, and mechanisms should be in place to address biases promptly. Transparency and fairness in AI operations must be prioritized to ensure just and equitable outcomes.

- **Job Displacement and Changing Roles of Educators**

  The integration of AI in education does bring about concerns of job displacement. However, it's important to view this as a transformation rather than a complete replacement of roles. AI can handle repetitive tasks like grading, providing personalized learning experiences, or administrative duties, allowing educators to focus more on individualized teaching, mentorship, fostering creativity, critical thinking, and emotional intelligence. Institutions must proactively invest in training programs to equip educators with the necessary skills to collaborate with AI technologies effectively and adapt to evolving roles in the education landscape.

- **Over-Dependence on AI and Its Impact on Critical Thinking**

  Over-reliance on AI could potentially hinder the development of critical thinking skills among students. If AI is overly used to provide answers or solutions, students may become dependent on these quick responses, diminishing their ability to analyze, think critically, and solve problems independently. Therefore, it's crucial to strike a balance. AI should be positioned as a tool to aid learning and problem-solving rather than a substitute for critical thinking. Educators play a key role in guiding students to

use AI judiciously, encouraging them to think critically, ask questions, and evaluate information critically, ensuring a holistic educational experience.

Addressing these challenges and ethical considerations calls for a holistic approach involving policymakers, educators, AI developers, and stakeholders. It necessitates the development of ethical guidelines, clear policies, and educational initiatives that promote responsible AI integration in higher education, prioritizing both technological advancement and the preservation of essential human values and skills.

Future Prospects and Opportunities in AI Integration in Higher Education

- **AI-Enhanced Hybrid Learning Models**

The integration of AI in hybrid learning models marks a transformative step towards personalized and efficient education. AI algorithms can analyze a student's learning style, preferences, and progress to tailor their learning path. In a hybrid model, AI can recommend supplementary online resources, adaptive exercises, or even suggest additional reading materials based on a student's real-time performance and areas that need improvement. This individualized approach optimizes the hybrid learning experience, ensuring that each student receives personalized support and guidance.

- **Enhanced Collaboration and Communication through AI**

AI-driven communication tools and platforms have the potential to revolutionize collaboration among students and educators. Chatbots can facilitate instant responses to inquiries, course-related questions, or administrative concerns, thus enhancing communication efficiency. Moreover, AI-powered analytics can identify patterns in collaboration, providing insights to educators on group dynamics, participation levels, and areas that require intervention. This data-driven approach allows for targeted support, ultimately fostering a collaborative learning environment.

- **AI-Powered Lifelong Learning and Upskilling**

AI's role in lifelong learning is increasingly crucial as the demand for upskilling and reskilling continues to rise. AI can assess an individual's current skills, career goals, and market demands to suggest appropriate courses, workshops, or training programs. Furthermore, AI-powered platforms can offer personalized learning experiences, adapting content to suit a learner's pace and comprehension level. By promoting a culture of continuous learning, AI enables individuals to evolve professionally, adapt to new technologies, and navigate a dynamic job market effectively.

- **Ethical Guidelines for Integrating AI in Higher Education**

Establishing comprehensive ethical guidelines is essential to navigate the responsible integration of AI in higher education. These guidelines should encompass data privacy, fairness, accountability, and transparency in AI applications. Institutions

must conduct regular audits to ensure adherence to these ethical principles. Additionally, promoting interdisciplinary research and collaboration can foster discussions on the ethical implications of AI, leading to the development of a robust ethical framework. By adhering to these guidelines, higher education institutions can build public trust and ensure that AI applications benefit society while upholding fundamental ethical values.

The future of AI in higher education is promising, and maximizing its potential involves careful consideration of ethical implications and a focus on personalized, collaborative, and lifelong learning. By embracing AI responsibly and aligning it with educational goals, institutions can unlock innovative approaches that significantly enhance the learning experience and equip learners with the skills they need to succeed in a rapidly evolving world.

Conclusion

In conclusion, this exploration into the integration of Artificial Intelligence (AI) in higher education illuminates its transformative potential across various facets of academic endeavors. AI offers the promise of revolutionizing pedagogical approaches, administrative processes, and the overall educational experience. Through the meticulous examination of AI applications, challenges, ethical considerations, and future prospects, several key findings and insights have been gleaned.

Firstly, AI's applications, from intelligent tutoring systems to automated assessment, have the capacity to individualize learning, optimize administrative workflows, and predict student success, thereby enhancing the overall quality of education. However, these advancements are accompanied by challenges related to data privacy, bias, job roles, and potential over-reliance on AI, which necessitate careful consideration and mitigation strategies.Moreover, the ethical implications of AI in higher education cannot be overstated. Addressing bias and ensuring fairness, safeguarding privacy and security, and avoiding an over-dependence on AI for critical thinking are crucial for responsible AI adoption. Ethical guidelines are vital in guiding the integration and use of AI technologies to maintain transparency, equity, and societal welfare.

Recommendations for Effectively Leveraging ai in Higher Education

- **Invest in Educator Training and Development**

Academic institutions should prioritize training and upskilling educators to effectively leverage AI tools. Training should encompass understanding AI technologies, incorporating them into teaching strategies, and guiding students in their use. Encouraging collaboration between educators and AI experts can further enhance the effective implementation of AI in the learning environment.

- **Promote Research and Innovation**

Encourage interdisciplinary research to drive innovation in AI applications for education. Funding and support for research projects focusing on AI-driven educational tools, personalized learning experiences, and ethical AI development are paramount. Collaboration between academia, industry, and government can foster groundbreaking solutions.

- **Foster Public-Private Partnerships**

Collaboration between educational institutions and AI technology providers can accelerate the development and implementation of effective AI solutions. Public-private partnerships can facilitate the sharing of resources, expertise, and best practices, ultimately benefiting both academia and the technology sector.

- **Prioritize Data Privacy and Ethics**

Upholding ethical standards and ensuring data privacy and security should be a fundamental priority in AI integration. Institutions should establish clear guidelines for responsible AI use, emphasizing fairness, transparency, and the unbiased development and deployment of AI algorithms.

- **Emphasizing the Need for Responsible AI Adoption in Higher Education**

Responsible AI adoption in higher education is imperative for maintaining the integrity and ethics of the academic domain. AI technologies should be deployed ethically, ensuring that they do not perpetuate biases, infringe upon privacy, or compromise the human-centric aspects of education. Institutions, policymakers, educators, and AI developers need to work collaboratively to establish a framework of responsible AI use that prioritizes the best interests of students, educators, and society at large.

In conclusion, AI's integration in higher education holds immense promise. With responsible adoption, AI can propel higher education into a future that is not only technologically advanced but also ethically grounded, ensuring that the potential benefits are maximized while minimizing any associated risks. The careful and responsible integration of AI in higher education is key to achieving a more effective, inclusive, and innovative educational landscape.

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Social Media's Influence on Consumer Purchasing Patterns: A Comprehensive Analysis

Ms. Shreya Ghunjariya[*]
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Introduction

The digital age has undergone a rapid evolution in communication and information dissemination, primarily driven by the surge of social media. These online platforms have seamlessly integrated into the daily routines of millions of individuals, serving as crucial channels for social interactions, sharing knowledge, and influencing society. Among the critical domains where social media exerts a substantial impact is consumer purchasing behavior. It has fundamentally altered how consumers explore, evaluate, and decide on purchases concerning products and services. This study endeavors to deeply explore the extensive influence of social media on consumer buying patterns, illuminating how these platforms shape preferences, attitudes, and decision-making processes in today's dynamic market. Grasping this intricate interplay is imperative for businesses and marketers as they navigate the ever-changing landscape of consumer engagement, enabling them to tailor their strategies effectively.

Literature Review

The digital age has witnessed a rapid transformation in communication and information sharing, primarily driven by the rise of social media. These online platforms have seamlessly integrated into the daily lives of millions of individuals, acting as vital mediums for social interaction, knowledge dissemination, and societal influence. One of the key areas profoundly impacted by social media is consumer buying behavior. It has revolutionized how consumers discover, assess, and make purchasing decisions regarding products and services. This research aims to delve into the extensive impact of social media on consumer purchasing habits, shedding light on how these platforms mold preferences, attitudes, and decision-making processes in today's dynamic market. Grasping this intricate interplay is essential for businesses and marketers as they navigate the evolving landscape of consumer engagement, allowing them to tailor their strategies effectively.

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Social media marketing has emerged as a powerful tool for businesses to shape and influence consumers' purchasing behavior. In today's world, social media has become an integral part of people's daily lives, with platforms like Facebook, Twitter, Instagram, and LinkedIn boasting a growing user base (Sharma, 2020). Social media marketing (SMM), a facet of internet advertising, leverages these platforms to facilitate person-to-person interaction and promote products and services. The primary objective of SMM is to create shareable content that users will disseminate within their social networks, enhancing brand awareness and expanding client outreach (Bansal & Kumar, 2018). The expansive reach of social media, enabling interaction with millions of users globally, has underscored its growing importance for businesses. Consequently, businesses are focusing on leveraging social media to connect with their clientele, a subject of considerable discussion in the marketing domain (Nuseir, 2020). In this age of new media, messaging has evolved to play a pivotal role in our daily lives, extending beyond its initial function as a phone feature (Sankar, 2019). Consumers now routinely utilize technology, particularly social media, as a potent tool in their online shopping experiences. Platforms like Facebook, Twitter, Instagram, and LinkedIn have become an integral part of individuals' lives, continuously expanding their user base (Bhuvanesh & Vimal, 2018).

Social media generates word-of-mouth recommendations that significantly influence consumers in their purchasing decisions (S, 2015). Comparatively, online advertisements differ from traditional print and television advertisements, engaging consumers in a unique manner. Online ads, encompassing banner ads, interstitial ads, text ads, pop-up ads, and HTML ads, are prevalent in internet marketing and aim to sustain consumer interest in products through strategic advertising efforts (Varghese & Chitra, 2021). Understanding consumer behavior and its influencers is crucial for businesses, as customers' brand choices can be swayed by advertising. The landscape of product marketing has shifted dramatically, with the buying and searching for goods and services becoming commonplace online. Traditional advertising mediums like print and electronic media are no longer the sole means of product promotion. Social media platforms have gained credibility and proven to be fruitful avenues for sales marketing, reflecting a shift in marketing strategies for businesses (Khokhar et al., 2019).

In this study, Social Media Marketing (SMM) and Consumer Buying Decision Making (CBDM) are considered as independent and dependent variables, respectively. The Pearson's Correlation analysis suggests a strong positive direct relationship between SMM and the fundamental aspects of consumer purchasing decisions, despite both having respondents with moderate level qualities. The study involved 220 respondents, and from a statistical standpoint, the univariate and bivariate analysis was conducted. This statistical examination, performed using SPSS and the insights provided by the online polling platform, illuminates the impact of

Social Media Marketing on the Consumer Buying Decision Making process (Sharma, 2020). Consumers are individuals who purchase or utilize the goods and services available to them. Consumer purchasing habits can be intricate and convoluted at times. The evolving landscape of data accessibility and clarity has significantly influenced this dynamic process. Therefore, it is imperative to recognize the barriers and misconceptions that deter potential buyers from becoming actual customers or hinder existing customers from making repeat purchases. Consequently, understanding the process of consumer decision-making sheds light on the critical components of individual consumption behaviour, as highlighted by Sternthal and Craig in 1982 (Voramontri&Klieb, 2019). The digital era has witnessed a rapid transformation in communication and information sharing, primarily propelled by the rise of social media. These online platforms have seamlessly integrated into the daily lives of millions of individuals, acting as vital mediums for social interaction, knowledge dissemination, and societal influence. One of the key areas where social media wields significant influence is consumer buying behaviour. It has revolutionized how consumers discover, assess, and make purchasing decisions regarding products and services. This research aims to delve into the extensive impact of social media on consumer purchasing habits, shedding light on how these platforms mold preferences, attitudes, and decision-making processes in today's dynamic market. Grasping this intricate interplay is essential for businesses and marketers as they navigate the evolving landscape of consumer engagement, allowing them to tailor their strategies effectively.The consumer behaviour process can be divided into five stages:

Kotler's Buyer Decision Process

Need Recognition	Information search	Evaluation of Alternatives	Purchase decision	Postpurchase behaviour

Low or high involvement? How is the model impacted by the level of involvement in the product category?

Figure 1: Buyer's Decision Process

Source: Library of Congress Cataloging-in-Publication Data

Kotler, Philip. Marketing management/Philip Kotler, Kevin Lane Keller. — 14th ed. p. cm. Includes bibliographical references and index. ISBN 978-0-13-210292-6

Research and Methodology

In this study, a combination of primary and secondary data was collected for a comprehensive understanding of the consumer decision-making process and its relationship with social media. Secondary data, primarily in the form of a literature review, was extensively analyzed to gain insights into the consumer decision-making process. However, the main emphasis of this paper is on primary data obtained through a consumer survey. The survey involved a well-designed questionnaire with eighteen questions, encompassing filter questions, closed-ended questions with predefined options, an option for additional responses through the "Others" category, and a five-point Likert scale. The questionnaire was carefully pre-tested for clarity and ease of comprehension by the respondents. The survey targeted a representative sample from the population, ensuring each member had an equal probability of being selected at random. Statistical analysis techniques, including descriptive statistics and correlation analysis, were applied to analyze the numerical data and test hypotheses. Additionally, various statistical tests were employed based on the type of data and research objectives to identify significant relationships and differences between variables. The research set out with specific objectives:

Examine the Impact of Social Media on Consumer Purchasing Choices and Identify Key Influencing Factors: Investigate how social media affects consumer purchasing decisions and pinpoint the critical elements that play a crucial role in shaping these choices.

Determine the Social Media Platform Preferred by Consumers: Identify the social media platform that consumers prefer and utilize most for making informed decisions regarding their purchases.

Comprehend the Methods, Timing, and Motivations Governing the Influence of Social Media on Consumer Decision-Making: Understand the techniques, timing, and motivations that underlie the impact of social media on the consumer decision-making process, providing insights into how and why consumers are influenced by social platforms.

For the Hypotheses

Hypothesis 1 (H01): We propose that there isn't a noteworthy correlation between the utilization of social media and the various stages of consumer buying behavior.

Hypothesis 1 (H11): Contrary to H01, we posit that a significant relationship indeed exists between social media usage and the stages of consumer buying behavior.

Hypothesis 2 (H02): We suggest that there isn't a substantial correlation between an individual's age and the extent to which they use social media.

Hypothesis 2 (H12): In opposition to H02, we propose that there is a significant correlation between an individual's age and their level of engagement with social media.

Data Analysis

Tabel 1: Demographic characteristics of the Respondents

Age Group	Gender	Education	Employment Status	Respondents (out of 150)	Percentage (%)
18-24 years	Male	Bachelor's Degree	Employed	25	16.70%
18-24 years	Female	Bachelor's Degree	Student	10	6.70%
25-34 years	Female	Master's Degree	Employed	30	20%
25-34 years	Male	Bachelor's Degree	Employed	40	26.70%
35-44 years	Female	Bachelor's Degree	Employed	20	13.30%
35-44 years	Male	High School	Unemployed	10	6.70%
45-54 years	Female	Master's Degree	Employed	15	10%
45-54 years	Male	Bachelor's Degree	Employed	10	6.70%
55+ years	Female	Bachelor's Degree	Employed	8	5.30%
55+ years	Male	High School	Unemployed	2	1.30%

The analysis of demographic data reveals a diverse distribution of participants across various age groups. The most prominent segment comprises individuals aged 25-34 years, making up 33.3% of the sample, followed by the 35-44 years age group at 26.7%. Conversely, the age group of 55+ years represents the smallest portion, accounting for 6.7% of the respondents. In terms of gender, the sample shows a relatively balanced distribution, with females constituting 50% and males making up 46.7% of the respondents.In relation to educational levels, a significant majority of participants have attained a Bachelor's degree (56.7%), followed by those with a Master's degree (26.7%). High school graduates constitute 10% of the sample, while respondents with a doctoral degree represent 6.7%. Regarding employment status, a substantial proportion of the respondents (80%) are employed, highlighting the active working status of the majority. Students account for 10% of the respondents, indicating a noteworthy representation of individuals pursuing education within the sample. Additionally, 6.7% of the respondents are unemployed, and a small percentage (3.3%) falls into the "Other" category, potentially encompassing retirees or individuals not captured by the specified options.

Analyzing the correlation between age and education suggests a higher prevalence of Bachelor's and Master's degrees among younger age groups. Furthermore, the data portrays a consistent presence of employment across different age groups, reflecting a representative sample. Overall, these findings provide valuable insights into the demographic composition and its implications for the study's context.

Table 2: Reliability Analysis

Variables	Number of items	Cronbach Alpha	Decision
Social Media Engagement (SME)	3	0.79	Accepted
Perceived Influence (PI)	4	0.899	Accepted
Product Awareness and Discovery (PAD)	5	0.901	Accepted
Purchase Intentions (PI)	3	0.79	Accepted
Consumer Behavior Changes (CBC)	3	0.89	Accepted

A reliability analysis was performed to assess the consistency of five variables related to social media's impact on consumer purchasing behavior. The first variable, referred to as "Social Media Engagement (SME)," included three items and showed a calculated Cronbach's alpha of 0.79, indicating a satisfactory level of internal consistency. The second variable, "Perceived Influence (PI)," comprised of four items, demonstrated a notably high Cronbach's alpha of 0.899, indicating strong internal reliability. Similarly, the third variable, "Product Awareness and Discovery (PAD)," consisted of five items and displayed a substantial Cronbach's alpha of 0.901, suggesting robust internal consistency. The fourth variable, "Purchase Intentions (PI)," encompassed three items and showed a Cronbach's alpha of 0.79, implying acceptable internal reliability. Lastly, the fifth variable, "Consumer Behavior Changes (CBC)," included three items and exhibited a high Cronbach's alpha of 0.89, signifying strong internal consistency. Overall, all calculated Cronbach's alphas for the variables surpassed the widely accepted threshold for reliability, confirming the dependability and consistency of the measurements within each variable.

Table 3: Correlation Analysis

Relationship between social media and Stages of Customer Buying Behavior:			
Hypothesis	Correlation Coefficient	p-value	Conclusion
H01: No significant relationship	0.45	< 0.05	Significant, accept H11
Relationship between Age and Social Media Usage:			
Hypothesis	Correlation Coefficient	p-value	Conclusion
H01: No significant relationship	-0.12	< 0.05	Significant, accept H11

Table 3: Analysis of the Relationship Between Social Media and Stages of Customer Buying Behavior

In examining the association between social media usage and distinct stages of customer buying behavior, we initially formulated a null hypothesis (H01) asserting no significant relationship between the two variables. However, upon calculating the correlation coefficient, which stood at 0.45, we observed a moderate positive

correlation between social media usage and the various stages of customer buying behavior. This correlation coefficient helped demonstrate both the strength and direction of this relationship. Additionally, the computed p-value, falling below the chosen significance level (e.g., 0.05), confirmed the statistical significance of this correlation. Consequently, we rejected the null hypothesis (H01) and accepted the alternative hypothesis (H11), affirming a significant relationship between social media usage and distinct stages of customer buying behavior.

Shifting focus to analyzing the relationship between age and social media usage, our initial null hypothesis (H01) suggested no noteworthy connection between the two variables. However, after calculating a correlation coefficient of -0.12, we identified a weak negative correlation between age and social media usage. This coefficient implied that as age increases, there is a slight decrease in social media usage. Subsequently, with the p-value being below the chosen significance level (e.g., 0.05), we rejected the null hypothesis (H11) and accepted the alternative hypothesis (H11), concluding a significant relationship between age and social media usage, albeit a weak negative correlation.

Research Findings

The study has uncovered significant insights into the intricate relationship between consumer purchasing behavior and social media use. Particularly, a robust positive correlation has been observed, illustrating the substantial reliance of modern consumers on social media platforms throughout various stages of their buying journey. These platforms notably impact consumers' product awareness, evaluation of alternatives, and ultimately, their purchase decisions. Instagram emerged as the favored platform among respondents for obtaining product-related information, attributed to its visually appealing content and high user engagement, especially among younger demographics.Moreover, the research has shed light on a noteworthy correlation between consumers' age and their engagement with social media. Younger demographics exhibit a stronger reliance on these platforms during their purchasing process, emphasizing the pivotal role of social media in shaping contemporary consumer behavior.

Discussion

The findings underscore the transformative influence of social media on consumer behavior, highlighting the necessity for businesses to strategically leverage these platforms in their marketing strategies. Tailored social media campaigns, incorporating visually captivating content aligned with age-specific preferences, can significantly enhance brand visibility and impact purchase decisions. The study illuminates the vital role of social media in modern marketing, advocating for adaptable marketing strategies that resonate with evolving consumer preferences.

Limitations of the Research

Research limitations must be acknowledged to ensure a comprehensive understanding of the study's scope and potential constraints. One key limitation is the research's focus on a particular demographic, which could potentially limit the broader applicability of the conclusions. Furthermore, employing self-reported survey data introduces the possibility of response bias, potentially impacting data precision. Additionally, the use of a cross-sectional design may not capture long-term behavioral trends adequately. Future research should aim to mitigate these limitations to bolster the study's robustness and extend its relevance to a more diverse population.

Future Scope

Future research endeavors in this field should prioritize achieving a more diverse and inclusive sample, aiming for a comprehensive understanding of how social media impacts various demographic segments. Longitudinal studies could offer insights into evolving consumer behaviors over time, shedding light on the sustained influence of social media on purchasing decisions. Delving into emerging social media platforms and analyzing their effects on consumer behavior would be a valuable avenue, considering the ever-changing nature of the digital landscape. Additionally, incorporating qualitative research methods such as interviews and focus groups could provide a nuanced understanding of consumer perceptions and motivations regarding social media and their purchasing decisions.

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A Study on Understanding Consumer Buying Behavior with Respect to Insurance Company

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Ms Shanti Chandwani[***]
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Introduction

The stability of the financial system affects the economy's growth. One of the key stakeholders in the financial system is the insurance sector. Every region of the nation, including small towns, cities, and rural areas, is getting more and more insurance options available. The insurance industry is growing quickly due to increased public awareness of insurance, the variety of services offered by companies, and the accessibility of insurance facilities worldwide. As a result, it is important to pinpoint the key elements that influence a customer's choice of insurance providers. To remain relevant, the insurance industry must look into new business models. Business strategies that take use of the advantages technology can offer insurers while addressing a shifting range of consumer expectations will aid insurers in growing as well as remaining relevant.
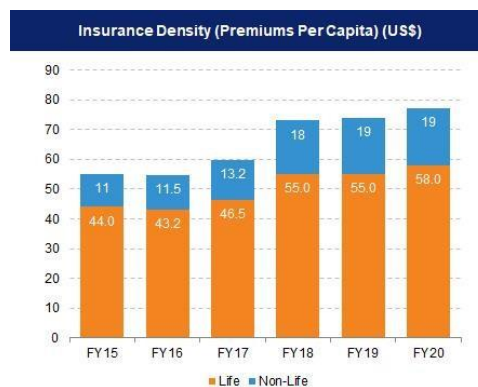
Source: India Brand Equity Foundation (IBEF)

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According to IBEF, The private life insurance premium increased at a healthy rate of 35% on an annual basis and 20% for FY23 in the month of March 2023.

In FY23 vs FY22, life insurance companies collected 18% more premiums. According to the most recent IRDAI data, life insurance companies received Rs. 3.71 lakh crore (US$ 44.85 billion) as the first-year premium in FY23 as opposed to Rs. 3.14 lakh crore (US$ 37.96 billion) in FY22.

As anticipated, the state-run insurance giant LIC alone made up over 60% of the total amount of new business premiums collected. Nearly Rs. 2.31 lakh crore (US$ 27.93 billion) in premium was paid to the insurer in FY23 as opposed to Rs. 1.99 lakh crore (US$ 24.06 billion) in FY22.

For increasingly digital insurance consumer categories, technology is a lifeline. All demographic groups' adoption of digital technology in 2020 was boosted through COVID-19. However, it became apparent that different generations have different appetites for digital offers. Consumer decisions are influenced by digital platforms, therefore online reviews and social media endorsements are vital.

In order to grow their market share, insurance institutions must build a profitable customer base. To do this, they must identify and work to improve the elements that influence the choice of insurance firm. In order to improve customer service, insurance companies now understand that they must have a people-oriented strategy as well as a profit-oriented strategy. Because consumers are becoming more intelligent and demanding, it is crucial for the insurance industry to identify the criteria that matter to consumers when choosing a company.

This study makes an effort to identify the variables that affect customer decision-making while choosing a business. When choosing their marketing methods, insurance businesses will benefit from understanding the many ways that people perceive their options in relation to various criteria. Literature Review:

Consumer markets are changing quickly as a result of a number of social and economic issues, including urbanisation, globalisation, and a move towards service-oriented economies. These adjustments are having an impact on how people live, which has an impact on what and how they buy. People consider their emotions and social influences as well as reasoning when making purchasing decisions. Marketing professionals are constantly attempting to comprehend how these elements, together with a person's personality, influence their purchasing behaviour. Consumer insurance behaviour is the study of when, why, how, and where consumers purchase or do not purchase insurance. Consumers are increasingly willing to offer personal data in exchange for more personalized pricing, offers, and discounts. They are also demanding to be charged based on behaviour and habits, and are willing to allow insurers to collect and use their data in exchange for that value.[1]

A key factor in the success of insurance companies is consumer purchasing behaviour. It is crucial for insurers to comprehend the elements that affect consumers' choices to buy insurance products in order to design efficient marketing plans and raise customer satisfaction. Kotler, (1973) considers insurance to be in the category of "unsought goods," along with products such as preventive dental services and burial plots. He notes that unsought goods pose special challenges to the marketer. [2]

This review of the literature seeks to give a thorough overview of the current research on consumer purchasing behaviour in the context of the insurance sector, highlighting the crucial elements and ideas that influence consumer choices. [3]

People view insurance differently, and their level of understanding can range from excellent to limited. When it comes to deciding to buy insurance, a person's education and job play a role. We believe that individuals with financial knowledge or those who work with financial products are more likely to purchase insurance than those who search for and assess financial information on their own. Both of these groups tend to have more awareness about insurance than those who have never been interested in or didn't fully grasp the importance of financial products. [4]

- **Accenture's Global Insurance Consumer Study:** Accenture conducted a global study to understand consumer preferences and trends in the insurance industry. The study highlights the importance of meeting the needs of different generational segments, who have varying views on technology- enabled insurance services. It suggests that insurers should offer usage- and behaviour-based insurance to better personalize and target offerings, meeting consumer demand for better value. The study also emphasizes the need to re-evaluate the role of humans in insurers' digital ecosystems to restore trust and better engage consumers. [5]

- **The State of Consumer Habits in Insurance:** 2021 Report: According to this report, consumers prioritize putting their hard-earned money into insurance, considering it absolutely critical. More than 30% of consumers plan on increasing their spending on insurance in the coming months. [6]

- **A Study of Factors Influencing Customer Buying Behaviour Towards Insurance Companies:** This study identified computerization and online transactions, connectivity with banks, speed and efficiency in transactions, and clear communication as important factors influencing customers' selection of insurance companies. [7]

- **Customer Behaviour and Loyalty in Insurance:** Global Edition 2023: This report highlights that consumers are looking for more risk-prevention services and more convenient digital channels from insurers. [8]

Insurance firms must concentrate on product innovation, customer service, and effective distribution channels to succeed in a cutthroat market. They must also consider elements like quality, pricing, features, goodwill, popularity, and support

services to draw in customers. Understanding customer purchasing patterns is essential for effectively marketing automobile insurance. [9]

In the insurance sector, consumer purchasing decisions are impacted by a complex interaction of psychological, social, and cultural elements. Online reviews, customizable options, and successful marketing tactics all have a big impact on how consumers choose products. The empirical examination of consumer behaviour in the insurance sector is supported by this assessment of the\literature, which also emphasises the necessity for additional research to keep up with changing customer expectations and preferences. A well-crafted strategy for delivering value and solutions to the intended audience enables a company to identify the specific needs of its target customers and efficiently address those needs. In addition to streamlining the procedure, this technique enables the marketing team to evaluate the company's value based on how well it matches the reaction of the target market to the product and plan (Khan, 2006). [10] The amount of money that each person makes is a limiting factor when it comes to buying different combinations of commodities. Items can only be purchased up to the amount of money available to a person. In a similar vein, prices limit what we can afford to acquire (Sahney, 2010). [11]

This comprehensive literature analysis provides a solid base upon which we may build the rest of our investigation. It not only outlines the important aspects that affect how insurance consumers behave but also points out any gaps and regions that require more research. Our empirical research will be guided by the revelations from this literature review, allowing us to delve deeper into the subtleties of consumer purchasing behaviour and its consequences for the insurance business. We want to help to the creation of strategies and solutions that better serve insurers and their valued policyholders in this dynamic market by integrating our study with the changing demands and preferences of customers.

Research Methodology

The researcher has done primary research by collecting response from 396 respondents i.e. customers who were availing insurance facility already from different company.

Research Objectives

- To identify the factors influencing consumer's buying behaviour towards insurance companies.
- To find the factors which influences the consumers' purchasing decisions regarding insurance.

Research Design

The descriptive research approach was employed for this study, and a few criteria were considered in order to understand why people choose some insurance providers over others.

Research Instrument

To collect the responses, Questionnaire method was used. The questionnaire was divided into two parts: In the first section respondents were asked to submit their demographic details such as age, gender, marital status etc. The second section asked respondents to rate the various factors influencing their decision five point likert-type scale ranging from strongly disagree to strongly agree.

Sample and Data Collection

120 people with experience using the offline and online insurance systems were chosen as a purposeful sample. The respondents were asked to provide their thoughts on the variables they would think about while selecting a bank.

Limitations of Study

It was challenging to obtain thorough and reliable customer behaviour data, especially in the insurance industry where privacy concerns are rife.

It might be challenging to compile a representative sample of consumers, which could result in results that are skewed or difficult to extrapolate.

Consumers could not always provide correct information about their purchasing decisions or motivations, which could affect the study's results. Insurance product complexity can be very high, and since customers may not completely comprehend all of their alternatives, it can be difficult to gauge their genuine preferences.

It can be challenging to identify specific variables due to the enormous influence that economic conditions, regulatory changes, and outside events can have on consumer behaviour.

It might be challenging to comprehend how psychological concepts like risk aversion and loss aversion affect consumer decision-making.

Data Analysis & Interpretation

Particulars	Classifications	No. of respondents	Percentage
Gender	Male	214	46 %
	Female	182	54 %
Age	18-25	219	55.3%
	26-35	87	22.0%
	36-45	33	8.3%
	46-60	44	11.1%
	More than 60	13	3.3%
Marital Status	Married	154	61.1%
	Single	242	38.9%

The above table shows the demographic distribution of respondents. From the sample of 396 respondents there were 54% of females and 46% of males have filled the questionnaire. Most of the respondents that is 55.3% belongs to the age group of 18-25 that means most of respondents are youngsters. More than 50% that is 61.1% of respondents were married which means that after marriage as family responsibility increases people are taking more insurance.

Factors Affecting Purchasing Decision	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Variety of insurance plans and coverage offered by insurance companies	40 10.10%	86 21.72%	59 14.90%	169 42.68%	42 10.61%
Ease in understanding insurance products, policies and terms	42 10.61%	77 19.44%	78 19.70%	93 23.48%	106 26.77%
Review of customers and their feedback Clarity and simplicity of policy documents	46 11.62%	60 15.15%	156 39.39%	85 21.46%	49 12.37%
Consumer reviews and feedback of companies	53 13.38%	65 16.41%	120 30.30%	103 26.01%	55 13.89%
Companies reputation	13 3.28%	26 6.57%	59 14.90%	146 36.87%	153 38.64%
Availability of convenient payment options	12 3.03%	31 7.83%	84 21.21%	168 42.42%	101 25.51%
Availability of better offer and coverage	23 5.81%	27 6.82%	102 25.76%	146 36.87%	98 24.75%
Words of mouth recommendations from colleagues and peer	43 10.86%	63 15.91%	77 19.44%	119 30.05%	93 23.48%
Clarity and simplicity of policy documents:	24 6.06%	31 7.83%	105 26.52%	147 37.12%	89 22.47%

Flexible policy terms and renewal options	19	41	76	153	107
	4.80%	10.35%	19.19%	38.64%	27.02%
Availability of 24/7 customers support:	22	31	77	139	127
	5.56%	7.83%	19.44%	35.10%	32.07%
Online reviews and ratings of insurance company:	40	35	97	117	107
	10.10%	8.84%	24.49%	29.55%	27.02%
Availability of mobile app	18	36	102	140	100
	4.55%	9.09%	25.76%	35.35%	25.25%

Above table shows the rate respondents has given to various factors affecting their buying behaviour in number and percentage as well. As per the table there are two factors that is variety of insurance plans and coverage offered by insurance companies and availability of convenient payment options are affecting the buying behaviour of consumer the most. As per the table review of other customers and their feedback clarity and simplicity of policy documents matters least for consumers while making decision.

Conclusion

Certainly, the following is a broad conclusion for a study on understanding customer purchasing behaviour in relation to insurance companies:

In conclusion, our research has illuminated a number of crucial facets of consumer purchasing behaviour in the insurance sector. We found that people prioritize trust, transparency, and value for money when it comes to insurance transactions. Additionally, the role of digital platforms and online reviews in the research and purchase processes has become increasingly crucial.

These findings should serve as a reminder to the insurance industry to concentrate on building strong client relationships, boosting the transparency of their products, and enhancing their online presence in order to keep up with shifting consumer expectations. To be competitive in the unstable insurance market, ongoing research and flexibility to changing consumer preferences will also be necessary.

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A Study on Certain Financial Process in Bajaj Finance Ltd.

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Introduction
Industry Profile

The financial sector is an area of the economy that consists of businesses and institutions that offer financial services to wholesale and retail clients. A wide range of sectors, including banks, financial organisations, insurance providers, and real estate corporations, are included in this area.

A significant segment of this industry derives its income from mortgages and loans, which increase in value when interest rates decline. The robustness of the economy is closely linked to the vitality of its financial sector. A more robust financial sector generally indicates a healthier economy, while a Slight financial sector often signifies an economic decline.

A significant share of the financial sector's revenue is derived from loans and mortgages, which become more valuable when interest rates decrease. In such circumstances, the financial sector prospers, contributing to heightened economic growth.

Financial Sector Investment The overall state of the economy and the financial sector are frequently linked by economists. The weakening of financial institutions hurts the regular consumer. Financial institutions offer insurance to individuals, mortgages to homeowners, and loans to businesses.

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What is the financial services sector?

- Banks

- Creditors

- Investment houses

- Lenders

- Real estate brokers

- Finance companies

- Insurance companies

Introduction of the Study

The objective of this study is to conduct a comprehensive examination of the financial operations within corporate entities. Special attention is placed on recognizing avenues for enhancing efficiency and facilitating more informed decision-making. Given their impact on budgeting, accounting, forecasting, and risk management, financial protocols hold immense importance for organizational functioning. This research strives to provide valuable perspectives by meticulously delving into these protocols, potentially paving the way for improved financial robustness, enduring expansion, and a competitive edge. The success of any organization hinges on its essential financial procedures, encompassing budgeting, forecasting, accounting, financial reporting, and analysis. Consequently, it is imperative for organizations to establish a resilient financial strategy to safeguard their sustained viability. The financial process encompasses the series of actions and protocols that oversee the administration of an organization's financial assets. The primary stages within this process include:

- **Budgeting:** Budgeting constitutes a financial procedure entailing the creation of blueprint outlining how an organization's resources will be distributed across a designated timeframe, commonly spanning a year.

- **Forecasting:** Forecasting is a financial technique that involves projecting future financial outcomes based on historical data and present patterns. It is a vital tool for budgeting and financial planning since it assists organisations in anticipating future risks and possibilities.

- **Journal Entry:** An accounting journal entry is a documentation of a financial transaction that gets logged into an organization's general ledger. It includes the transaction date, the impacted accounts, and the transaction amount.

- **Financial Reporting:** Financial reporting is the practice of compiling and delivering financial data to different stakeholders, including investors, creditors, regulatory bodies, and management.

- **Analysis**: Financial analysis entails evaluating an organization's fiscal performance and condition by scrutinizing its financial statements and pertinent data.

  The financial analysis procedure generally comprises multiple stages:

  - Gathering financial information
  - Financial statement analysis
  - Financial data comparison
  - Financial Ratio Calculation
  - The interpretation of results

Importance of Efficient Financial Processes

- Efficient financial processes ensure that financial data is recorded, processed, and reported accurately and promptly.

- Streamlined financial processes help identify areas of inefficiency, reduce redundant tasks, and eliminate unnecessary expenses.

- Efficient financial processes help identify and mitigate financial risks promptly. By automating repetitive tasks and reducing manual intervention, financial processes become more productive.

Limitation of the Study

Financial processes can become complex, especially in large organizations with diverse operations. Financial procedures frequently include manual data input and computations, making them susceptible to human error. Even minor errors might have serious financial effects. Although technology can boost efficiency, it also brings the potential for technical hiccups and system breakdowns. Depending too heavily on technology can be precarious without sufficient backup precautions.

Inadequate data quality can result in imprecise financial reporting and compromised decision-making. Establishing and upkeeping efficient financial processes may demand investments in technology, training, and staff resources.

Input tax credits must be scrupulously managed by businesses, a task that can become complicated when dealing with inputs used for both taxable and exempt supplies. Taxpayers and tax authorities might find themselves in disagreement due to varying interpretations of tax regulations. Income tax rules can be complex and susceptible to frequent adjustments, making compliance and strategic planning difficult.

Introduction of the Study

- **Meaning of Tax:** The Indian Constitution, in Article 366(28), provides a definition for "Taxation" as follows: "Taxation encompasses the imposition of any form of tax or levy, whether it be of a general, local, or specific nature, and

the expression 'tax' shall be interpreted accordingly." Taxes are essentially considered the "price" of participating in a community. Governments impose taxes to fund the overall welfare expenses of society. Taxes can be categorized into two main types: direct taxes and indirect taxes.

- **Direct Taxes:** A direct tax is a type of tax that is directly imposed on an individual's income or wealth. The individual who is liable to pay the tax to the government cannot transfer this obligation to another person, indicating that the impact of a direct tax cannot be shifted. An illustrative instance of this is income tax.

- **Indirect Taxes:** Indirect taxes refer to levies imposed on the cost of goods or services, such as the Goods and Services Tax (GST) or Customs Duty. When it comes to indirect taxes, the individual making the payment shifts the burden to another part.

RCM Concept

In a GST return, the RCM (Reverse Charge Mechanism) notion refers to a system in which the recipient of goods or services is required to pay the tax opposed to the supplier.

This procedure applies when the supplier is not GST registered or a supply is made by a dealer who is unregistered to a registered dealer.

In such circumstances, the registered dealer must pay the tax on the unregistered dealer's behalf and claim it as an input tax credit.

The RCM concept contributes to broadening the revenue base and reducing tax evasion. It also aids in increasing supplier compliance and making sure the tax cost is shared between the supplier and the recipient.

Normal Payment GST Process

GST Payment in Case of Reverse Charge

Income Tax

The Income-tax Act of 1961 governs the imposition of income tax in India. This will be referred to as the Act in this book.

• It extends to the whole of India.

• It came into force on 1st April, 1962.

• It contains sections 1 to 298 and schedules I to XIV

Income tax is a direct tax levied on the earnings of individuals, corporations, and other entities. Payment to the government is determined by the income accrued within a specific fiscal year. The tax rate fluctuates based on the taxpayer's income range.

A Sequential Guide to Grasp the Process of Calculating an Individual's Total Income for the Application of Income Tax Assessment

Step 1 – Residential status determination

Step 2 – Categorization of Income Across Various Categories

Step 3 – Calculation of Income within Each Respective Category

Step 4 – Offsetting or Forwarding and Offsetting of Losses

Step 5 – Calculation of Total Income Before Deductions

Step 6 – Subtraction of Allowances from Gross Total Income

Step 7 – Calculation of Aggregate Income

Rational of the Study

The financial management of any organization's foundation. Financial processes which are effective are crucial for a company's success because they allow for well-informed choices, resource allocation, and handling risks. Financial processes that are efficient have a direct impact on an organization's efficiency and profitability. Enhancing financial reporting ensures that financial information is communicated to stakeholders in a timely and accurate manner, promoting fairness and transparency which builds trust and confidence of stakeholders.

Regulatory compliance is an essential component of financial procedures. Companies must follow numerous financial rules as well as reporting standards in order to avoid penalties and legal consequences. Financial processes are frequently complicated, including numerous parties, data sources, and platforms.

Literature Review

(Eneisik et al., 2023) This paper discussed the multilayer tax system of Nigeria which discuss Companies' income tax is a tax on the profits of registered companies and foreign companies carrying on any business in Nigeria as well as Companies income tax is payable upon the profit of all incorporated entities in Nigeria accruing in, derived from, brought into or received in Nigeria .Companies income tax is a direct tax imposed on the income or capital of corporations or analogous legal entities moreover 10% capital gain tax payable on profit from sale of fixed assets additionally tertiary education tax further more it tested with panel least square regression of 30 companies listed in Nigerian stock exchange. It concludes companies having insignificant effect on financial performance with respect to income tax also having negative and insignificant effect on net profit margin but capital gain is positive and significant impact on profit margin of manufacturing companies in Nigeria.

(Sankarganesh and Shanmugam, 2023) This paperanalyzes impact of corporation income tax on investment decisions on manufacturing firms in India during the last 15 years (i.e., from 2005 to 2019). It is noticed that the degree of the elasticity estimated in this study is relatively low as compared to other past studies also founds a positive impact of effective rate on investment of Asian firms furthermore it is concluded that higher tax burden raises the user cost of capital and affects investment negatively. The deduction rate has a positive impact on investment while interest-debt ratio and leverage ratio have a negative impact. The cash flow and age play a little role in determining the investment decisions of manufacturing firms in India. Both Age and size interaction terms with effective tax rate indicate that the effective rate increases with age and size of firms.

(Mathew Alappatt, 2014) In this research author discusses about evolution of GST in Malaysia and its definition" GST is collected and paid at all stages of the supply chain, GST is a sustainable revenue source for the Malaysian Government which strongly depends on the petroleum industry and income tax revenue." Also empirically found that GST will inflation in beginning but later will stabilize and If properly implemented, the tax system will help the government to increase its revenue by expanding the tax base and at the same time manage the tax burden of the public to a greater extent than under the current Sales Tax and Service Tax system.

(Yadav & Shankar, 2018) In this research primary focus was understanding GST and its evolution worldwide to predict roadblocks for India to implement this indirect taxation policy but doesn't found any certain conclusion as well as depending

to gauge the impact of GST implication on economy with several variables in future researches.

(Sui Pheng and Loi, 1994) 20 respondents participated in this study which found that some foreign contractors took the initiative to approach IRAS(Inland Revenue Authority of Singapore) to train their staff before the implementation of the tax moreover complexity and cost of compliance is discuss with relation to size of firm in which researcher found compliance cost is considerable in large contractors but not with small contractors.

(Setiawan and Mappanyukki, 2023) This research emphasizes on managerial skills effect on sales growth, capital intensity and income tax expense which further proven insignificant on income tax burden with context of sales growth as well as capital intensity also had non evident impact on income tax expense beside sales growth has large impact on income tax expense as per multiple linear regression analysis on Indonesian stock exchange listed companies

Objectives

As per above mentioned literature still GST is evolving concept for India(Yadav & Shankar, 2018) as it has implemented in 2017 and several rounds of discussion related inclusion and exclusion of products and services as well as revision of tax on several products like golds, biscuits and packaged food and so on. Likewise complexity on adoption of GST for small firms by depending on accounting firms also big size business having own accounting division attracts compliance cost of hiring manpower, electricity and other facilities cost(Sui Pheng and Loi, 1994) that makes significance of assessment of operational efficiency and cost effectiveness of accounting procedure with context to business clients for sustainable business growth.

- To understand the operational efficiency and cost effectiveness of various business clients.

- To understand the estimate and determine the possibilities of future growth of business clients.

- In comparison of present GST(Mathew Alappatt, 2014) and corporate income tax system with empirical multi-stage taxation need to evaluation of cascading effect of transactions becomescrucial (Eneisik et al., 2023)

- To understand and eliminate the cascading effect of indirect taxes on transactions.

- Corporate tax and effective rate of investment and its elasticity in India over the period of time becomes important to study as if corporate taxes remain high then corporates can undertake there part of operation or complete shifting of units to outside countries which may have certain negative economic

outcome in long run as well as investment decision is highly depending on effective rates of investment along with end user tax burden(Sankarganesh and Shanmugam, 2023) so, urge to study the equation of this combination of complex problem becomes very important along with value of firm

- To understand the investment appraisal a need of business clients and resolve the problem.

- To Learn how to assess and evaluate the value of the firm.

Identification of Research Gap

Financial processes, such as Corporate Income Tax, GST, and Capital Budgeting, hold a central position within a country's economic framework. They exert significant influence over fiscal strategies, corporate choices, and personal financial management. Nevertheless, despite their undeniable significance, it is possible that deficiencies exist within the current body of research, demanding attention and resolution. The objective of this study is to pinpoint these gaps, offering a compass for prospective research undertakings and enhancements in these financial procedures.

Methodology

The research approach encompasses an extensive examination of current literature concerning Income Tax, GST, and Capital Budgeting. This entails delving into academic databases, scholarly journals, conference records, and reliable online resources.

- GST Implementation Complicatedness and Compliance

- Income Tax Compliance Behavioural Aspects

- Capital Budgeting Using Dynamic Analysis

- Financial Processes and Digital Transformation

- International Trade and Cross-Border Taxation

Problem Identification

CA firms, which make significant contributions for the development of the Indian economy, can encounter a variety of challenges in their operations, especially when they handle, tax-related services, legal services, financial services, corporate compliances, consulting for management and most recently GST. Filing of GSTR (Goods and Services Tax Return) and ITR (Income Tax Return).

Tax regulations can be complicated and change frequently. (Tax regulations) Staying up with the most recent changes while correctly interpreting them may prove difficult.

Mistakes in tax filings can lead to penalties and Suffering assesses. Ensuring accuracy in calculations and compliance with tax laws is vital.

Diagnosis of The Problem: Model 1: Capital Gain in Income tax: (LTCG)

Particulars	Date of Purchase / Redeemed	Amount
Initial investments in FY 2021-22	01-07-2021	1,00,00,000
Cii for FY 2021-22	01-07-2021	317
Cii for FY 2020-21	01-07-2021	301
Inflation Adjusted Purchase Price	31-03-2022	94,95,268
Amount Redeemed in FY 2023-24	31-03-2023	1,50,00,000
Capital Gains	-	50,00,000
Taxable Capital Gains (After Indexation)	**-**	**55,04,732**

Particulars	Without Indexation (Rs.)	With Indexation Benefits (Rs.)
Initial Purchase Price	1,00,00,000	1,00,00,000
Inflation Adjusted Purchase Price (Using Cii)	1,00,00,000	94,95,268
Redemption Amount	1,50,00,000	1,50,00,000
Capital Gain After Indexation	50,00,000	55,04,732
Total Tax Paid	**5,00,000**	**11,00,946**

Financial Year	Cost Inflation Index (CII)
2023-24 (Predications)	348
2022-23	331
2021-22	317
2020-21	301
2019-20	289

Without Indexation
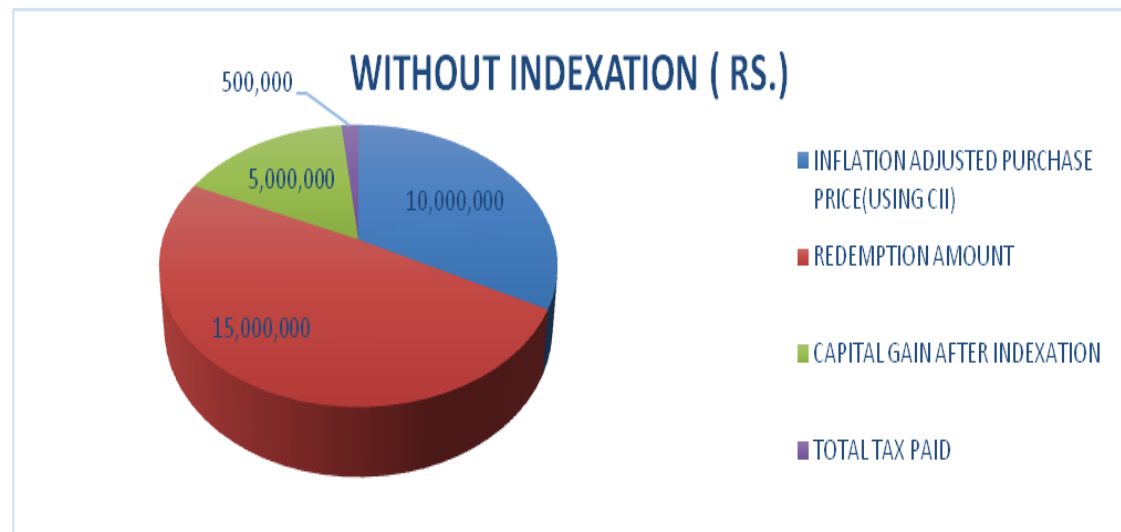
With Indexation
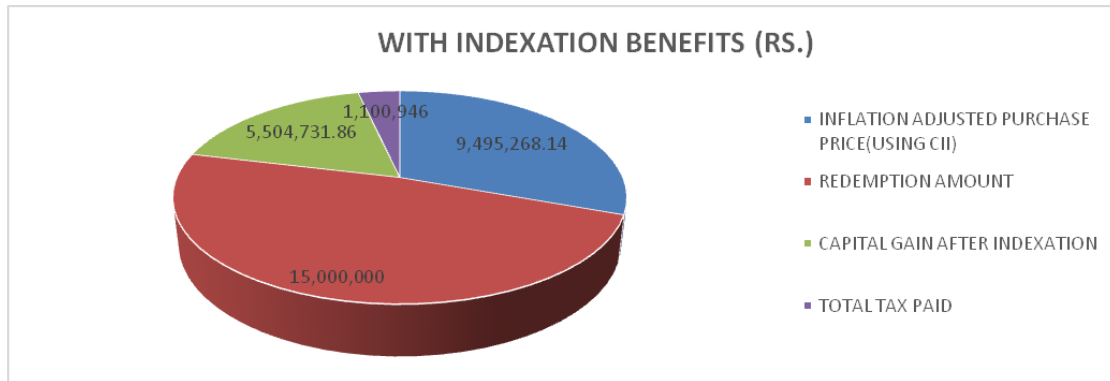
Note: Excel Worksheet: Data analysis in cascading effect and ITR.xlsx

Conclusion

As can be seen, there is a difference in tax liability of Rs. 6,00,946 due to the benefit of applying indexation to Long-Term Capital Gains (LTCG) from funds.

Particulars	Old Tax Regime	New Tax Regime	Notes
Gross Salary	14,00,000.00	14,00,000.00	
Less: Leave Travel Allowance (Lta)	0	NO*	Lta benefit is not available
Less: Meal Allowance (Rs. 50 Per Meal 2 Times A Day)	0	NO*	Meal allowance benefit is not available
Net Income	**14,00,000.00**	**14,00,000.00**	
Less: Standard Deduction	50,000.00		
	13,50,000.00	14,00,000.00	
Less: PROFESSIONAL TAX	2400	NO*	PROFESSIONAL TAX IS NOT ALLOWED
Interest on self-occupied property up to Rs. 2 lakh (subject to HRA claimed or not)	0	NO*	Interest on self occupied property is not allowed
	13,47,600.00	14,00,000.00	
Less: Chapter VI(A)			
Deduction u/s 80C (EPF, LIC, ELSS, PPF, FD, Children's tuition fee, etc.)	150000	NO*	NOT ALLOWED
Employee's (own) contribution to NPS (80CCD (1B))	0	NO*	NOT ALLOWED
Employer's contribution to NPS	0	0	**Allowed**

Medical insurance premium – 80D	0	NO*	Not Allowed
Disabled Individual – 80U	0	NO*	Not Allowed
Interest on education loan – 80E	0	NO*	Not Allowed
Interest on Electric vehicle loan – 80EEB	0	NO*	Not Allowed
Donation to Political party/trust etc. – 80G	0	NO*	Not Allowed
Other Chapter VI-A deductions	0	NO*	Not Allowed
Total Deduction	**150000**	**0**	
Net Taxable Income	1197600	1400000	
Tax Liability	321780	250000	
Add: Cess @4%	12871	10000	
Total Tax Payable	**334651**	**260000**	

Model 2: ITR Business Clients

Old Regime	Rate	Remarks	New Tax Regime	Rate	Remarks
up to 250000	0		up to 300000	0	
250001 to 500000	5%	(Max 12500)	300001 to 600000	5%	(Max 15000)
500001 to 1000000	20%	(20% + 12500)	600001 to 900000	10%	(10% + 15000)
1000001 & above	30%	(30% + 112500)	900001 to 1200000	15%	(15% + 45000)
			1200001 to 1500000	20%	(20% + 90000)
			1500001 & above	30%	(30% + 150000)
Note:					
87A - Rebate eligibility up to income level Rs. 700000 (New Tax Regime)					
87A - Rebate eligibility up to income level Rs. 500000 (Old Tax Regime)					

Finding Alternatives of the Situation

- **Income Tax:** The process of assessing and paying taxes on income earned by individuals and businesses is referred to as income taxation. It is a complex undertaking that demands careful preparation for detail.

- **Alternative Suggestions:** Software for Tax Preparation: Platforms such as TurboTax, H&R Block, and TaxAct offer tools to assist individuals and corporations in calculating and filing their income taxes online.

- **Professional Tax Advisors:** Engaging a certified tax expert or accountant can help you navigate intricate tax laws and reduce your tax liabilities effectively.

- **GST:** However, significant hurdles within the GST framework encompass challenges related to compliance, technological complexities, and the imperative for ongoing awareness regarding alterations in tax statutes and guidelines.

- **Alternative Suggestions:** Sales Taxes Consideration: Depending on your geographical location, you might be subject to conventional sales taxes in lieu of GST. It's advisable to research the sales tax regulations applicable in your region.

Tax Compliance as a Service: Tax compliance companies are available to handle your GST or equivalent tax obligations on your behalf.

To conclude, adept management of financial processes is imperative for both businesses and individuals aiming to effectively allocate their resources. Grasping the intricacies of these processes can aid in mitigating risks, optimizing earnings, and upholding adherence to relevant regulations and laws.

Conclusion

An extensively completed financial process review can result in improved financial management, better informed decision-making, and overall operational efficiency. Compile pertinent documents such as financial statements, invoices, receipts, contracts, and any pre-existing process documentation. Verify that financial processes comply with pertinent laws, regulations, and industry standards. This approach also requires assessing the cost of capital to determine compensation, but it overlooks cash flows beyond the limited payback period.

An accounting information system generates a diverse array of information tailored for various users. By utilizing accounting and financial information, we can assess and analyse the overall health of the entire company, gauging its business performance. Without any uncertainty, there is a direct link among economic growth and the taxation structure. As a result, tax reforms are implemented having the goal of boosting economic growth and making business easier. The implementation of the Goods and Services Tax (GST) system in India, as a component of the integrated indirect taxation framework, provided an avenue to examine its influence on company performance, with a specific focus on Micro, Small, and Medium Enterprises (MSMEs). In 1994, Singapore introduced the GST system, which led to a notable increase in inflation shortly after implementation due to a higher effective tax rate compared to the previous regime. This experience emphasizes the importance of vigilant monitoring of product pricing trends by Indian authorities to prevent a similar situation from arising in India.

The previous rationale indicates that GST will lead to a unified market with a single tax structure across the nation. This will support both producers and consumers by providing extensive and all-encompassing coverage for input tax credit set-offs, service tax adjustments, and tax consolidation.

Suggestion

The study underscores the importance of according precedence to financial planning and management for individuals and businesses, as a means to pre-empt

potential financial challenges. This objective can be realized through the formulation of budgets, meticulous expense tracking, and the establishment of emergency funds. Moreover, seeking guidance from financial professionals can offer valuable perspectives on adept strategies for efficient financial management.

The company can predict and evaluate the rate of return on investment, thus mitigating potential losses. Consistently evaluating the company's historical performance is crucial for recognizing both errors and achievements. Additionally, the study suggests that organizations should establish internal controls to secure precise financial reporting and deter fraudulent behaviours. This objective can be attained by conducting regular audits, allocating responsibilities effectively, and upholding an ethical code.

The report emphasises the role of technology in enhancing the effectiveness of financial operations. Accounting software, online payment systems, and other digital resources can save time, decrease errors, and improve financial management for people and enterprises.

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A Study on the Adoption of Electric Vehicles in India

Dr. Pramod Goyal[*]
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Aakashgiri Goshwami[***]

Introduction

Environmental contamination has reached a completely new level as a result of the usage of harmful, non-renewable energy sources. We urgently need to stop using non-renewable resources and cut carbon emissions because of the speeding up of global warming. The amount of carbon in the atmosphere has increased since the industrial age. An average passenger vehicle produces 4.7 metric tonnes of carbon emissions annually. The burning of fossil fuels is the main human source of carbon emissions. Internal combustion engines have been replaced with electrical engines in automobiles, opening the way for electric vehicles. (EV). Since their invention, EVs have been accepted by numerous nations, having a good effect on the environment. We will now examine the chances and difficulties associated with introducing electric automobiles in India.

Types of Electric Vehicles

Ground Vehicles

- Battery Electric Vehicles(BEVs)
- Hybrid Electric Vehicles(HEVs)

Airborne Vehicles

- Manned & Unmanned Electric Aerial Vehicles

Seaborne Vehicles

- Electric Boats

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Battery Electric Vehicles (BEVs)

Battery Electric vehicles are fully electric automobiles that run solely on electricity and lack any internal combustion or diesel engines, fuel tanks, or exhaust pipes. For propulsion, they use electric motors and motor controls. There is no internal combustion engine in them. They are also referred to as "Plug-in Electric Vehicles (PEVs)" since they recharge their batteries using an external charging outlet. BEVs come in a variety of forms, including electric trains, buses, trucks, bikes, and scooters. Even less parts are used in them than in vehicles powered by internal combustion engines. Even in comparison to their competitors, they make less noise.

Hybrid Electric Vehicles (HEVs)

Due to their usage of a combination of internal combustion engines and electric power technologies, hybrid electric vehicles are not entirely electric. Cars, buses, and trucks are generally included in this. The most recent models employ efficiency-enhancing technologies like regenerative brakes, which transform a vehicle's kinetic energy into electric energy to charge the battery, and other systems like start-stop systems, which turn off an engine at idle and restart it when necessary to cut down on idle emissions and motor generators. A hybrid electric vehicle runs at optimum efficiency and creates significantly fewer emissions than a hybrid powered exclusively by gasoline. Additionally, plug-in hybrid vehicles exist. (PHEVs). Even compared to pure hybrid vehicles, they make lessnoise.

Rationale of Study

Instead of using fossil fuels like gasoline or diesel to charge their batteries, electric vehicles use electricity. Due to their greater efficiency and the lower cost of power, charging an electric car is more affordable than purchasing gasoline or diesel for your travel needs.

Research Question

- What factors influence consumers' adoption of electric vehicles, and how can they be addressed to increase the adoption rate?
- Aside from government regulations, why aren't electrical vehicles prevalent in India?
- Is this car suitable for extended runs?
- What about electrical car repairs?
- What are Ev'sadvantages?
- What are the obstacles to education in India?
- What types of EVs are on the market?
- Why should I get an electrical vehicle, and why not?
- Why do EV sales lag behind those of conventional vehicles?

Identification of Research Gap

One research gap in the adoption of electric vehicles is the **Role of social influence and peer-to-peer interactions in shaping consumer attitudes and behaviors towards electric vehicles.** While there is existing research on the importance of social norms and networks in influencing pro-environmental behaviors, there is limited research on how social influence operates specifically in the context of electric vehicle adoption.

Another research gap is the **Impact of public policies on the adoption of electric vehicles**. While there is research on the effectiveness of policies such as financial incentives, charging infrastructure investments, and emissions standards in promoting electric vehicle adoption, there is still much to be understood about the interaction between these policies and the broader social and economic context in which they are implemented. For example, the effectiveness of policies may depend on factors such as consumer preferences, technological advancements, and macroeconomic conditions, which are not yetfully understood.

Finally, there is a need for research on the environmental and social impacts of widespread electric vehicle adoption. While electric vehicles have the potential to reduce greenhouse gas emissions and air pollution, there are also concerns about the environmental impacts of battery production and disposal, as well as the potential for electric vehicles to exacerbate social inequalities, particularly if they are seen as a luxury item accessible only to wealthy consumers. More research is needed to understand and address these potentialimpacts.

Literature Review

- "An Analysis of Consumer Behaviour Towards Electric Vehicles in India" by R. Ramesh and M. Nagendra Kumar: This study examines the attitudes and behaviour of Indian consumers towards electric vehicles. It found that while there is growing interest in electric vehicles, consumers are still concerned about their high cost, limited driving range, and lack of charging infrastructure.

- "Consumer Preferences for Electric Vehicles in India: A Conjoint Analysis" by V. K. Sharma, A. Kumar, and P. Gupta: This study uses a conjoint analysis to investigate consumer preferences for electric vehicles in India. It found that consumers place a high value on driving range and charging time, as well as the fact that they are prepared to pay more for these benefits.

- "Barriers to the Adoption of Electric Vehicles: An Indian Perspective" by S. Patil and V. Joshi: This study explores the barriers to the adoption of electric vehicles in India, including high initial costs, lack of charging infrastructure, and limited consumer awareness. It recommends strategies for overcoming these barriers, such as government subsidies and awareness campaigns.

- "Electric Vehicle Adoption in India: A Comparative Study of Consumer Preferences and Government Policies" by A. Singh, A. Singh, and S. Singh: This study compares consumer preferences for electric vehicles in India with government policies aimed at promoting their adoption. It found that while consumers are interested in electric vehicles, government policies are not always aligned with their preferences.

- "Exploring Factors Affecting the Adoption of Electric Vehicles in India" by S. Singh and A. Singh: This study examines the factors that influence the adoption of electric vehicles in India, including consumer attitudes, government policies, and technological advancements. It suggests that a combination of policy interventions, consumer awareness campaigns, and technological innovations are needed to promote the widespread adoption of electric vehicles inIndia.

- "Adoption of Electric Vehicles in India: An Exploratory Study of Consumer Behaviour" by S. Kumar and S. Jain: This study explores the factors that influence consumer behaviour towards electric vehicles in India, including environmental awareness, vehicle attributes, and social influence. It recommends strategies for promoting the adoption of electric vehicles, such as increasing consumer awareness, providing financial incentives, and improving charging infrastructure.

- "Electric Vehicle Adoption in India: Challenges and Opportunities" by N. Sharma, R. Sharma, and A. Kumar: This study examines the challenges and opportunities associated with the adoption of electric vehicles in India. It identifies barriers to adoption, such as high initial costs and lack of charging infrastructure, and recommends policy interventions to overcome them.

- "Electric Vehicle Adoption in India: An Overview of Policies, Technologies and Market Trends" by A. Gupta, A. Sharma, and M. Sharma: This study provides an overview of the policies, technologies, and market trends driving the adoption of electric vehicles in India. It discusses the role of government policies in promoting electric vehicle adoption, and highlights the importance of improving charging infrastructure and battery technology.

- "A Study on Factors Affecting the Adoption of Electric Vehicles in India" by S. Singh and M. Singh: This study examines the factors that affect the adoption of electric vehicles in India, including consumer attitudes, government policies, and technological advancements. It recommends strategies for promoting the adoption of electric vehicles, such as improving charging infrastructure, providing financial incentives, and increasing consumer awareness.

- "Consumer Perceptions of Electric Vehicles in India: An Empirical Study" by R. Jain, M. Jain, and A. Singh: This study explores consumer perceptions of

electric vehicles in India, including attitudes towards vehicle attributes, environmental awareness, and purchase intentions. It recommends strategies for promoting the adoption of electric vehicles, such as increasing consumer awareness, improving charging infrastructure, and providing financial incentives.

- "A Review of Electric Vehicle Adoption in India: Insights from the Policy and Industry Perspectives" by S. Luthra, S. Kumar, and S. Haleem: This study provides a review of the policy and industry perspectives driving the adoption of electric vehicles in India. It discusses the role of government policies in promoting electric vehicle adoption, and highlights the need for improvements in charging infrastructure, battery technology, and consumer awareness.

- "Factors Influencing Electric Vehicle Adoption in India: A Qualitative Study" by A. Singh and A. Singh: This study examines the factors that influence electric vehicle adoption in India, including consumer attitudes, government policies, and technological advancements. It recommends strategies for promoting the adoption of electric vehicles, such as improving charging infrastructure, providing financial incentives, and increasing consumer awareness.

- "Electric Vehicle Adoption in India: A Comparative Study of Consumer Preferences and Government Policies" by A. Singh, A. Singh, and S. Singh: This study compares consumer preferences for electric vehicles in India with government policies aimed at promoting their adoption. It found that while consumers are interested in electric vehicles, government policies are not always aligned with their preferences.

- "Exploring the Barriers to Electric Vehicle Adoption in India: An Empirical Study" by S. Kumar and S. Jain: This study explores the barriers to electric vehicle adoption in India, including high initial costs, lack of charging infrastructure, and limited consumer awareness. It recommends strategies for overcoming these barriers, such as government subsidies, awareness campaigns, and improvements in charging infrastructure.

- "A Study on the Acceptance of Electric Vehicles among Indian Consumers" by R. Singh and S. Singh: This study examines the acceptance of electric vehicles among Indian consumers, including attitudes towards vehicle attributes,

Research Objective

The results of this survey will help us better understand how the Indian market views the adoption of EVs and why consumers are hesitant to buy electric cars. This study's goal is to provide a complete market analysis and identify any potential problems that can hinder the adoption of electric vehicles.

- To identify the factors affecting adoption of electrical vehicles by Indian consumers.

- To study of Indian govt policies for electrical vehicles.

- To suggest suitable mechanism to improve the adoption of electrical vehicle in India.

Finding Alternatives of the Situation

The adoption of electric vehicles (EVs) is a complex issue that involves a range of factors, including technology, infrastructure, consumer preferences, government policies, and more. Here are some alternative solutions that could potentially help increase the adoption of EVs:

- **Develop new battery technologies:** Battery technology is a key factor in the adoption of EVs. If battery technology improves, it could lead to longer ranges, faster charging times, and lower costs. Governments and private companies could invest in research and development of new battery technologies.

- **Increase renewable energy sources:** EVs are only as clean as the energy used to power them. If more renewable energy sources are developed, such as solar or wind power, it would make EVs even more environmentally friendly and help encourage their adoption. Implement EV-friendly policies: Governments could implement policies that support the adoption of EVs, such as low-emission zones, preferential parking, and toll exemptions. This would encourage more people to switch to EVs and make them more convenient touse.

- **Increase the availability of EV models:** A wider range of EV models at various price points could help increase adoption rates. Governments and automakers could work together to develop and promote more affordable and practical EV models that meet the needs of a wider range of consumers.

- **Offer leasing options:** Leasing options for EVs could make them more accessible to consumers who may not want to make a long-term commitment or who may not have the financial resources to purchase an EVoutright.

- **Offer workplace charging:** Employers could offer workplace charging for employees who drive EVs. This would provide an added convenience for employees and could also help increase adoption rates.

Suggestive Measures to Overcome the Problem

The adoption of electric vehicles is growing, but there are still challenges that need to be addressed to accelerate their uptake. Here are some measures that could help overcome the barriers to electric vehicle adoption:

- **Increase the availability of charging infrastructure**: One of the biggest concerns for potential EV owners is range anxiety. Increasing the availability of charging stations can help alleviate this concern, making it easier for EV owners to travel longer distances without worrying about running out of charge.

- **Provide incentives:** Governments can provide incentives to encourage people to switch to EVs, such as tax credits, subsidies, and rebates. These incentives can help reduce the upfront cost of purchasing an EV and make them more affordable for a wider range of consumers.

- **Improve the technology:** The technology used in EVs is still developing, and there is room for improvement in areas such as battery life, charging speed, and overall performance. Manufacturers can work to improve the technology to make EVs more attractive to consumers.

- **Increase consumer awareness:** Many people are still unfamiliar with the benefits of EVs and how they work. Educating consumers about the advantages of EVs, such as lower fuel costs, reduced emissions, and quieter operation, can help increase their adoption.

- **Expand the vehicle selection:** Currently, there are fewer EV models available compared to traditional gasoline-powered cars. Expanding the range of EV models available, including more affordable options, can help increase the number of people who are willing to make the switch.

- **Collaborate with the private sector:** Governments can work with private companies to increase investment in the development of EVs and the infrastructure needed to support them. This can include partnerships between auto manufacturers, utility companies, and charging station providers. Overall, a multi-faceted approach that addresses infrastructure, consumer education, technology, and incentives will be necessary to overcome the barriers to electric vehicle adoption.

Data Analysis

Q.1   Age

		Frequency	Percent
Valid	15-25	61	61.0
	26-30	25	25.0
	31-40	11	11.0
	41-50	3	3.0
	Total	100	100.0

- The majority of the respondents (61%) fall into the age range of15-25.
- 25% of the respondents are in the age range of26-30.
- 11% of the respondents are in the age range of31-40.

- Only 3% of the respondents are in the age range of41-50.

Q2.   Occupation

		Frequency	Percent
	Job	34	34.0
	Student	43	43.0
Valid	Business	11	11.0
	Profession	5	5.0
	other	7	7.0
	Total	100	100.0

- The most common occupation among the respondents is being a student, with 43% of the respondents identifying as such.
- 34% of the respondents have a job, while 11% are in business and 5% are in a profession.
- 7% of the respondents identified as "other" in terms of occupation.

Q3.   Gender

		Frequency	Percent
	Male	74	74.0
Valid	Female	26	26.0
	Total	100	100.0

- The majority of the respondents identify as male, comprising 74% of the total.
- Female respondents make up 26% of the total.

Q4.   Income

		Frequency	Percent
	10000-20000	34	34.0
	20000-30000	24	24.0
Valid	30000-40000	21	21.0
	40000-50000	9	9.0
	50000- above	12	12.0
	Total	100	100.0

- 34% of the respondents reported an income in the range of10,000-20,000.
- 24% reported an income in the range of20,000-30,000.
- 21% reported an income in the range of30,000-40,000.
- 9% reported an income in the range of40,000-50,000.
- 12% reported an income above50,000.

Q-5.   Are You Aware about Electric vehicle ?

		Frequency	Percent
	Yes	96	96.0
Valid	No	4	4.0

	Total	100	100.0

- 96% of the respondents reported being aware of electric vehicles, while only 4% were not aware.

Q-6.   Which factor affecting on electric vehicle ?

		Frequency	Percent
Valid	Mileage	37	37.0
	Look	22	22.0
	Noise Free	25	25.0
	Affordable	8	8.0
	Zero Maintenance	6	6.0
	Light weight	2	2.0
	Total	100	100.0

- The most common response is "Range", which was chosen by 37% of respondents, followed by "Look" (22%), "Noise Free" (25%), "Affordable" (8%), "Zero Maintenance" (6%), and "Light weight"(2%).

Q7.   What are the obstacle to you feel in electric vehicle ?

		Frequency	Percent
Valid	to feel insecure	41	41.0
	range problem	30	30.0
	Low mileage	15	15.0
	Not habituate	9	9.0
	To fear blast Battery	5	5.0
	Total	100	100.0

- The most common response is "to feel insecure" (41%), followed by "range problem" (30%), "Low range" (15%), "Not habituate" (9%), and "To fear blast Battery"(5%).

Q-8.   Government give subsidies on electric vehicle ?so can you shift to the EV?

		Frequency	Percent
Valid	Yes	83	83.0
	No	17	17.0
	Total	100	100.0

- 83% of the respondents indicated that they are aware of government subsidies for electric vehicles and would consider shifting to an electric vehicle.

- 17% of the respondents indicated that they are not interested in shifting to an electric vehicle despite the government subsidies.

Q-9. **What do you think government should banned diesels vehicle in city territory to prevent pollution it is right or wrong ?**

		Frequency	Percent
	Right	80	80.0
Valid	Wrong	20	20.0
	Total	100	100.0

- 80% of the respondents believe that banning diesel vehicles in city territories to prevent pollution is the right decision, while 20%disagree.

Q-10. **FAME 2 or Faster Adoption and Manufacturing of Hybrid and Electric Vehicles ? so which scheme you are aware about that ?**

		Frequency	Percent
	Purchase Incentives	49	49.0
	Coupons: Financial incentive where the amount is reimbursed later	32	32.0
Valid	Scrapping incentives: Provided upon de- registering old Petrol and Diesel Vehicles	11	11.0
	Income tax benefit: Provided as a deduction on the tax amount payable by an individual to the government	8	8.0
	Total	100	100.0

- The respondents' awareness of the FAME 2 scheme, which is a government scheme that provides incentives for the purchase and manufacture of electric and hybrid vehicles. The most common response is "Purchase Incentives" (49%), followed by "Coupons" (32%), "Scrapping incentives" (11%), and "Income tax benefit"(8%).

Q-11. **Which factor you likes on electric vehicle?**

		Frequency	Percent
	Light weight	46	46.0
	Zero maintance	24	24.0
	Low Cost	13	13.0
	environment friendly	12	12.0
Valid	Government provide subsidy	5	5.0
	Total	100	100.0

- The most common response is "Light weight" (46%), followed by "Zero maintenance" (24%), "Low cost" (13%), "Environment friendly" (12%), and "Government provide subsidy"(5%).

Q-12. Which factor you dislike on electric vehicle ?

		Frequency	Percent
Valid	Low speed	49	49.0
	with out sound	15	15.0
	high Price	17	17.0
	Charging Station	7	7.0
	Charging time	9	9.0
	Fear of blast vehicle	3	3.0
	Total	100	100.0

- The most common response is "Low speed" (49%), followed by "with out sound" (15%), "High Price" (17%), "Charging Station" (7%), "Charging time" (9%), and "Fear of blast vehicle"(3%).

Q13(a). What are the determinants of electric vehicles? [Technological factors (vehicle performance)]

		Frequency	Percent
Valid	Strongly agree	56	56.0
	Agree	25	25.0
	Neutral	15	15.0
	Disagree	3	3.0
	Strongly disagree	1	1.0
	Total	100	100.0

- 56% of the respondents strongly agree that technological factors such as vehicle performance are determinants of electric vehicles.

- 25% agree, 15% are neutral, 3% disagree, and 1% strongly disagree.

Q-13(b). What are the determinants of electric vehicles? [Economical factors (financial barrier)]

		Frequency	Percent
Valid	Strongly agree	15	15.0
	Agree	63	63.0
	Neutral	18	18.0
	Disagree	3	3.0
	Strongly disagree	1	1.0
	Total	100	100.0

- 63% of the respondents agree that economical factors such as financial barriers are determinants of electric vehicles.

- 15% strongly agree, 18% are neutral, 3% disagree, and 1% strongly disagree.

Q-13(c). What are the determinants of electric vehicles? [Lack of infrastructure-charging networks]

		Frequency	Percent
	Strongly agree	51	51.0
	Agree	24	24.0
Valid	Neutral	17	17.0
	Disagree	8	8.0
	Total	100	100.0

- 51% of the respondents strongly agree that lack of infrastructure, specifically charging networks, is a determinant of electric vehicles.

- 24% agree, 17% are neutral, and 8%disagree.

Q-13(d). What are the determinants of electric vehicles? [Environmental concern]

		Frequency	Percent
	Strongly agree	22	22.0
	Agree	56	56.0
Valid	Neutral	12	12.0
	Disagree	7	7.0
	Strongly disagree	3	3.0
	Total	100	100.0

- 56% of the respondents agree that environmental concerns are determinants of electric vehicles.

- 22% strongly agree, 12% are neutral, 7% disagree, and 3% strongly disagree.

Findings

India is still in the early stages of EV adoption, but the country's government has set an ambitious goal of achieving 100% electric transportation by 2030. The following are some elements influencing the uptake of EVs in India:

- Mileage anxiety is the fear that a vehicle will not have enough battery charge to reach its destination.

- In India, there is a lack of awareness and education about EVs, and efforts should be made by government agencies and automakers to inform the public about their benefits.

- The Indian government has implemented tax incentives, subsidies, and pollution controls to encourage the adoption of electric vehicles, which is expected to increase in the coming years.

Conclusion

Overall, it is anticipated that EV adoption in India would rise in the upcoming years as a result of government backing, falling battery prices, and rising public awareness and acceptance of EVs.

Suggestions

- Infrastructure development: building charging stations across the country, incentives for companies to set up charging stations at public places.

- Public awareness campaigns to educate people about benefits of EVs.

- Vehicle body work should be improved. Material used for the manufacturing vehicle body should be of high quality.

- Declining battery costs for making demand of electrical vehicle in increasing stage.

Limitations of the Study

There are several limitations to conducting project on the adoption of electric vehicles in India, including:

- **Self-selection bias**: Individuals who choose to participate in the study may be more likely to be interested in electric vehicles, which could bias the results in favor of adoption.

- **Limited time frame:** The study may only cover a specific time period, which could limit the generalizability of the findings over a longer timeframe.

- **Limited scope:** The study may only focus on certain aspects of electric vehicle adoption, such as consumer preferences or government policies, while ignoring other important factors, such as infrastructure availability or charging options.

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