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A Modern Approach
To AI- Integrating
Machine Learning
With Agile Practices



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national publications. He has also authored 3 books, contributed to 3 book chapters, and holds 3 patents. Additionally, he is an active member of 7 professional bodies. Dr. P Venkaiah Babu continues to inspire and mentor students, leveraging his extensive knowledge and expertise in finance to foster academic excellence

Preface

In the ever-evolving landscape of technology, Artificial Intelligence (AI) has emerged as a pivotal force, driving innovation and transforming industries across the globe. Among the various branches of AI, Machine Learning (ML) stands out for its potential to revolutionize how we process information, make decisions, and solve complex problems. However, as powerful as ML is, its integration with established development methodologies remains a challenge for many organizations. This book, "A Modern Approach to AI: Integrating Machine Learning with Agile Practices," seeks to address this challenge by providing a comprehensive guide to merging these two dynamic fields. The genesis of this book lies in the recognition that while AI and ML have made significant strides, their practical application in real-world projects often faces hurdles. Traditional software development practices, which have been successful for decades, do not always align seamlessly with the iterative, data-driven nature of machine learning. This disconnect can lead to inefficiencies, prolonged development cycles, and suboptimal outcomes. It is here that Agile practices, known for their flexibility, iterative progress, and customer-centric approach, offer a promising solution. "A Modern Approach to AI" is crafted to serve as a bridge between the realms of machine learning and Agile methodologies. It aims to equip practitioners, researchers, and students with the knowledge and tools needed to harmonize these fields, fostering an environment where AI projects can thrive.

Through this integration, we envision a landscape where machine learning models are developed more efficiently, iteratively improved, and closely aligned with business objectives and user needs. The book is structured to guide the reader from foundational concepts to advanced practices, ensuring a thorough understanding of both machine learning and Agile frameworks. We begin with an overview of AI and ML, delving into their principles, techniques, and current state. Following this, we explore the core tenets of Agile practices, highlighting their benefits and the rationale behind their growing popularity in software development. As we progress, the focus shifts to practical strategies for integrating ML with Agile. This includes detailed discussions on adapting Agile practices to suit ML projects, managing data and model lifecycles, and fostering collaboration between cross-functional teams. Real-world case studies and examples are provided to illustrate the application of these concepts, offering valuable insights and lessons learned from successful integrations.

We believe that the intersection of machine learning and Agile practices represents a significant step forward in the pursuit of technological excellence. By embracing this integrated approach, organizations can not only enhance their AI capabilities but also drive innovation, improve efficiency, and deliver greater value to their customers. It is our hope that "A Modern Approach to AI: Integrating Machine Learning with Agile Practices" will serve as a valuable resource for anyone involved in the AI journey. Whether you are a seasoned professional seeking to optimize your ML projects or a newcomer eager to explore the potential of AI, this book aims to provide the guidance and inspiration needed to navigate this exciting and transformative field. Thank you for embarking on this journey with us. We look forward to exploring the future of AI and Agile together.

Dr. Madhavi K
Dr. Bhargava N
Dr. P Venkaiah Babu

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We would like to express our sincere gratitude to all those who have contributed to the creation of this book, "A Modern Approach to AI - Integrating Machine Learning with Agile Practices." Firstly, we extend our heartfelt thanks to our families for their unwavering support and understanding throughout the process of writing and editing this book. Their patience and encouragement have been invaluable. We are deeply grateful to our colleagues and peers in the fields of artificial intelligence, machine learning, and agile practices. Their insightful feedback, discussions, and collaboration have significantly enriched the content and quality of this work. A special thanks to the institutions and organizations that provided us with the resources and platforms to conduct our research and share our findings. Your support has been instrumental in the successful completion of this project. We also wish to acknowledge the contributions of the technical reviewers and proofreaders whose meticulous attention to detail has ensured the accuracy and clarity of the content. Your expertise and diligence have greatly improved this book. Finally, we thank our publisher for their belief in this project and for providing us with the opportunity to share our knowledge and insights with a wider audience. Your professional guidance and support throughout the publishing process have been greatly appreciated. This book is the result of the collective efforts of many individuals, and we are deeply grateful to each one of you. We hope that our readers will find this book informative and inspiring as they explore the integration of machine learning with agile practices.

Dr. Madhavi K
Dr. Bhargava N
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A Comprehensive Study on Innovations in AI and Machine Learning Transforming the Fintech Industry

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Abstract

Between 2021 and 2024, the FinTech sector experienced revolutionary breakthroughs propelled by the amalgamation of Artificial Intelligence (AI) and Machine Learning (ML). This study explores the most current developments and their significant effects on financial services, such as risk management, automated customer care, personalized banking, and fraud detection. FinTech organizations have improved predictive analytics through the use of AI and ML, enabling more precise credit scoring and investment strategies. Furthermore, the use of chatbots and virtual assistants driven by AI has transformed consumer interactions by providing smooth and effective service. In addition, this paper examines ethical and regulatory issues, highlighting the necessity of strong frameworks for security and compliance. This report offers a thorough overview of how AI and ML are changing the FinTech scene and opening the door for more effective, safe, and customer-focused financial services by looking at case studies and practical implementations.

Keywords: Artificial Intelligence. Machine Learning. FinTech. Predictive Analytics.

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1 Introduction

The combination of Artificial Intelligence (AI) and Machine Learning (ML) has significantly transformed the FinTech business in recent years (Gautam & Mittal, 2022). These technologies, which were formerly thought to be future ideas, are now at the center of innovation and are completely changing the way financial services are provided and operated. The financial industry is experiencing a greater range of possibilities thanks to AI and ML, from sophisticated fraud detection systems to individualized banking experiences. The word "fintech," which comes from "financial technology," refers to the use of technology to improve financial services and goods. The banking sector has historically depended on legacy systems and established procedures (Alt, Beck, & Smits, 2018). But the last ten years have seen a fast breakthrough in technology, ushering in a new phase of financial innovation. Incorporating AI and ML into FinTech promises to improve efficiency, lower costs, and provide better customer experiences—it's not simply an incremental improvement, but a paradigm leap (Barroso & Laborda, 2022). AI and ML are now essential technologies in the FinTech space, enabling solutions that span from deep data analysis insights to mundane task automation (Mittal, 2020). Fundamentally, artificial intelligence (AI) is the imitation of human intellect by machines, especially computer systems. Machine learning (ML), a subset of AI, is the application of statistical models and algorithms to help computers learn from experience and data to perform better on particular tasks.

Personalized banking, where AI-driven systems analyze massive quantities of data to customize financial advice and products to individual consumers, hence boosting pleasure and loyalty, is one of the most significant applications of these technology. Furthermore, by facilitating real-time transaction monitoring and analysis, AI and ML have completely changed the field of fraud detection. By recognizing trends and irregularities that point to fraudulent activity, machine learning models enable organizations to take prompt action, reduce risks, and improve the security of financial transactions. AI and ML have also greatly enhanced risk management, another crucial field in finance. By examining past data and forecasting future patterns, these technologies help improve risk assessment, which results in more precise credit risk assessments and well-informed lending and investment decisions (A. Kumar et al., 2024). AI-driven technologies dynamically modify risk profiles and continuously track market conditions. Artificial intelligence (AI)-driven chatbots and virtual assistants have revolutionized customer service by responding to a variety of queries promptly and accurately by utilizing machine learning and natural language processing (Sadhu et al., 2024). Another important application is predictive analytics, which uses ML and AI to forecast future trends and behaviors (V. Kumar & Garg, 2018). Predictive models are used by financial institutions to improve decision-making processes, enhance investment strategies, and forecast market movements.

Artificial intelligence (AI) can find trends in massive datasets that human analysts might miss, giving them a competitive advantage in the quick-paced financial market. By automating the tracking and reporting of compliance obligations, AI and ML help navigate the complicated regulatory environment. By detecting problems and producing reports based on the analysis of enormous volumes of data, these technologies lower the chance of non-compliance and the fines that come with it. Even while AI and ML have a lot to offer the FinTech industry, there are drawbacks and moral dilemmas with these technologies as well. Algorithmic bias is a significant worry since it has the potential to treat some groups unfairly. To preserve confidence in emerging technologies, AI systems must be transparent and equitable. Additionally, because AI and ML rely on massive datasets, data security and privacy present serious difficulties. To protect consumer information, financial institutions need to put strong security measures in place and follow strict data protection laws.

FinTech remains in its infancy when it comes to AI and ML integration, but there is a lot of room for future development and innovation. We may anticipate further advanced applications that will significantly alter the financial environment as these technologies advance. Novelties like quantum computing and sophisticated neural networks have the potential to unleash previously unheard-of levels of productivity and client satisfaction (Fernandes, Zhang, & Tavares, 2022; Gigante & Zago, 2023). Moreover, cooperation between regulatory agencies and FinTech businesses will be essential in shaping a future in which artificial intelligence and machine learning may flourish while guaranteeing the security and equity of financial systems (Chikri & Kassou, 2024). Through the promotion of innovation and adherence to regulations, the FinTech sector may utilize AI and ML to develop financial services that are more secure, efficient, and inclusive for all. This research delves into the FinTech sector's advancements between 2021 and 2024, scrutinizing the assimilation of artificial intelligence and machine learning over this time frame (see to figure 1). The goal of the research is to identify the revolutionary shifts that have molded the FinTech scene throughout the years through a thorough evaluation of pertinent literature and the use of thematic and comparative analysis.

2 Research Design

In order to investigate the developments of Machine Learning (ML) and Artificial Intelligence (AI) in the Financial Technology (FinTech) industry between 2021 and 2024, this study uses a strong and multifaceted research design. Using a combination of theme analysis, comparative evaluation, and a thorough literature survey, the research attempts to identify the main advancements, difficulties, and effects related to AI and ML in FinTech.

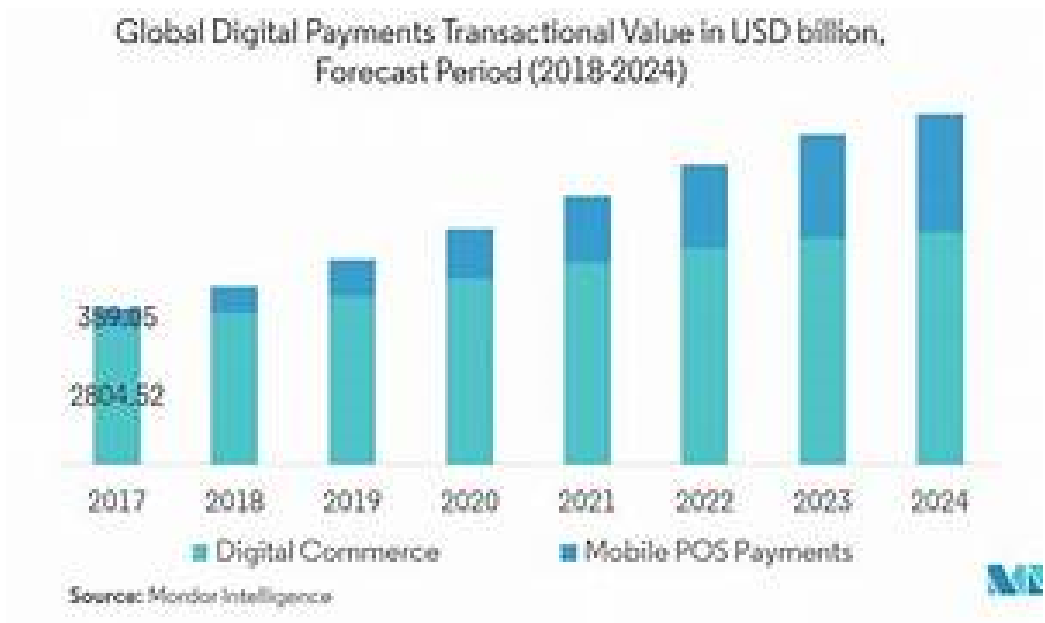


Figure 1. Global Digital Payments Transaction Value in USD billion

2.1 Data Collection

The methodical organization of the data gathering procedure ensures that pertinent data is gathered from academic and specific to an industry sources. Peer-reviewed journal papers can be found in academic resources like IEEE Xplore, SpringerLink, and JSTOR, and reports from the FinTech business can be found in sector-specific repositories such Gartner, McKinsey, and Accenture. Targeted keywords like "AI in financial technology companies," "Machine Learning throughout finances," "2021-2024 FinTech Innovative ideas," and "AI-driven Monetary Services" are used in the search strategy to find pertinent sites. In order to guarantee that the information gathered is up to date and directly relevant to the study's goals, the search is narrowed down to only include the most recent studies and reports.

2.2 Two-Tiered Analysis

The analysis is conducted in two phases: thematic analysis and comparative analysis.

I Thematic Analysis

The primary objective of the thematic analysis is to identify recurring patterns, trends, and challenges that emerge from the selected studies. This involves a systematic process of coding the data, where significant excerpts are identified and categorized into broader themes. These themes are then further refined to reveal specific trends and patterns related to AI and ML applications in FinTech. Key themes identified during this phase include personalization, fraud detection, operational efficiency, risk management, regulatory compliance, and ethical considerations. This phase provides an in-depth understanding of the overarching themes that have shaped the FinTech industry during 2021-2024.

II Comparative Analysis

The comparative analysis aims to juxtapose different AI and ML applications within the FinTech industry and assess their respective impacts. This involves a detailed examination of case studies, success stories, and the challenges faced by industry players in integrating these technologies. Selected case studies from leading FinTech companies and financial institutions are analyzed to highlight diverse approaches and outcomes. The evaluation criteria for this analysis include technological efficacy, operational impacts, customer satisfaction, and innovation-driven growth. By comparing these factors, the study provides a nuanced understanding of how AI and ML technologies are transforming the FinTech industry.

2.3 Analytical Framework

The thematic analysis process involves an initial round of coding where significant excerpts from the literature are identified and categorized into relevant themes (Jnanathapaswi, 2021). These themes are then further refined through subsequent rounds of coding to highlight specific trends and patterns that emerge from the data. This analytical framework allows for a structured and comprehensive exploration of the data, ensuring that the study captures the full scope of AI and ML advancements in the FinTech industry. The combination of thematic and comparative analyses provides a well-rounded understanding of both the overarching trends and the specific impacts of these technologies within the industry.

3 Results

i Evolution of AI and ML in FinTech (2021-2024)

The early integration of AI in finance was characterized by the development of foundational technologies such as predictive analytics and the initial applications of machine learning (ML). During this period, the literature highlights the exploratory phase where AI's potential to enhance financial operations was recognized, laying the groundwork for more sophisticated implementations in later years. Between 2021 and 2024, the financial sector witnessed a significant increase in AI and ML investments. This period saw a rapid expansion in the adoption of machine learning algorithms and the widespread integration of Natural Language Processing (NLP) into financial services. The era is marked by a dramatic rise in AI expenditures, with these technologies becoming deeply embedded in the core operations of financial institutions, transforming the landscape of financial services.

ii Yearly Growth of AI and ML Applications in FinTech (2021-2024)

An analysis of the annual growth patterns in AI and ML applications within FinTech reveals rapid and expansive development. The market size for AI applications in finance grew from \$12 billion in 2020 to a projected \$30 billion by 2024, reflecting a Compound Annual Growth Rate (CAGR) of approximately 25%. This significant growth underscores the increasing reliance on AI and ML to drive innovation and efficiency across the financial sector.

iii AI and ML Market Size in Finance

The financial industry's investment in AI and ML technologies has demonstrated substantial growth over the analyzed period. The market size for AI applications in finance expanded from \$12 billion in 2020 to \$30 billion by 2024, marking an extraordinary growth rate (see table 1). This escalation highlights the industry's recognition of AI's potential to enhance operational efficiency, security, and overall innovation.

Table 1. AI and ML Market Size in Finance

Year	AI Applications Market Size (USD Billion)
2020	12
2021	15
2022	20
2023	25
2024	30

iv Operational Impact

The implementation of Robotic Process Automation (RPA) has led to notable reductions in operational costs, with some banking operations reporting cost decreases of up to 20%. RPA has been instrumental in streamlining routine tasks, enhancing workflow efficiency, and optimizing resource allocation. Additionally, predictive analytics have significantly empowered decision-making processes within financial institutions, further contributing to operational efficiency. The integration of NLP in customer interactions has resulted in improved personalization and service efficiency. Automated processes, including customer support and data analysis, have benefited from NLP advancements, leading to enhanced user experiences and more streamlined operations within financial institutions.

v Security Measures - Fraud Detection and Prevention

AI-driven algorithms have achieved remarkable success in fraud detection and prevention, boasting an accuracy rate of 99.5%. These systems have significantly strengthened the security infrastructure of financial institutions by providing robust mechanisms to detect and mitigate fraudulent activities in real time. The adaptability of machine learning models has been crucial in enhancing the resilience of financial systems against evolving cyber threats.

- AI-driven Fraud Detection

Studies confirm the effectiveness of AI-driven fraud detection systems, which not only achieve high accuracy rates but also contribute substantially to the overall security framework of financial institutions (Adelakun et al., 2024). These systems leverage machine learning to identify and prevent fraudulent activities with exceptional efficacy.

Table 2. Statistical Test Results

Statistical Tests	Efficiency
Operational Efficiency	($p < 0.05$)
Fraud Detection Accuracy	($p < 0.01$)
User Satisfaction	($p < 0.05$)

- Resilience Against Breaches

The deployment of AI-powered security measures has notably increased the resilience of financial institutions against data breaches and cyber threats (Jada & Mayayise, 2024). By safeguarding sensitive financial data, these measures ensure robust protection against potential breaches, reinforcing the security of financial systems.

vi Descriptive Statistical Test Results

Descriptive statistical tests were conducted to assess the impact of AI and ML applications on various aspects such as operational efficiency, security, and user satisfaction. The results indicate a statistically significant improvement in operational efficiency ($p < 0.05$) and high confidence in the accuracy of AI-driven fraud detection systems (see table 2).

vii Robotic Process Automation (RPA) Integration

The integration of RPA has emerged as a key driver of operational efficiency within the FinTech sector. Case studies from leading financial institutions reveal significant reductions in processing times and a decrease in human errors, underscoring the transformative potential of RPA. With a market value of \$1.23 billion in 2020, RPA continues to play a critical role in enhancing financial operations, demonstrating its enduring importance in the industry.

4 Discussion

i Operational Impacts and Efficiency Gains

The adoption of AI and ML in FinTech has led to significant operational efficiency gains, particularly through the integration of Robotic Process Automation (RPA). This automation has resulted in a 20% reduction in operational costs, highlighting the economic benefits of adopting these technologies. By streamlining processes, RPA not only enhances operational efficiency but also positions financial institutions more competitively in the market. The scalability and adaptability of RPA further underscore its value as a key driver of efficiency in the financial sector.

ii Security Measures and Ethical Considerations

Impressive accuracy rates have been attained by AI-driven fraud detection systems; nonetheless, the application of these technologies presents significant ethical issues, notably with regard to algorithmic biases and privacy concerns. Reducing these biases and improving transparency in AI operations are essential for responsible AI deployment. The sustained use of AI in FinTech depends on establishing and preserving trust among users and stakeholders, which can only be achieved by addressing these ethical issues.

iii User-Centric Approach in Personalized Financial Services

The provision of individualized financial services has been transformed by the advent of AI-based recommendation systems, substantially improving user experiences. To guarantee that customers obtain personalized advice without losing control over their personal information, this move towards personalization must be balanced with privacy considerations. Subsequent investigations need to concentrate on enhancing suggestion algorithms' efficacy while tackling moral dilemmas associated with data usage, guaranteeing that the advantages of customization do not supplant user privacy.

iv Regulatory Landscape and Collaboration

Maintaining the FinTech industry's growth requires navigating the regulatory environment. To promote innovation and guarantee adherence to legal and regulatory requirements, regulatory organizations and FinTech entrepreneurs must work together. It's critical to keep a careful eye on impending regulatory changes since they will have a big impact on how AI and ML technologies are applied and grow in the FinTech industry. Encouraging proactive interactions with regulators can protect the interests of all parties involved while fostering an atmosphere that is conducive to innovation.

5 Conclusion

From 2021 to 2024, FinTech's dynamic AI and ML evolution brought in a new era of efficiency, security, and innovation. The fact that the worldwide FinTech business is projected to reach \$297.1 billion by 2020 is evidence of the revolutionary power of these innovations. The incorporation of Robotic Process Automation (RPA) has led to a 20% decrease in operational expenses, indicating the financial benefits of automation. AI-powered fraud detection solutions that have a 99.5% accuracy rate have strengthened FinTech's security environment. But privacy concerns and algorithmic biases are still important ethical considerations. User experiences have been completely transformed by AI-powered recommendation systems that enable personalized financial services. The regulatory environment requires innovators and regulators to work together continuously.

Novel technologies such as blockchain and quantum computing offer further opportunities for research and development. Subsequent investigations ought to concentrate on alleviating ethical dilemmas, augmenting lucidity, and investigating the intersections between nascent technologies and AI/ML inside the FinTech domain. The trajectory from 2021 to 2024 tells the story of FinTech's revolutionary shift and quickening technological progress.

6 Limitations and Future Trends

Numerous limitations in the study may affect how comprehensive and applicable it is. A primary constraint of the study is its regional concentration, which could exhibit bias towards areas with notable FinTech uptake. This could result in the neglect of varied regulatory frameworks and market dynamics that could offer a more comprehensive worldwide outlook. Furthermore, the study's narrow focus on banking and finance may cause it to miss out on innovative uses of AI and ML in other financial sectors like wealth management and insurance. A significant disadvantage in the quickly changing FinTech world is the reliance on historical data up to 2020, which adds a time lag when real-time data may provide more recent insights. Last but not least, even though the study recognizes the importance of regulatory frameworks, it might not accurately reflect the most recent changes to regulations because of the rapid evolution of these frameworks, which necessitates ongoing monitoring and real-time tracking of policy developments. Research on user perceptions and attitudes toward AI-driven financial services, the integration of blockchain technology with AI and ML, the impact of changing regulatory landscapes on FinTech innovation, and the promotion of interdisciplinary collaborations to tackle the intricate opportunities and challenges that arise within the FinTech industry are some of the recommendations for further research that should be conducted in order to further advance this field.





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Enhancing Customer Experience: An In-depth Exploration of Interaction Channels in the Jewelry Industry

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Abstract

High customer satisfaction is important and is seen by many firms as a critical component of their success. To improve, nevertheless, is hampered by the fact that few measure and monitor it in an organized manner. The goal of this article is to create a client touch-point management application specifically for B2B mass customisation businesses that are small to medium-sized. They can gauge, track, and improve client happiness thanks to this tool. 48 customer touchpoints were found and classified into human, goods, services, communication, geographical, and electronic interactions using a case study methodology. Employees and current customers participated in a three-step identification process that

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identified touchpoints, assessed their overall significance, and determined how particular touchpoints affected customer satisfaction. The results indicate that customers and staff generally agree on which touchpoints are most important, and that not all interactions are viewed as meaningful. Customer satisfaction was found to be most significantly influenced by human connection touchpoints.

Keywords: Customer touchpoints. Customer satisfaction. Mass customization. Printing industry.

1 Introduction

Customer touchpoints are critical exchanges that occur between companies and clients at various points in the client journey. These exchanges have a big impact on the clientele's experience and how they view the brand. These interactions, either direct or indirect, produce crucial moments that have the power to improve or worsen the customer's relationship with the company. Through methodical mapping of important touchpoints, businesses may spot and seize chances to improve and enhance the customer experience. (see Figure 1). These touchpoints are usually recorded in an client journey map, which is arranged chronologically to represent the series of interactions a normal customer has with the company. The customer experience is clearly represented visually through this mapping process, which gives marketing, sales, and customer support teams insightful information. Businesses may effectively manage and resolve customer expectations and friction by pinpointing the precise touchpoints where these issues arise.

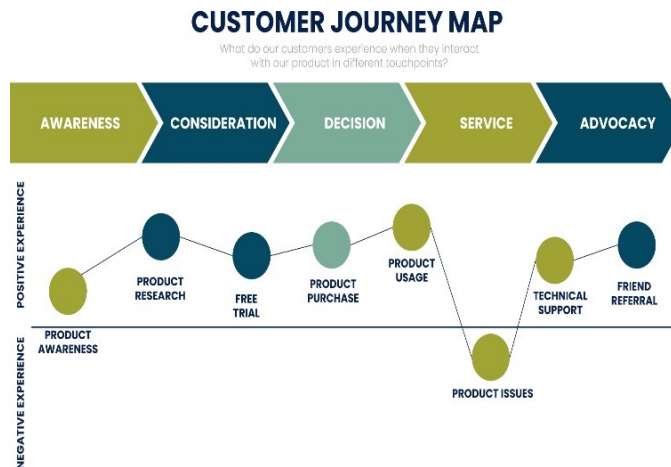


Figure 1. Customer Journey Map

1.1 Touchpoints Before a Purchase

- Social Media and Advertising

Although social media can be useful in every area of this list, its main purpose is customer acquisition. It's a reasonably priced way to connect with a sizable section of your intended audience. It can be used to promote items, cultivate clientele, and enhance the general perception of your company. Have you ever noticed advertisements on a webpage's side or top? These are the points of contact that point prospective clients back to your website. This works well for some businesses, like Best Buy, to increase website visitors.

- Digital Marketing Content:

Digital marketing content encompasses whatever your business posts online to further promote its brand, aside from advertisements. These could be advertisements, infographics, or interesting blog entries like the one you're currently reading.

- Events for the Company:

If you work in sales or marketing, it's possible that you staffed a booth at a conference this year to promote your business. These occasions are excellent for presenting your brand to clients who may not be familiar with it yet.

- Peer Referrals:

It is well known that consumers trust their friends more than advertisements. In fact, 83% of consumers say they trust recommendations from friends and family the most. Word-of-mouth marketing is therefore crucial for businesses trying to build credibility.

1.2 Touchpoints During a Purchase

- Conversations With Company Representatives:

Face-to-face interactions are the most direct way to communicate with clients. The customer's choice to purchase is directly impacted by these swaps that take place in your stores.

- Product Catalogs:

Catalogs, whether printed or digital, are a great method to display the products you provide. Including eye-catching product photos with informative descriptions gives buyers all the information they require prior to making a purchase.

- E-Commerce:

E-commerce is the most effective approach for many businesses to draw clients and close deals. Due to the global accessibility of websites, a small firm located in one place can service customers from all over the world.

- **Product Reviews:**
These days, product reviews serve as more than just a pre-purchase guide. Customers can read reviews while in your store using smart devices.
- **Point of Sale:**
This is the last interaction a customer has before making a purchase. This is where your sales professional explains to the customer why they ought to select your product. This is a critical point in the client journey for a lot of firms.

1.3 Touchpoints After a Purchase

- **Thank You Letters:**
Writing a thank-you note for a purchase is a wonderful approach to build consumer ties. This might be an email thanking them for their business or, if that isn't feasible, a handwritten note. It's a great approach to express your gratitude and foster a connection of mutual respect with the client.
- **Product Feedback Surveys:**
After a customer makes a purchase, you may evaluate their satisfaction with your product or service by sending them product feedback surveys. If the business receives unfavorable comments, it can get in touch to learn more about the problem. The product development team receives this feedback and can utilize it to enhance the upcoming product version.
- **Upselling/Cross-selling Emails:**
After making their first purchase, customers still have needs. In fact, some clients can find they have new wants after utilizing the product. This gives you the chance to cross- or upsell more expensive or more products from your store.
- **Billing Actions:**
Frequently overlooked throughout the client experience is billing. It is usually disregarded because it happens after the sale and has no direct bearing on the customer's choice to buy. Still, it's crucial because if managed improperly, a bad billing experience can result in instant client attrition.
- **Subscription Renewals:**
Renewals are crucial for subscription-based businesses to keep their income streams alive. Ensuring that clients renew their subscriptions is crucial in order to maintain steady growth. It's critical to reduce friction in the renewal process. After all, when a current customer's contract expires, they should be able to renew with ease.

2 Objectives

- To understand customer behavior before a purchase.
- To analyze customer behavior during a purchase.
- To explore post-purchase behavior of customers.

3 Literature Review

Through a variety of touchpoints, each business interacts with its clients in a different way (Dhebar, 2013). Despite being widely applied in practice for a considerable amount of time, the notion of "touchpoints" is relatively new in academic research (Morgan, Bitner, & Ostrom, 2008). Touchpoints refer to discrete instances of communication that occur between a company and its clientele, encompassing behavioral, emotional, social, sensory, and cognitive elements. Certain academics contend that concepts such as "contact point" or "moment of truth" could be interchangeable with touchpoints. Every consumer interaction has the potential to result in a favorable or unfavorable experience. Positive or poor customer-company interactions can influence the overall experience, regardless of the size of the interaction. For example, even if every other aspect was flawless, an unanticipatedly long wait, one rude staff, or a slow web can make a consumer unhappy. From a corporate perspective, customer experience encompasses "every aspect of a company's offering, including advertising, packaging, features of the product, ease of use, and dependability, in addition to customer care." Customers' internal and subjective reactions to any direct or indirect connection with a business are reflected in it (Duncan, Jones, & Rawson, 2013).

A client may, for instance, contact a business via its website, subsequently send an email, get a callback, visit a production site to meet with a consultant, and finally ask a question on the business's Facebook page. Stronger client relationships and a competitive edge are achieved by businesses that are adept at enhancing interactions across all of these touchpoints during the customer journey. The demand chain management concept states that better cooperation results in more efficient demand networks and higher customer satisfaction. This is because understanding consumer demands and circumstances drives better collaboration (Burgess, Sunmola, & Wertheim-Heck, 2023; Foster, 2008). Recent research, the perceived significance of touchpoints varies depending on the type of product. This implies that it's important to assess client interactions in a variety of settings and product categories. To effectively manage touchpoints and increase customer satisfaction, large-scale customization (the MC companies—those that provide enough product diversity and modification to satisfy almost every customer's preferences without sacrificing cost, delivery, or quality—must provide their customers with the tools they need to handle the variety of options available. (Bernard et al., 2012).

To maximize satisfaction, companies need to control how attribute-based and alternative-based information is presented, as well as how customer input is collected. This process generates several customer touchpoints, such as when a customer reads product information on the website, chats with an employee via social media, or speaks to technical support over the phone before submitting input through an online configurator, email, or in-person to a sales representative (Lemon & Verhoef, 2016; Mittal et al., 2023). Since the rise of MC in the 1990s, companies have shifted focus from manufacturing to customer interaction. A more forward-thinking definition of MC highlights the importance of this interaction, stating that MC “creates value through customer-company interaction during the design phase, combining a cost-leadership strategy with differentiation.” Effective customer interaction and the quality of that interaction are essential for successfully implementing an MC strategy. In fact, MC usually requires close interaction between the supplier and the customer. Leading MC companies set up systems that facilitate these interactions, gathering the necessary information to translate individual customer needs into specific product features (K.Dwivedi et al., 2021). This results in a co-creation system that adds value for both the MC company and the customer.

Although MC is becoming more popular in consumer markets, it was initially adopted in B2B environments, where it still plays a critical role. Depending on whether high-level or low-level MC is offered, customer interaction may occur earlier (during the design or production stages) or later (in the assembly or distribution stages). B2B companies are generally more likely to offer full customization, including custom design, production, assembly, and distribution (Mehta et al., 2022; Pech & Vrchota, 2022). This leads to a higher degree of customization but also introduces greater complexity for both the supplier and the customer. To meet customer expectations, B2B companies need to manage both this complexity and the unique touchpoints involved in MC, such as communicating specific customer preferences and requirements. Research shows that the two primary drivers of customer satisfaction are the quality of the product or service and the quality of interactions. To achieve high customer satisfaction, providing top-quality MC products is essential, but not sufficient. Companies must also manage customer touchpoints in a way that aligns with customer expectations. The entire customer journey shapes overall satisfaction, as noted by (Duncan, Jones, & Rawson, 2013), but identifying the most critical touchpoints and understanding their importance in driving satisfaction is key to developing an effective touchpoint management tool.

4 Research Methodology

A three-phase strategy was used to conduct a case study in order to address the three research questions that were previously posed. Employees of the business that was the subject of the inquiry were initially charged with cataloging every client touchpoint. After then, an internal and external assessment was made on the importance of these touchpoints. Lastly, a survey focused on the most important touchpoints was done to gauge consumer satisfaction. The period of data collecting in 2017 was January–February. The case study focused on the staff members and commercial customers of a small publishing business situated in the bilingual region of South Tyrol, Northern Italy. The company makes about one million euros in revenue a year and employs nine people full-time. Business clients make up over 94% of the company’s customer base and generate over 95% of revenue. Dealing with larger printing companies in terms of cost and distribution time, the company offers customized goods and services relating to quality, materials, shipment, management of projects, and customer support.

4.1 Architecture

In the first phase, all employees (N=40) participated in a meeting to identify customer touchpoints, including human, product, service, communication, spatial, and digital interactions. They were introduced to the concept of customer touchpoints and the process of mapping customer journeys. Independently, each employee imagined being a customer and listed all possible touchpoints encountered during a typical customer journey with the company. During the second phase, these touchpoints were compiled into a questionnaire. A cautious approach was used, meaning any touchpoint mentioned, even by just one employee, was included in the next stage. The final questionnaire contained 48 touchpoints, which were rated based on their perceived impact on customer satisfaction or dissatisfaction. To avoid bias, 16 different versions of the questionnaire were created, with a random order of the 48 items. In the final phase, an online questionnaire was designed to gauge customer satisfaction and evaluate the significance of the 10 most important touchpoints identified in phase two. Additionally, five touchpoints that were deemed less relevant or unimportant were included to further validate the findings. The number of touchpoints was limited to ensure the questionnaire remained concise, as shorter surveys typically yield higher response rates. Some touchpoints were assessed using single-item scales, while others were rated using multiple criteria related to product and service attributes, such as staff friendliness and the price-to-quality ratio (see figure 2).

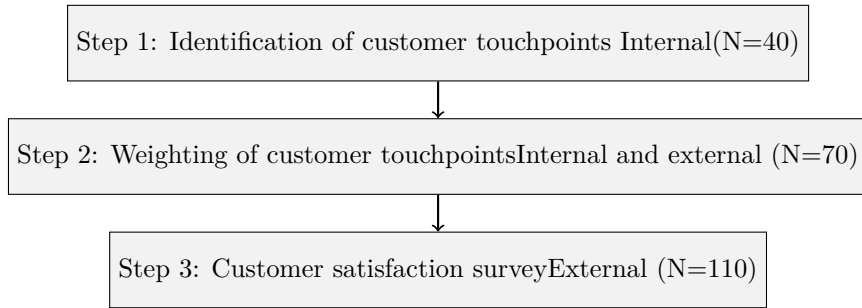


Figure 2. Steps of the experiment

5 Observations

Table 1 provides further examples of customer touchpoints. Customer touchpoints are weighted by both internal and external staff and customers, and the results are arranged by total perceived importance (N = 28). Customer touchpoint categories are indicated by the letters H, P, Se, C, Sp, and E. Consulting (03), which falls under the categories of both human connection and service, was the customer touchpoint that received the highest rating in terms of relative significance. A full 7.1% of the points were attributable to consulting. With the respondents required to select ten client touchpoints and allot a minimum of one point to each, consulting accounted for 19.0% of the total points available. Although it received the highest ranking from customers, the internal study places it fourth. With 8.6% of the total and 16.3% of all allocated points, the good itself (17) is the second most significant customer touchpoint.

Table 1. Customer Touch Points

Customer Touch Points	Internal (N=40)		External (N=70)		Combined (N=110)	
	Pts.	%	Pts.	%	Pts.	%
p:(17)	35	10.1	50	8.3	85	8.6
H,se:(11)	23	6.6	18	3.0	41	4.1
H,se:(03)	30	8.7	75	12.5	105	10.6
H:(10)	32	9.3	38	6.3	70	7.1
H:(02)	35	10.1	28	4.6	63	6.3
H:(12)	10	2.9	25	4.1	35	3.5
Se:(20)	12	3.4	32	5.3	44	4.4

Customer Touch Points	Internal (N=40)		External (N=70)		Combined (N=110)	
	Pts.	%	Pts.	%	Pts.	%
E:(34)	9	5.5	29	4.8	38	3.8
H:(07)	20	5.8	33	5.5	53	5.3
Se:(19)	10	2.9	28	4.6	38	3.8
Se:(21)	5	1.4	30	5.0	35	3.5
H:(06)	15	4.3	19	3.1	34	3.4
P:(14)	13	3.7	20	3.3	33	3.3
E:(48)	14	4.0	22	3.6	36	3.6
H:(08)	-	-	20	3.3	20	2.0
C:(30)	8	2.3	19	3.1	27	2.7
H,Sp:(01)	-	-	18	3.0	18	1.8
H:(09)	-	-	20	3.3	20	2.0
P:(15)	15	4.3	12	2.0	27	2.7
E:(35)	10	2.9	8	1.3	18	1.8
H:(04)	-	-	10	1.6	10	1.0
C:(22)	5	1.4	5	0.8	10	1.0
P:(16)	5	1.4	4	0.6	9	0.9
C:(27)	3	0.8	5	0.8	8	0.8
E:(41)	5	1.4	2	0.3	7	0.7
C:(29)	5	1.4	4	0.6	9	0.9
P:(13)	-	-	5	0.8	5	0.5
Se:(18)	-	-	8	1.3	8	0.8
E:(44)	5	1.4	-	-	5	0.5
Sp:(32)	-	-	4	0.6	4	0.4
C:(26)	-	-	2	0.3	2	0.2
C:(25)	-	-	3	0.5	3	0.3
E:(47)	4	1.1	-	-	4	0.4
C:(28)	3	0.8	-	-	3	0.3
Total	331		596		927	

The relative importance of the best 10 interactions with customers as perceived by

both staff and consumers is shown in Figure 3. The information reveals that although there is a general consensus between both groups, employees generally place a little more weight on these touchpoints. Human interaction is involved in four of the most important five touchpoints: meetings about the project (10), handling grievances (02), consulting (03), and outgoing calls (07). Cold messages, updates, and calls to express gratitude to clients for their business are examples of outbound phone calls. Out of 11 touchpoints, human connection accounts for 53.4% of the points, indicating that it is the most significant category. Second place goes to service interaction, which earns 29.9% of the points. Interestingly, two important touchpoints fall under human as well and service interactions: sales talks (11), and consulting (03) together accounting for 16.4% of total touchpoints. Product-related touchpoints rank third with a contribution of 13.4%, ahead of electronic engagement at 11.0%, communication at 4.3%, and physical interaction at 2.0%. Corporate tours (01), which make up 1.7% of spatial touchpoints and fall under the category of human interaction, are one example.

Internally or externally parties' examination, nine out of the fifteen digital touchpoints were awarded zero points. Moreover, of the remaining three touchpoints, which each received four or fewer points, just two—the company website (35 points) and email (34 points)—made it into the top 15. Similarly, interactions that rely on communication are viewed as relatively inconsequential by both customers and workers. In actuality, none of the top 15 touchpoints have anything to do with communication. Sponsoring (30) is the highest-ranked communication component and is placed 16th. The 10 most important customer touchpoints have been highlighted in a customer interaction management solution that has been created as a result.

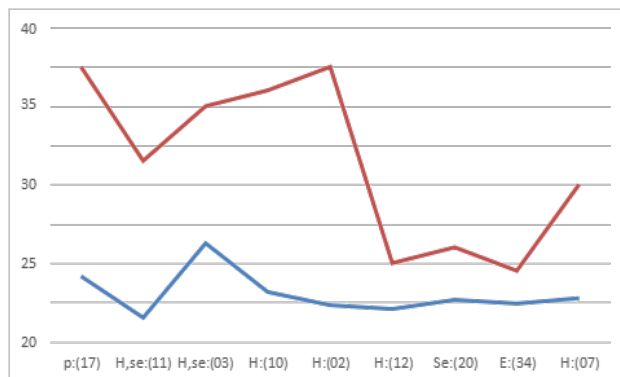


Figure 3. Relative importance of the top10 customer touchpoints in % as perceived by employees (internal) and customers (external) (N=110)

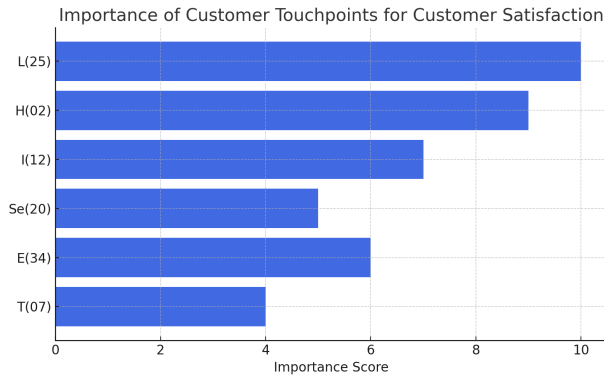


Figure 4. Importance of customer touchpoints for customer satisfaction, as attributed by survey respondents (N=110)

5.1 Importance of Most Relevant Customer Touchpoints for Satisfaction

The results of the customer satisfaction survey, conducted with 110 business customers, asked participants to assess the relative importance of 15 customer touchpoints in relation to customer satisfaction. As outlined in the methods section, the survey included the 10 most critical touchpoints identified in step 2, along with five touchpoints considered less significant. One exception was the touchpoint for word of mouth (WOM) (12), which was not evaluated based on its direct influence on customer satisfaction but rather focused on factors that lead to either positive or negative WOM. Although the survey aimed to measure both, negative WOM could not be assessed as all respondents indicated they would recommend the company.

As illustrated in Figure 4, each of the top 10 customer touchpoints was deemed highly influential on customer satisfaction, with scores ranging from 85.6% to 91.1%, except for delivery (20). For customers using the delivery service (20a), the importance of this touchpoint was rated at 83.5%, whereas customers who picked up products from the production facility (20b) rated it at 75.3%. The additional touchpoints included in the survey—press proof (21), company website (48), Facebook page (35), packaging (16), and fax (38)—were assigned significantly lower importance, with ratings between 44.5% and 73.0%. These percentages were calculated based on the responses of 118 survey participants who rated each touchpoint’s importance on a 4-point scale, assigning values of 0%, 33%, 67%, or 100%.

The customer touchpoint products (17), which was measured in terms of product quality and price– performance ratio, was found to have the highest importance for customer

satisfaction. The company’s Facebook page (35) is considered to be least important. Table 2 demonstrates to WOM (12) and shows why customer would recommend the company. Survey respondents could select multiple options and/or add additional reasons. The first seven items in Table 4 were given options, while speed and flexibility were specified by four different respondents. The observations made from the point of the employees in Jewellery mart and the customers and interacted with the customers to know about the satisfaction level with respect to their touch points.

Table 2. Reasons: Satisfied customers would recommend the company through WOM

	Mentions	%
Friendliness	99	83.9
Product quality	94	79.7
Reliability	91	77.1
Trust	82	69.5
Price-performance Ratio	58	49.2
Warmth	46	39.0
Expectation exceeded	10	8.5
Speed	2	1.7
Flexibility	2	1.7
Other	4	3.4

6 Findings

- i. The customer touchpoint journey is shaped by three key stages: before, during, and after the purchase.
- ii. Prior to purchasing, customers gather information from sources such as social media, customer reviews, testimonials, advertisements, and engage with other buyers.
- iii. During the purchase process, customers place orders online and are influenced by recommendations from sales representatives.
- iv. After the purchase, the customer’s expectations must be met by the organization to ensure satisfaction and encourage repeat business.

7 Conclusion

There are several strategies for enhancing customer engagement and loyalty. Firstly, organizations should focus on transforming customers into business partners through a robust customer development process, complemented by discount programs for subscriptions or after a certain number of purchases. Additionally, offering discounts in exchange for feedback or survey participation can broaden the customer base. Recognizing that potential customers often rely on product reviews, it's crucial to cultivate positive feedback, as negative reviews can undermine brand reliability. Encouraging existing customers to share positive word-of-mouth is also vital; treating them like VIPs fosters loyalty and advocacy. Moreover, prioritizing exceptional customer service is essential, as negative interactions can significantly damage brand reputation. Lastly, providing full transparency in fulfillment and shipping processes, including real-time updates, is increasingly expected by modern consumers, with various tools available for enhancing this aspect, particularly for those using platforms like Shopify.

Every company, whether making incremental improvements or implementing transformative changes, should recognize the analysis and management of customer touchpoints as a critical strategy for driving business success. Think of it as a metaphorical mirror—one that reflects your company's true customer experience. This reflection often reveals insights that differ from how you perceive your brand and can expose gaps between expectation and reality. By honestly evaluating these touchpoints, businesses can uncover opportunities for growth, improve customer satisfaction, and ultimately increase their overall value. This approach not only builds stronger customer relationships but also ensures your company evolves in alignment with customer needs and expectations, fostering long-term loyalty and competitive advantage.

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A Study on Impact of Leadership Styles on Organizational Performance with Special Reference to Private banks in Bangalore

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Abstract

An organization's success largely hinges on its leadership and the ability of leaders to inspire and guide others toward achieving goals. This chapter explores how leadership—one of the most vital elements affecting organizational effectiveness—impacts overall performance. It examines various leadership styles, including transformational, transactional, authoritarian, and democratic, and how these approaches help leaders inspire and direct individuals to achieve organizational objectives. The aim is to determine the strength and significance of

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the relationships between these leadership styles and organizational performance, evaluating both their positive and negative effects. The results reveal that all four leadership styles boost organizational effectiveness, underscoring their crucial role in driving success.

Keywords: Organization. Performance. Leadership styles. Transformation. Autocratic.

1 Introduction

In order to create a goal, project, determination, and current state of goals, as well as to design plans, regulations, and techniques to accurately and efficiently achieve organizational objectives, supervise and coordinate efforts and organizational operations, a company needs strong leadership. To tackle the challenge, realize the goal, and adapt to the changing external environment, you need exceptional leadership (Harris & Cole, 2007). Nowadays, a lot of businesses are battling issues like unethical business practises, significant employee turnover, subpar economic growth, and so forth. This could be because there aren't many strong leaders. Many organizations' main mission is to achieve their stated goals, therefore good leaders must motivate and organize their workforce. Regretfully, some businesses don't take their managers' leadership philosophies into account. This assumption serves as the foundation for the current study's evaluation of the relationship between organizational performance and leadership style (Piwowar-Sulej & Iqbal, 2023). Various leadership styles are available, such as transactional leadership, democratic leadership, dictatorship, participative management, and transformational management. Authoritarian, democratic, transactional, and transformational management paradigms were the ones examined (Wahyuwardhana & Wisesa, 2024). The rationale behind selecting these management patterns is that they are the most widely applied globally, and any new philosophy derived from research can enhance these patterns in a similar manner, enabling organizations to accomplish their objectives. Consequently, those six management styles were the main emphasis of the questionnaire's design.

Examine the impact of the following leadership philosophies: autocratic, democratic, transactional, and transformational management styles on dictatorial leadership fashion, democratic, transactional, transformational, and transformational management styles on authoritarian leadership fashion, democratic leader, transactional, transformational, and transformational management styles on authoritarian leadership fashion, democratic leader, transactional, and transformational management styles on autocratic leadership (Molero et al., 2007). A leader is a person who inspires, guides, and persuades others to carry out certain tasks in order to meet the objectives set forth by the organization (Bakker et al., 2023; Mittal et al., 2023). A leader's method of giving instructions, carrying out strategies, and inspiring people is referred to as their leadership style. According to current leadership styles, leadership styles can be divided into the following categories:

- Transformational leadership style
- Transactional leadership style
- Autocratic leadership style
- Democratic leadership style

In the business literature, performance of organizations is a complicated and diverse subject. Organizational performance is the measure of how well an organization performs in relation to its planned goals, objectives, and final results. The company's financial performance, return on equity, and item or service market performance are all considered aspects of organizational performance. Effective leadership has a significant effect on an organization's performance. The culture of an organization affects its performance, which in turn affects the leadership style of that organization (Almutairi & Alenezi, 2021). By integrating data from the 150 employees of the company with their four element theory of leadership, provided evidence for this claim. The kind of leadership style employed affects both the performance and culture of the firm.

Njoroge et al.'s (2015) conducted a study which found that the knowledge-based pay strategy was successful in encouraging employees to pursue further education, thereby improving their performance. The study used secondary sources, including books, journals, and libraries, to gather data. to ascertain the impact of reward and compensation on Nakuru County Government employees' performance. According to research by Resurrection's (2012), owned businesses are beginning to see the strategic value that HRM can add to their quest for organizational competitiveness. The purpose of this study was to ascertain the fundamental connections between organizational competitiveness and compensation and performance management strategies. It was discovered that employee perks, pay, and performance management were all significantly and consistently predictive of organizational competitiveness. According to research by IBOJO and ASABI's (2014), one of the key industries required for the expansion and development of the Nigerian economy is the food and beverage sector in the manufacturing sector. The information was gathered from secondary sources, including books, journals, and libraries, among others. Consequently, it is imperative that organizations implement efficient policies for compensation management that safeguard and enhance employees' work output and investigate the connection involving compensation management and increased output. The creation and execution of plans and procedures aimed at paying employees regularly, fairly, and in line with their values for the company is compensation management (Armstrong, 2005). In similar view, Bob2003 & Anyebe2003<empty citation> saw compensation management as being based on a well-articulated philosophy –a set of beliefs and guiding principles that are consisted with the values of the organisation which recognises the fact that if HRM is about investing in human capital from which a reasonable return is required, then it is proper to compensate people differently accordingly to their contributions.

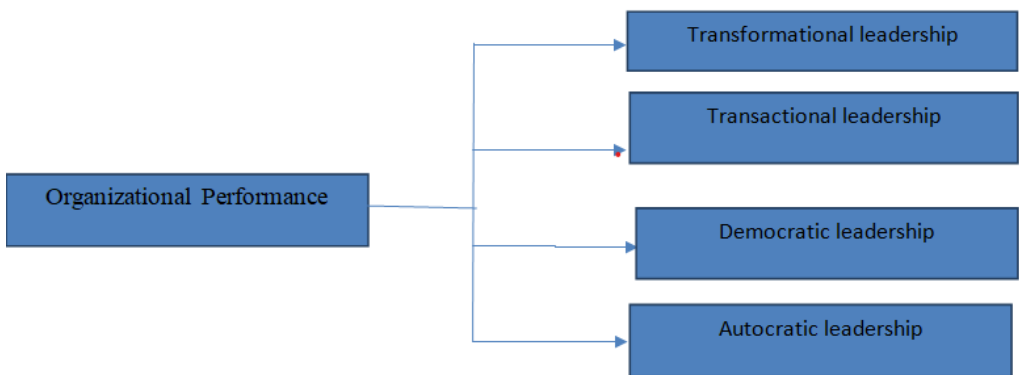


Figure 1. Conceptual Framework

2 Problem statement

The issue statement for the study is about organisational performance and leadership styles like transformational, transactional, authoritarian, and democratic. If specific types of leadership styles are adopted, organisational performance can improve and goals and objectives can be met more easily. A number of types of leadership inventories and evaluations available, and the idea of styles of leadership can help discover the advantages and disadvantages of present and future leaders. They are additionally useful to determine the kind of leader that a particular company needs at a given moment and to help choose a candidate with the right leadership style. Finally, they can assist a leader in being more self-aware of his or her own leadership preferences and tactics in order to improve as a leader. Conceptual framework has been represented in figure 1.

3 Objectives of the study

- To determine the type of relationship that exists between the team leader and the members of the team.
- To determine what kind of leadership styles were present in the teams.
- To look into how various leadership philosophies affect an organization's performance.
- To ascertain what type of leadership is most common in financial institutions.

4 Hypothesis

H01: Organizational performance and transformational leadership have no substantial association.

H1: There is a strong correlation between organizational performance and transformational leadership.

H02: There is no significant correlation between transactional leadership and organizational effectiveness.

H2: Transactional leadership and organisational performance have a considerable relationship.

H03: There isn't much of a correlation regarding autocratic leadership and organizational effectiveness.

H3: Organizational performance and autocratic leadership are significantly correlated.

H04: There is no significant correlation between democratic leadership and organizational effectiveness.

H4: Democratic leadership and organisational performance have a considerable relationship.

5 Methodology

For this study, a total of 150 samples were obtained from AXIS BANK employees. Data was collected from both primary and secondary sources. The primary data was gathered through a standardized questionnaire, divided into sections, and distributed to respondents for recording their responses. Secondary data was sourced from reports, newspapers, journals, publications, and textbooks. The study examines organizational performance as the dependent variable (V1), with independent variables including transformational leadership style (V2), transactional leadership style (V3), autocratic leadership style (V4), and democratic leadership style (V5).

6 Data Analysis

Descriptive statistics is represented in Table 1.

Number of statistics = 151, as shown in the table 1. The minimum and maximum number of data points recorded are four and sixteen, respectively. Organizational performance has a mean of 7.7086. Transformational leadership style has a mean of 7.9669. The transactional leadership style has an average of 8.3642. The average for autocratic leadership is 8.3974. Demographic leadership style has an average of 8.3642. The data's standard deviation remains positive for all variables. The kurtosis statistics for all of the variables are positive. The standard error for all variables is greater than 0.05, i.e..392.

Table 1. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Kurtosis
v1 (Organizational performance)	151	4.00	16.00	7.7086	2.09949	0.792
v2 (Transformational leadership style)	151	4.00	16.00	7.9669	2.38724	0.421
v3 (Transactional leadership style)	151	4.00	16.00	8.3642	2.33090	0.773
v4 (Autocratic leadership style)	151	4.00	16.00	8.3974	2.43058	0.298
v5 (Demographic leadership style)	151	4.00	16.00	8.3642	2.43990	0.331
Valid N (listwise)	151					

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.573a	.329	.310	1.74372

The independent variables (transformational, transactional, autocratic, and democratic leadership styles) explain 32.9 per cent of the variation in the variable that is dependent (organizational performance), according to the R square value of 0.329 (see table 2).

Table 3. ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	217.255	4	54.314	17.863	.000b
Residual	443.924	146	3.041		
Total	661.179	150			

As a result, it is clear from the results that there is a significant relationship between transformational leadership and organisational performance with a significant value less than 0.05, but no significant relationship between transactional leadership, autocratic leadership, and organisational performance with a significant value greater than 0.05 (see table 3).

Table 4. Correlations

		v1	v2	v3	v4	v5
v1	Coefficient	1	0.547**	0.262**	0.378**	0.335**
	p-value		0.000	0.001	0.000	0.000
v2	Coefficient	0.547**	1	0.478**	0.475**	0.399**
	p-value	0.000		0.000	0.000	0.000
v3	Coefficient	0.262**	0.478**	1	0.526**	0.536**
	p-value	0.001	0.000		0.000	0.000
v4	Coefficient	0.378**	0.475**	0.526**	1	0.602**
	p-value	0.000	0.000	0.000		0.000
v5	Coefficient	0.335**	0.399**	0.536**	0.602**	1
	p-value	0.000	0.000	0.000	0.000	

Table 4 show the association between the variables. Because the significant value is less than 0.05, it is obvious that there is a substantial association between transformational leadership, transactional leadership, authoritarian leadership, democratic leadership, and organization. Organizational performance and transformational leadership, transactional leadership, authoritarian leadership, and democratic leadership have Pearson correlation values of 0.547, 0.262, 0.378, and 0.335, respectively. Successful organizations are closely associated with transformational leadership as well as transactional, authoritarian, and democratic leadership styles. Pearson correlation values for transformative leadership and performance of organizations, financial leadership, authoritative management, and democratic leadership are 0.547, 1, 0.478, 0.475, and 0.399, in that order. There is a substantial correlation between organizational success and transformational leadership, authoritarian leadership, democratic leadership, and transactional leadership. Pearson correlation values for transformational leadership, authoritarian leadership, democratic leadership, and transactional leadership and organizational performance are 0.262, 0.478, 1, 0.526, and 0.536, respectively. Autocratic leadership has a strong link to organisational success, transactional leadership, transformational leadership, and democratic leadership. Autocratic leadership has Pearson correlation values of 0.378, 0.475, 0.526, 1, 0.602 for organisational performance, transformational leadership, transactional leadership, and democratic leadership, respectively. Democratic leadership has a strong link to organisational success, transactional leadership, transformational leadership, and autocratic leadership. Democratic leadership has Pearson correlation values of 0.335, 0.399, 0.536, 0.602, 1 for organisational success, transformational leadership, transactional leadership, and authoritarian leadership, respectively.

7 Findings

Based on the data analysis and hypothesis testing, the research results outcomes defined as follows: A total of 41.1% of respondents fall within the ages of 15-20, while 39.74% are between 21-25 years, 10.6% are between 26-30 years, and 8.6% are between 31-35 years. In terms of gender, females make up 57.62% of the respondents, with males accounting for 42.3%. Regarding educational qualifications, 43.7% of respondents hold a UG degree, and 35.1% possess a PG degree. When it comes to work experience, 36.4% of respondents have a minimum of three years, 29.8% have one to two years, 21.19% have five to six years, and 12.58% have over six years of experience. Incentives and recognition play a significant role in employee satisfaction, with 51.7% of respondents agreeing, 22.5% strongly agreeing, and 17.8% offering neutral opinions, while 5.9% disagree. A similar trend is seen with workplace inclusion, as 49.01% are satisfied when their perspectives are welcomed, and 39.1% strongly agree. Additionally, 49% of respondents feel satisfied when their workload is reasonable, while 19.2% are neutral, and 4.6% disagree.

53.64% of respondents believe good communication from higher authorities offers them satisfaction, with 32.45% strongly agreeing. Regarding leadership, 49.01% of respondents agree that their managers encourage them to think about old problems in new ways, while 27.1% strongly agree, and 15.2% disagree. Similarly, 52.32% of respondents agree that their managers pay close attention to identify flaws and deviations, and 30.46% strongly agree. In terms of goal setting, 42.38% of respondents agree that their managers set clear performance goals, with 28.48% strongly agreeing. Additionally, 47.6% of respondents agree that their managers keep track of all mistakes. Team leaders were also a focal point, with 49.67% of respondents agreeing that their leaders disregard recommendations due to time constraints, while 16.5% remain neutral, and 6.6% disagree. Similarly, 44.37% of respondents agree that supervisors seek input on upcoming projects, while 28.4% strongly agree. Moreover, 40.40% agree that their team leader corrects mistakes, and 27.15% strongly agree. 49.67% of respondents believe their team leaders foster a collaborative environment where members take ownership of projects. However, 14% of participants feel that leaders allow them to decide how tasks should be done. Additionally, 47% of respondents agree that team leaders guide them in setting priorities, and 43% believe that assigning tasks is essential for implementing new procedures.

Leadership monitoring is another critical factor, with 55% of respondents agreeing that their team leaders closely monitor performance. Additionally, 48.34% believe that leaders strive to resolve conflicts in role expectations, while 50.3% of respondents feel that leaders abuse the power vested in them. At the same time, 49% agree that their team leaders use their authority to foster subordinate growth. The findings of this study highlight the significant impact of various leadership styles on organizational performance, both positively and negatively. To enhance performance, organizations should focus on integrating transactional, democratic, and autocratic leadership styles into their frameworks. The application of transformational leadership not only fosters professional growth among employees but also establishes a strong value system within the organization. Additionally, democratic leadership has been shown to boost employee creativity and decision-making skills, while autocratic leadership allows staff to work effectively under clear directives from their leaders. It is essential for managers to embrace a leadership role that prioritizes the well-being of their employees. Furthermore, implementing leadership development programs that encourage ongoing reflection and practice will greatly influence the overall success of the organization.

8 Conclusion

This study examined the impact of various leadership styles—Democratic, Autocratic, Transactional, and Transformational—on organizational performance. Regression analysis revealed that while democratic, autocratic, and transactional leadership negatively affect organizational outcomes, transformational leadership has a positive influence. Transformational leaders possess a clear vision, create strategies for growth, communicate their objectives effectively, and remain committed to fulfilling their promises. By inspiring followers through shared values and principles, transformational leaders foster trust, confidence, and a sense of ownership, leading to higher performance levels. Employees under transformational leadership are motivated and supported in achieving greater organizational success. However quantitative data limits its scope and applicability. Despite this, the research offers valuable insights into the critical role leadership styles play in organizational performance. Managers must carefully choose the most appropriate leadership approach, as it significantly affects the organization's success. Overall, the findings highlight the positive impact of transformational leadership on organizational effectiveness.

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E-HRM and Organizational Resilience: A Case Study of a Technology Solutions Company in Bangalore During COVID-19

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Abstract

The main objective of this study was to ascertain how an organization's performance is affected by the implementation and utilization of electronic human resource management (E-HRM). Using a questionnaire measure, this study used a quantitative methodology. The results of the research support the beneficial effects of E-HRM on organizational effectiveness. To gather the data, a systematic questionnaire was created, and 150 responses were gathered. Anova, correlation, regression, and reliability statistics were the methods applied.

Keywords: E-HRM. Organizational Effectiveness. Correlation. Regression.

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1 Introduction and Review of Literature

The phrase "e-HRM" first appeared in official usage in the early 1990s to describe human resource management done online. Another aspect of human resources during the past couple of years has been electronic HRM. One definition of E-HRM is "an approach to implementing HR strategies, policies, and practices within the organization." The use of electronic health records (E-HRM) to HR procedures allows for simple interactions with employee personal information, performance management, hiring, training, and strategy orientation. A more recent and widely used definition of E-HRM is "the planning, implementation, and application of information systems for both networking and supporting performers in their shared performing HR activities." Alternatively, it can be described as "a way of implementing HR strategies, policies, and practices in organizations through an aware and directed support of or with full use of web-technology-based channels." In light of growing market competition and globalization, business marketplaces are shrinking daily. As a result, businesses must perform better in order to provide customer-focused services. "Electronic Human Resource Management (E-HRM)" is the term for the internet-based human resource management solutions that the firms are implementing. E-HRM is the process of implementing and utilizing web-based technologies with the goal of offering HRM (human resource management) services to employees. E-HRM has developed to the point where it can now integrate all of the HRM policies within the company in the recent past. E-HRM is essentially the transfer of HR responsibilities to management and staff. In general, they use the intranet or other web technology channels to access these functions (Mittal, 2020). The HR department is relieved of these responsibilities when managers and staff are empowered to carry out specific HR functions. This allows HR staff to concentrate more on the strategic aspects of HR and less on the operational aspects, allowing organizations to reduce the number of employees in the HR department as the administrative load decreases. E-HRM is believed to bring about numerous new company cultures (Mittal et al., 2023).

One key competency in the organization's day-to-day operations is organizational resilience. The organization may benefit from organizational resilience, nevertheless, if the environment becomes unpredictable and unmanageable (Xiao & Cao, 2017). Organizational resilience's leading indicators are learning, knowledge, leadership, situation awareness, and risk management (Quansah, 2013). The key markers of organizational resilience are leadership, knowledge, learning, comprehension of situations, and risk management (Liu et al., 2013). Moreover, leadership behaviors—the capacity to see opportunities and remain upbeat in the face of adversity—are the most important success factor for an adaptive organizational culture since they have an impact on work performance (Wang et al., 2010). Jayaweera's (2015) discovered that there may be a mediating role for organizational culture in the relationship between leadership and organizational results.

Tojari, Heris, and Zarei's (2011) concurs with Jayaweera's (2015) findings, according to which organizational culture influences the link between performance within a company and leadership style. Liu et al.'s (2013) proposes the notion of organizational awareness as a useful tool for crisis management. The decision-making process in complex, dynamic systems performances is propelled by situation awareness (Faizan & Zehra, 2016). The ability to gain insight from crises experiences and apply these lessons in new situations are the foundational aspects of organizational awareness. Other aspects involve acknowledging teamwork and integrating knowledge (Quansah, 2013). Furthermore, Sharma and Kirkman's (2015) stated that there is a direct correlation between an organization's effectiveness, culture, and leadership style. Results which include commitment are influenced by the nature of the connection between a leader and follower (Wang et al., 2010). To investigate how E-HRM practices affected the COVID-19 pandemic's effects on organizational performance. To ascertain the degree of employee satisfaction with the company's E-HRM activities. Should take a look at how E-learning, E-performance management systems, and e-grievance monitoring affect organizational performance when it comes to E-HRM practices.

2 Objectives Of The Study

- To know the different E-HRM practices followed in 9 sign infra solutions.
- To examine the employee behaviour in COVID-19 pandemic.
- To study the effects of E-HRM procedures on the effectiveness of organizations.

3 Data Collection And Sample Design

Data for this research was collected through two types: primary and secondary data. Primary data refers to the original information collected firsthand, while secondary data is obtained from existing sources compiled by others. In this study, data collection was conducted through a structured questionnaire, with a sample size of 150 employees from 9 Sign Infra Solutions, Bangalore. The research employs several analytical tools, including Reliability Statistics, Regression, Correlation, and ANOVA, to ensure accurate and comprehensive data analysis. The conceptual framework is represented in figure 1.

Hypothesis:

H1: E-learning has significant impact on Organizational performance.

H2: E- performance management system has significant impact on Organizational performance.

H3: E- Grievance tracking has a moderate impact on Organizational performance.

H4: E-Payroll has a significant impact on Organizational performance.

H5: E-Recruitment has a significant impact on Organizational performance.

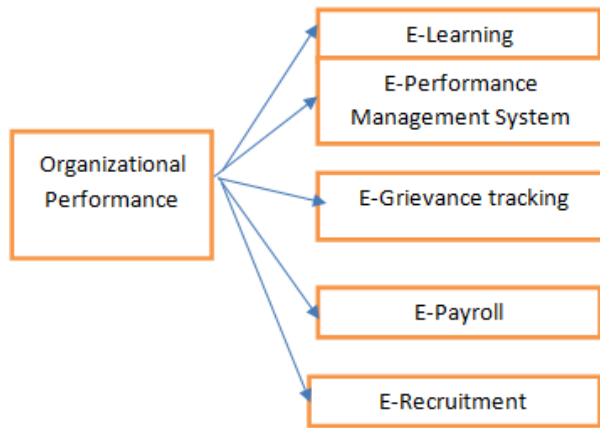


Figure 1. Conceptual Framework

4 Data Analysis And Interpretation

VAR00001 about Age

VAR00002 Gender

VAR00003 E-HRM practices in your organization

VAR00004 E-HRM practices are user friendly and easy to use

VAR00005 Does your company provide training related to usage of E-HRM portals

VAR00006 Do you get accurate information in time through using E-HRM practices

VAR00007 E-HRM practice has been successful in improving accuracy and efficiency of HR functions in your organization?

VAR00008 Does your organization give performance appraisal through E-PMS (performance management system)?

VAR00009 Are you satisfied with the E-HRM practices in your organization

VAR000010 E-HRM practices of your organization are updated regularly as per your needs?

VAR000011 Do you promote the usage of E-HRM system further in your organizations?

VAR000012 Does your company promote E-selection through E-HRM system?

VAR000013 Are E-HRM procedures the same in each of your company's departments, business units, and divisions?

VAR000014 E-HRM practices support the routine day to day tasks of HRM in your organization?

VAR000015 Is the objective of your organization's E-HRM practices to strengthen HR forecasting performance?

VAR000016 Does an E-HRM practice aims at reducing the organizational performance of HR forecasting in your organization?

VAR000017 Electronic candidate identification, screening, and interviewing are made possible by E-HRM procedures in order to hire new employees for the company.

VAR000018 Does your business create HR policies and procedures using E-HRM practices?

VAR000019 Are you able to obtain the information you require from the website that your company has set up?

VAR000020 Does your company provides and enhances with necessary skills and knowledge to do your job ?

VAR000021 Does your company offer training programs to suit every employee's need to raise performance levels?

VAR000022 Does your organization E-HRM practice support pay roll issues?

VAR000023 Does your company's use of EHRM procedures facilitate decision-making at the middle and upper levels of management?

4.1 Reliability Statistics

One of the most well-known metrics for assessing internal consistency is Cronbach's Alpha. It is most commonly used when a study or questionnaire contains several Likert questions that form a scale and you want to determine whether the scale is dependable. For excellent dependability and consistency, the Cronbach's Alpha value is 0.7. With a score of more than 0.7, the Cronbach's Alpha for the survey's 21 questions is 0.795, indicating more reliability (see table 1).Table 2 represents the item the total stastics.

Table 1. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.795	.798	21

Table 3 represents the mean and standard deviation of each question of the questionnaire.

Table 2. Item-Total Statistics

	Scale Mean if Item Deleted	Scale Vari- ance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
VAR00003	75.70	64.980	.338	.214	.787
VAR00004	75.61	63.874	.466	.358	.780
VAR00005	75.70	66.291	.312	.290	.789
VAR00006	75.77	64.627	.398	.298	.784
VAR00007	75.75	64.891	.346	.361	.787
VAR00008	75.82	64.203	.398	.465	.784
VAR00009	75.81	64.698	.337	.356	.788
VAR00010	75.62	65.979	.311	.301	.789
VAR00011	75.88	64.526	.399	.299	.784
VAR00012	75.81	64.752	.358	.303	.786
VAR00013	75.85	64.064	.399	.361	.784
VAR00014	75.76	65.360	.346	.258	.787
VAR00015	75.79	64.355	.384	.310	.785
VAR00016	76.04	64.431	.461	.324	.781
VAR00017	75.67	64.587	.369	.291	.786
VAR00018	75.82	65.663	.332	.260	.788
VAR00019	75.88	64.418	.374	.343	.785
VAR00020	75.79	65.589	.348	.298	.787
VAR00021	75.95	64.186	.411	.318	.783
VAR00022	75.88	66.823	.207	.203	.795
VAR00023	75.93	67.961	.123	.234	.801

Table 3. Scale Statistics

Mean	Variance	Std. Deviation	N of Items
79.59	71.000	8.426	21

4.2 Multiple Regression

Regression model fit to data is determined using R , R Square , adjusted R Square, as well as the standard error of the estimate, which are shown in table 4. The multiple correlation coefficient (or R) value is presented in the "R" column. One metric for assessing how well the dependent variable was predicted is R. A high degree of production is shown by the R value of 0.668. The R2 value is shown in the "R Square" column. This is the amount of variance in the dependent variable that the independent variable can account for. With an R2 value of 0.446, 44.6% of the variation in our dependent variable can be explained by our independent variables. The corrected R square, which is 0.434, is meant to appropriately report the data. Anova has been calculated in table 5 and table 6 shows the degree to which an independent variable affects the dependent variable.

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.668 ^a	.446	.434	1.97242

^aPredictors: (Constant), EPMS, ELEARNING, EGRI

Table 5. ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	453.334	3	151.111	38.842	.000 ^b
Residual	564.115	145	3.890		
Total	1017.450	148			

^a Dependent Variable: EHRM

^b Predictors: (Constant), EPMS, ELEARNING, EGRI

Hypothesis

H0: E-PMS, E- learning, E- GR has no significant effect on E-HRM.

H1: E-PMS, E- learning, E- GR has significant effect on E-HRM.

Hypothesis:

H0: There is no relationship between E-HRM and E-learning, E-PMS, E-GR.

H1: There is relationship between E-HRM and E-learning, E-PMS, E-GR.

The value of correlation is 0.01 (see table 7). The value should lies between -1 to 1, and also shows that it has less relationship between the variables.

Table 6. ANOVA

Model	Unstandardized Coefficients (B, Std. Error)	Standardized Coefficients (Beta)	t	Sig.
(Constant)	2.542 (1.546)		1.644	.102
ELEARNING	.315 (.082)	.301	3.817	.000
EGRI	.303 (.098)	.281	3.107	.002
EPMS	.198 (.086)	.197	2.313	.022

^a Dependent Variable: EHRM

Table 7. Correlation

		EHRM	ELEARNING	EGRI	EPMS
EHRM	Pearson Correlation	1	.572**	.592**	.544**
	Sig. (2-tailed)		.000	.000	.000
	N	149	149	149	149
ELEARNING	Pearson Correlation	.572**	1	.596**	.527**
	Sig. (2-tailed)	.000		.000	.000
	N	149	149	149	149
EGRI	Pearson Correlation	.592**	.596**	1	.670**
	Sig. (2-tailed)	.000	.000		.000
	N	149	149	149	149
EPMS	Pearson Correlation	.544**	.527**	.670**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	149	149	149	149

** Correlation is significant at the 0.01 level (2-tailed).

4.3 ANOVA

Anova test is demonstrated in table 8.

Table 8. ANOVA

Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
ELEARNING	Between Groups	435.122	13	33.471	9.127	.000
	Within Groups	495.080	135	3.667		
	Total	930.201	148			
EGRI	Between Groups	471.718	13	36.286	12.270	.000
	Within Groups	399.222	135	2.957		
	Total	870.940	148			
EPMS	Between Groups	513.675	13	39.513	10.848	.000
	Within Groups	491.734	135	3.642		
	Total	1005.409	148			

Hypothesis:

H0: There is no relationship between E-HRM and E-learning, E-PMS, E-GR.

H1: There is relationship between E-HRM and E-learning, E-PMS, E-GR.

The P value is less than 0.05 so the null hypothesis is rejected and alternative hypothesis is accepted. There is a positive relationship between E-HRM and E-learning, E-PMS, E-GR. The results are significant; E-HRM application has good effect on organizational performance.

5 Findings

The findings from the study reveal that E-HRM practices have a positive impact on organizational performance and employee satisfaction at 9 Sign Infra Solutions. It was observed that 67.6% of the employees are aware of E-HRM practices, whereas 32.4% are not aware of them. A majority of 76.1% of the employees find E-HRM practices user-friendly and easy to use, while 23.8% disagreed. Furthermore, 68.2% of the employees are satisfied with the training provided by the organization for using E-HRM portals, whereas 31.8% of the employees are not satisfied. Similarly, 68.2% of the employees agree that using E-HRM practices provides them with accurate information, and 68.9% believe it gives accurate information about HR functions, while 31.8% and 31.1% are dissatisfied, respectively. It was noted that 61.6% of the employees receive performance appraisals through the E-Performance Management System (E-PMS), while 38.4% are dissatisfied.

In total, 66.6% of the employees are satisfied with the overall implementation of E-HRM practices in their organization, while 34.4% of the employees expressed dissatisfaction. Interestingly, 76.2% of the employees are interested in the continued use of E-HRM practices in the organization, and 61.6% stated that their company follows E-Selection processes, whereas 38.5% did not agree. Moreover, 64.9% of the employees believe that E-HRM practices are implemented uniformly across all departments, while 35.1% disagreed. Additionally, 66.3% of the employees acknowledge that E-HRM practices help in completing their daily targets, while 33.7% did not find them effective for this purpose. Moreover, 67.6% of the employees believe E-HRM practices help reduce HR forecasting efforts, and 73.5% are satisfied with the information they receive from the company website, whereas 26.5% are not satisfied. A total of 66.2% of employees are satisfied with the E-HRM practices followed by the company, and 63.6% are content with the training courses provided to improve their skills, while 36.4% showed dissatisfaction. In terms of specific functionalities, 73.5% of the employees are satisfied with the E-Payroll practice in the company, and 62.2% believe that the E-HRM application supports decision-making processes, while 37.8% disagreed. Reliability statistics show a Cronbach's alpha value of 0.795, indicating that E-HRM practices are reliable at a good level. Correlation and ANOVA tests produced a significance value of 0.00, reinforcing the positive impact of E-HRM on organizational performance, with an R Square value of 0.446. The study concludes that most of the employees are interested in further usage of E-HRM practices, and the organization's performance has improved significantly since its implementation. The study was conducted at 9 Sign Infra Solutions to assess employee satisfaction and the extent of E-HRM practice adoption. It further highlights that E-HRM systems have a positive and significant impact on E-learning, E-performance management, and E-grievance tracking in the organization.

6 Conclusion





E-HRM practices are essential for raising organizational performance since they give businesses a competitive edge, streamline HR procedures, and increase productivity. Organizations can improve individual and team performance by implementing E-HRM strategies including e-learning, performance management systems, and grievance monitoring. This will guarantee task completion on time and maintain high operational quality. This strategy aids in customer retention and happiness while also enabling firms to quickly adjust to changes in the external environment. The report highlights that E-HRM is an organizational-wide endeavor that involves cooperation between administrators and employees, not only the HR department. Further, by streamlining processes and cutting expenses, E-HRM techniques improve hiring, performance management, and decision-making. Utilizing E-HRM systems can thus promote an atmosphere of ongoing development and progress assisting in the long-term prosperity and sustainability of enterprises.

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Customer Preference towards Online Food Delivery with Respect to Major Delivery Platforms in Madanapalle, Annamayya District

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Abstract

This essay has demonstrated how important it is to understand the consumer's decision-making process. Finding out how much customers preferred meal delivery apps namely Swiggy and Zomato was the aim of the study. Primary data were used only in the research. Four sections of the structured questionnaire were prepared: preferences, trustworthiness, consistency, and preference choice. There were 200 people in the sample. There was a 100% response

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rate. In order to interpret the data acquired, the method of data analysis employed the fundamental spss tools. The findings indicated that customers mostly value originality when it comes to cost, caliber, and delivery. Not a single online meal delivery service, including Zomato and Swiggy, received the top ranking. This study has provided an overview of consumer perceptions, uncertainties they face, and whether or not the service is dependable. It has provided comprehensive details regarding the issues that customers are having and potential solutions. From a managerial standpoint, the article broadens our understanding of the consumers. This research has added innovation by investigating different factors connected to customers, such as preference, reliability, like, etc., through the analysis of consumer preference.

Keywords: Customer touchpoints. Customer satisfaction. Mass customization. Printing industry.

1 Introduction

Innovation has been crucial in transforming the dinner delivery industry. It has also contributed to changes in consumer choices, as their time constraints have forced them to handle the complete parcel online process, including arranging for prepared suppliers to deliver right to their door. Customers prioritize comfort over all other factors, since making a request only requires a few taps on a mobile device. Customers' preference for the services offered by web suppliers who request and convey administrative entries can be attributed to factors such as mechanical dependability, comfort, and shorter preparation times for dinners (Mittal, 2020b). Online dinners' requests for and delivery of contributions are being acknowledged step by step, and customer demands are also being growing. The purpose of this assessment is to find out what the clients think about the contributions they receive from explicit entries.

To start this conversation, have a look at the relevant material, particularly the part about web vendors seeking and submitting contributions Mittal, 2020a. The study's findings, followed by strategies for research and an analysis of how customers perceive the services, could help online meal delivery service providers develop more advanced strategies for effectively marketing their cell programs. Studying buyer perception is important for both personal and corporate development. Understanding the demands, preferences, and inclinations of buyers is aided by it. By increasing the brand's attractiveness, it leads to the association giving a particular brand a personality and motivation. The best way to describe it is as a process of providing incentives to the customers, especially those who are younger. It includes all that customers feel, know, and have experienced about the company. After taking the realities into account, a brand was created. "Food truck" was the brand name, and "nourishment on wheels" was the tagline. It was a service that delivered food online. It provided online food management to people in India.

It has been compared and contrasted with other brands. Various natural lifestyle options were available, such as Swiggy and Zomato. The brands in question have been considered in order to determine what aspects they lacked and how the new brand might differ from those that were observed by consumers. This process has assisted in creating a distinctive brand identity and cultivating positive perceptions for the company that these brands genuinely represent. Depending on these actions, the brand may grow over time, remain stagnant, or fade. The new feeding application, called the nutrition truck, was going to pose a threat to the existing feeding applications. When creating the app, consideration was given to the advantages and disadvantages of popular meal delivery services like Swiggy, Zomato, and others. The youthful Indian buyers have an incredible energy to visit inexpensive food outlets. Food trucks bought up the tastes of many locations across the country. The application was linked to many cafés through the real taste of its food and observation of the orderliness and sanitation of the establishments. In order to maintain track of the quality of the food, there had also been an evaluation of the cafés. The consumers can get in touch with us at any time if there are any difficulties linked to hygiene. The administration's customer service was available around-the-clock. The company made every effort to resolve any problems and maintain customer satisfaction. It was effective in retaining customer loyalty and acknowledged the customer as the ultimate authority.

The introduction of the internet food delivery service was contingent upon recognition, development, and oversight. There was an underlying rumor of 2-3 crores. The website was user-friendly, allowing even those with no mechanical knowledge to use the application. The company hired delivery personnel merely by providing them with appropriate training. Online food ordering is the process of placing a food order via a restriction's website, mobile application, or several restrictions' websites or applications. there is no unique requirement or decision that can make one web based asking programming not quite the same as another. The authors of the study have experienced spending lot of time online looking for eateries that are currently open. The idea that restaurants should have this kind of system that allows online restaurant requests. The reason for the significant growth in this sector can be attributed to the achievement of massive new businesses like Swiggy and Zomato, which have increased worker profitability.

- Accurate order fulfillment;
- Business growth;
- Database construction skills;
- Robust analysis.

The food and diet patterns of the various urban population strata deserve greater attention than they have received thus far, not only for their advice on nutrition and agricultural planning but also for choosing therapeutic initiatives and preventative measures. The

main goal of the investigation is to learn how consumers perceive the online meal delivery services. Customers' preferences can change for a variety of reasons. We can better understand the e-commerce food delivery market thanks to this analysis. We will consider the customer's inclination toward the services they provide in metropolitan areas and learn more about the elements that shape their inclination. As a result, these findings might aid specialized cooperatives in improving these aspects in order to fill in the gaps in consumers' attitudes. Go to websites that request food online. These websites have expanded primarily for the convenience of its users. However, they do present small foundations with several opportunities to grow their business. For a while now, ordering food online has been considered a global marvel. While there have been many kinds that have gained popularity in India at different times, success has been uncommon. One such early enterprises involved the online meal delivery services like Swiggy and Zomato, which launched over 30 eateries in cities to serve patrons and create an online ordering system. Alagoz and Hekimoglu's (2012) state that internet commerce is growing quickly throughout the world and that the food business is also showing consistent growth. This study report examines whether or not to acknowledge the online meal ordering system using the Technology Acceptance Model. According to their data analysis, consumers' opinions about ordering food online differ depending on a range of factors, such as how straightforward and easy the process of ordering food online is, how innovative their data is, whether or not they trust merchants, and other outside factors. The objective of Sethu and Saini's (2016) was to evaluate students' comprehension, conduct, and fulfillment of internet-based meal purchase and distribution services. Their data indicates that online meal delivery services help students better manage their time.

It is also found that the main justifications for using the services are the ease with which their ideal food can be accessed whenever needed and the ease with which they can access the internet. According to Kimes's (2011), the results of his investigation showed that perceived control and perceived comfort with the online meal ordering services were important for both clients and non-clients. In addition to having more innovation stress, non-clients require a closer-to-home connection in order to use the services. Leong Wai Hong and Tunku Abdul Rahman's (2016) asserts that the development approach has changed in many firms due to creative breakthroughs. Increased brand mindfulness has a significant effect on its parent or core brand image, and good frameworks can help with this. This in turn affects the buyer's score-brand disposition and purchasing objective. However, consumer observation has a big impact on parent-brand sentiment. Purchase decisions made by customers are greatly impacted by this Wu and Lo's (2009). One of the most important aspects of consumer recognition is character recognition. Character is influenced by a buyer's actions, growth, media preferences, item preferences, risk tolerance, and initiative.

It is acknowledged that the use of internet food delivery systems can occasionally drive restaurant business development and help the establishments facilitate substantial online sales. According to Chavan et al.'s (2015), cafés are able to handle customer orders more quickly because to the use of smart device-based interfaces that allow customers to examine, arrange, and explore. The powers of remote communication and enhanced cell innovation in gratifying and enhancing business executive management and administration conveyance. Their research indicates that the proposed framework is useful, persuasive, and easy to use, and that it will be used to enhance the whole café industry in the near future. Just as consumers base their judgments of the quality of the food in the house while preparing dinner, they often make inferences about value when making purchases. Buyer knowledge is based on perceived quality and item development that is organized by the client (Grunert, Bredahl, & Brunsø, 2004). The importance of consumer observation is frequently used in different advertising procedures. It is seen as a benefit and crucial to the success of any association. It is necessary to create an integrative configuration. Three models are included in the configuration: client esteem aspects, customer repute expansion, and client repute in return (Kahlifa, 2008). Directors see risk in different ways, and their perceptions are influenced by many factors. Risk-reducing practices are viewed by administrators as an important component of the hierarchical structure (Kahlifa, 2008). A successful internet company site depends on factors like customer loyalty, client security, and client quality. Customer loyalty and exchange prices are impacted by client interfaces and perceived quality, which in turn fosters client steadiness (Chang & Chen, 2009).

2 Objectives

- To differentiate between the various quality, administrative, and delivery characteristics.
- To evaluate and compare various brands, such as Swiggy and Zomato.
- To examine consumer behavior about food purchases made online.
- To create the most recognizable brand and win over customers through loyalty.

3 Research Methodology

The customer preferences survey is related to understanding the expected behavior of the buyers. It encompasses a variety of methods by which a customer chooses, assesses, and finally determines which brand to purchase. Consequently, the partnership creates an identity that will draw clients. The primary objective of any organization is to establish a powerful brand in order to contend with competing brands in the industry. An online meal delivery company was established by considering a number of variables, including consumer desire, usage, and observation, in order to better comprehend it.

The shopper observation research provided the brand with an incentive in addition to aiding in the knowledge of customer experiences. The variety of crucial data is what drives the study. The present study employed a quantitative investigate strategy to scrutinize and monitor the collected data through the use of quantifiable, scientific, and computational techniques. A well-structured survey comprised both closed-ended and open-ended items. Everything about the way it was designed ensures that every study area is cooked. The overview was conducted in a number of urban areas, and about 200 responses were obtained. Since the population was small and uniform, the likelihood of each edge subset is the same. The accommodation examination method was applied. Understudies, self-employed workers, stay-at-home moms, privately held company representatives, and business owners from different metropolitan areas make up the populace. Multi-thing scales (5-point, Liker type) ranging from strongly agree (5) to unquestionably deviate (1) are used for all factors used in the assessment.

The study was conducted using primary data. First-hand data, which haven't been included in earlier studies, are crucial information. A organized survey was created and contained addresses linked to online meal delivery services. There were four sections to the survey. Four questions made up the first section, which focused on preference. There were two questions in the next section, which focused on reliability. Three questions made up the third section, which focused on liking. There was only one question on the inclination option in the continuation section. There were 200 individuals in the sample. The entire number of observations that were used to analyze the data is known as the sample size. It had produced more accurate and dependable outcomes. There was a 100% response rate. The ratio was actually the overall number of respondents to the survey scaled by the overall sample size. The majority of the responders were housewives, company owners, officers, and students. However, students made up over 70% of the responses, and they were the individuals who would perform the work. The primary explanation for this was because these individuals were the ones that ordered food online the most frequently. Therefore, they were primarily taken into account in order to acquire the best outcome. The responders were city dwellers.

4 T-test analysis

To find a significant difference in consumer choice between Swiggy and Zomato for online delivery based on gender, an independent T-test was employed in this study (see figure 1). The group statistics and T-test results have been presented in table 1 and table 2.

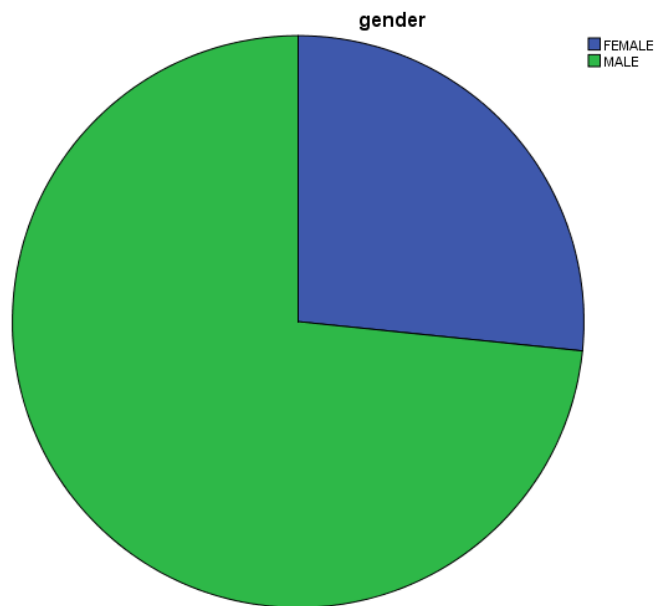


Figure 1. T-test

Table 1. Group Statistics

Gender	N	Mean	Std. Deviation	Std. Error
Preferences 1	53	1.64	0.522	0.072
Preferences 2	146	1.42	0.510	0.042

Table 2. Levene’s Test and t-test Results

Preference	Levene’s Test		t-test for Equality			CI Interval of the Difference			
	F	Sig.	t	Df	Sig.	Mean Diff	Std. Error	Lower	Upper
Equal variances assumed	0.218	0.641	2.636	197	0.009	0.217	0.082	0.055	0.379
Equal variances not assumed			2.605	90.291	0.011	0.217	0.083	0.052	0.382

The results of the T-test show that there is a substantial difference in the choices made by males and females when it comes to online meal ordering through Swiggy or Zomato. where it is discovered that men are more likely than women to use the online meal delivery services Swiggy and Zomato. descriptive statistics: In an investigation, statistical techniques are used to characterize the fundamental features of the data. The mean, median, and mode—measures of center—are the most well-known categories of descriptive statistics.

Table 3. Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
FEMALE	53	26.6	26.6	26.6
MALE	146	73.4	73.4	100.0
Total	199	100.0	100.0	

Table 4. Age

	Frequency	Percent	Valid Percent	Cumulative Percent
1	17	8.5	8.5	8.5
2	132	66.3	66.3	74.9
3	38	19.1	19.1	94.0
4	12	6.0	6.0	100.0
Total	199	100.0	100.0	

Table 5. Education

	Frequency	Percent	Valid Percent	Cumulative Percent
1	13	6.5	6.5	6.5
2	15	7.5	7.5	14.1
3	32	16.1	16.1	30.2
4	131	65.8	65.8	96.0
5	8	4.0	4.0	100.0
Total	199	100.0	100.0	

Of the 199 respondents, 146 are men, and 53 are women. These represent the bulk of the respondents (see table 3). The bulk of the 199 respondents are between the ages of 21 and 30, with the next age categories being over 40, 31 to 40, and 14 to 20 (see table 4).

Table 5 demonstrate Of the 199 respondents, PG students made up the majority with 131 responses, followed by 10th, intermediate, and UG students. Among the 199 respondents, 156 (or more) of them are single, and they are more drawn to online meal ordering than are the remaining 41 (or less) that is further shown in table 6. Of the 199 respondents in all, the majority have monthly incomes between \$30,000 and \$40,000 (74 responses), followed by \$ 10,000 and under (23 responses), \$10,000 to \$20,000 (8 responses), and \$ 40,000 and above (52 responses) as observed in table 7.

Table 6. Marital status

	Frequency	Percent	Valid Percent	Cumulative Percent
1	156	78.4	79.2	79.2
2	41	20.6	20.8	100.0
Total	197	99.0	100.0	
Missing System	2	1.0		
Total	199	100.0		

Table 7. Income

	Frequency	Percent	Valid Percent	Cumulative Percent
1	23	11.6	11.6	11.6
2	8	4.0	4.0	15.6
3	42	21.1	21.1	36.7
4	74	37.2	37.2	73.9
5	52	26.1	26.1	100.0
Total	199	100.0	100.0	

Table 8 shows 129 said that private employees are the group most drawn to ordering food online, followed by students (32) and housewives (21), government employees (63) and businesses (8). Of the 199 respondents, more respondents (196 responses) said they preferred to order food through online food delivery applications (see table 9). Of the 199 respondents, the majority choose the Swiggy online delivery app (105 responses) over the Zomato app (92 responses) for placing online food orders (see table 10).

Table 8. Occupation

	Frequency	Percent	Valid Percent	Cumulative Percent
1	32	16.1	16.2	16.2
2	21	10.6	10.7	26.9
3	129	64.8	65.5	92.4
4	6	3.0	3.0	95.4
5	8	4.0	4.1	99.5
6	1	0.5	0.5	100.0
Total	197	99.0	100.0	
Missing System	2	1.0		
Total	199	100.0		

Table 9. Order

	Frequency	Percent	Valid Percent	Cumulative Percent
1	195	98.0	99.0	99.0
2	2	1.0	1.0	100.0
Total	197	99.0	100.0	
Missing System	2	1.0		
Total	199	100.0		

Table 11 The majority (67 responses) say they order food online for less than 500 rupees, followed by <150 (38 responses), <250 (47 responses), and compared to 500 (44 responses).As observed in 12 the bulk are placing their orders for dinner (97 responses), breakfast (58 responses), lunch (16 responses), and snacks (26 responses).When compared to Zomato, the majority of the respondents think that Swiggy’s customer service is superior (see table 13).The meal isordered are online as shown in table 14 and table 15. Offline customers are decreasing as people have started ordering online (see table 16).

Table 10. Preference

	Frequency	Percent	Valid Percent	Cumulative Percent
SWIGGY	105	52.8	52.8	52.8
ZOMATO	92	46.2	46.2	99.0
3	2	1.0	1.0	100.0
Total	199	100.0	100.0	

Table 11. Money

	Frequency	Percent	Valid Percent	Cumulative Percent
1	38	19.1	19.4	19.4
2	47	23.6	24.0	43.4
3	67	33.7	34.2	77.6
4	44	22.1	22.4	100.0
Total	196	98.5	100.0	
System Miss- ing	3	1.5		
Total	199	100.0		

Table 12. Meal

	Frequency	Percent	Valid Percent	Cumulative Percent
1	58	29.1	29.4	29.4
2	16	8.0	8.1	37.6
3	26	13.1	13.2	50.8
4	97	48.7	49.2	100.0
Total	197	99.0	100.0	
Missing Sys- tem	2	1.0		
Total	199	100.0		

Table 13. Which Company's customer service is good

	Frequency	Percent	Valid Percent	Cumulative Percent
1	94	47.2	47.5	47.5
2	102	51.3	51.5	99.0
3	2	1.0	1.0	100.0
Total	198	99.5	100.0	
Missing System	1	0.5		
Total	199	100.0		

Table 14. Quality

	Frequency	Percent	Valid Percent	Cumulative Percent
4.00	11	5.5	5.6	5.6
5.00	74	37.2	37.8	43.4
6.00	79	39.7	40.3	83.7
7.00	32	16.1	16.3	100.0
Total	196	98.5	100.0	
Missing System	3	1.5		
Total	199	100.0		

Table 15. Service

	Frequency	Percent	Valid Percent	Cumulative Percent
3.00	1	0.5	0.5	0.5
3.33	71	35.7	36.2	36.7
3.67	30	15.1	15.3	52.0
4.33	10	5.0	5.1	57.1
5.00	2	1.0	1.0	58.2
5.33	66	33.2	33.7	91.8
5.67	14	7.0	7.1	99.0
7.00	1	0.5	0.5	99.5
7.67	1	0.5	0.5	100.0
Total	196	98.5	100.0	
Missing System	3	1.5		
Total	199	100.0		

Table 16. Often You Order

	Frequency	Percent	Valid Percent	Cumulative Percent
1	120	60.3	60.9	60.9
2	57	28.6	28.9	89.8
3	11	5.5	5.6	95.4
4	9	4.5	4.6	100.0
Total	197	99.0	100.0	
Missing System	2	1.0		
Total	199	100.0		

5 Findings

The study found that users generally indicated a strong preference for web-based meal ordering, with nearly 90% of respondents confirming they had used electronic food services. There was a growing sense of satisfaction among consumers with online food ordering, particularly among men employed in IT organizations, who were more likely than women to use or recommend these services. Despite the convenience of online ordering, many respondents still preferred to communicate via phone when finalizing their orders. The study also noted an increase in the number of consumers opting to order food online, with cash on delivery emerging as a highly popular payment method. The most influential factor driving consumer decisions was location, closely followed by rewards and cashback offers.

6 Conclusion

Understanding consumer preferences plays a pivotal role in maintaining a store's image, upholding brand quality, and ensuring the overall success of a business. By researching consumer preferences, businesses gain valuable insights into customer behavior, including their preferences, likes, purchasing intentions, and buying patterns. This information not only helps in understanding the current market demands but also enables businesses to anticipate future trends. In a competitive market where consumers are continuously seeking unique and innovative products, the ability to cater to these evolving desires becomes the foundation of a company's competitive advantage. Ultimately, aligning business strategies with consumer preferences is key to fostering brand loyalty, driving growth, and sustaining long-term success.


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A Study on Impact of Entrepreneurial Environment in the Institution on Entrepreneurial Attitude among Students in Andhra Pradesh

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Abstract

This study focuses on the correlation between a sample of respondents' attitudes about entrepreneurship and entrepreneurial opportunity. Through correlation and regression analyses, a positive relationship is found between perceptions of entrepreneurial opportunities and attitudes towards entrepreneurship. Regression analysis identifies Entrepreneurial Opportunity as a significant predictor of attitudes towards entrepreneurship, underscoring

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its influence on shaping societal perceptions. These findings highlight the importance of fostering supportive environments for entrepreneurship to cultivate positive attitudes and potentially enhance economic and cultural outcomes. Future research could explore additional factors impacting attitudes towards entrepreneurship across diverse demographic and economic contexts, offering further insights for policy and educational initiatives aimed at promoting entrepreneurial activities.

Keywords: Entrepreneurial Opportunity. Entrepreneurial Attitude. Innovation and Entrepreneurship.

1 Introduction to the Concept of Entrepreneurship

Entrepreneurship, often heralded as the backbone of economic growth and innovation, is a multifaceted concept encompassing the creation and management of new business ventures. It involves identifying opportunities, mobilizing resources, and assuming the risks associated with starting and running a business to generate economic value. Entrepreneurship is not merely about starting new businesses but also about fostering innovation and addressing unmet needs within the market. Entrepreneurship can be simply explained as the undertaking of creating, establishing, and managing a new company, usually a start-up, that sells or hires out a process, product, or service. It involves a dynamic interplay of vision, risk-taking, and decision-making in the face of uncertainty to achieve business success and economic impact (Jora et al., 2023; Mittal et al., 2023).

The scope of entrepreneurship extends beyond the individual entrepreneur to include various stakeholders such as investors, employees, customers, and the broader community. Entrepreneurs contribute to economic development by creating jobs, fostering innovation, and stimulating competition. They are often seen as change agents who drive societal progress through their entrepreneurial ventures.

1.1 Theories and Models of Entrepreneurship

Several theories and models have been developed to understand the phenomenon of entrepreneurship. Some of the notable theories include:

1. **Economic Theories:** These theories focus on the economic functions of entrepreneurship, such as the role of the entrepreneur in allocating resources efficiently and driving economic development. Joseph Schumpeter's theory of innovation emphasizes the entrepreneur's role in creative destruction, where old industries are replaced by new, innovative ones.
2. **Psychological Theories:** These theories explore the personality traits and psychological factors that influence entrepreneurial behavior. Traits such as risk-taking

propensity, need for achievement, and locus of control are commonly associated with successful entrepreneurs.

3. **Sociological Theories:** Sociological perspectives examine the social and cultural context within which entrepreneurship occurs. Factors such as social networks, cultural norms, and institutional support systems play a significant role in shaping entrepreneurial activities.
4. **Behavioral Theories:** These theories focus on the actions and behaviors of entrepreneurs, emphasizing the processes and strategies they use to identify opportunities, acquire resources, and build businesses. The Entrepreneurial Orientation (EO) model, which includes dimensions like innovativeness, risk-taking, and proactiveness, is a widely used framework in this regard.

1.2 Entrepreneurship in the Indian Context

In India, entrepreneurship has gained substantial momentum in recent years, driven by economic reforms, technological advancements, and a supportive policy environment. The Indian entrepreneurial ecosystem has witnessed the emergence of numerous start-ups across various sectors, contributing to economic growth and job creation.

1.3 Key Drivers and Barriers

Several factors drive entrepreneurship among engineering graduates in India:

1. **Educational Environment:** Engineering institutions play a crucial role in fostering an entrepreneurial mindset by offering courses on entrepreneurship, business management, and innovation. Exposure to entrepreneurial role models and industry interactions further enhances students' entrepreneurial intentions.
2. **Personality Traits:** Traits such as creativity, risk-taking ability, and proactiveness are strong predictors of entrepreneurial intentions among engineering students. These traits are often nurtured through engineering education, which emphasizes problem-solving and innovation.
3. **Economic and Social Conditions:** Favorable economic conditions, availability of funding, and supportive social networks significantly influence entrepreneurial aspirations. Government initiatives like Start-up India and Make in India have created a conducive environment for entrepreneurship.

2 Objectives of the study

The current investigation was conducted keeping the following objectives in view :

1. To research the institutional culture in universities and colleges which encourages entrepreneurship.
2. To gauge engineering grads' perspectives on entrepreneurship
3. To study the impact of institutional environment on attitude of engineering graduates towards entrepreneurship

3 Review of Literature on Entrepreneurial Attitude

In accordance with GEM (global entrepreneurship monitor) (2010), the principal objective of entrepreneurship education should be to foster economic growth, drive and influence innovation, and create jobs. (Thompson, 2004). Saeed et al.'s (2019), had postulated that students' entrepreneurial self-efficacy was shaped by the support of their perceived education and concept development. Research findings showed that, in terms of entrepreneurial self-efficacy, perceived educational assistance had the greatest impact, followed by conceptualization, business development, and institutional support. According to the findings, a holistic viewpoint offers a more relevant understanding of how students' stated intentions to start their own businesses are formed. Arunkumar et al.'s (2018) examined the ways in which a person's attitude toward entrepreneurship varies from others. The study uncovered the general attitudes of students regarding entrepreneurship and how those attitudes affect positive attitudes. According to the study, educational institutions ought to encourage students to think about creating their own businesses so they can have greater freedom in their private and professional lives.

Prasad et al.'s (2015) examined "the attitude of management students toward Andhra University entrepreneurship & entrepreneurship." Both closed-ended and open-ended statements were included in the questionnaire used to gather primary data. The data mentioned above were examined using descriptive analysis. According to the study's findings, 25% of students were open to starting their own businesses. A career in a public sector organization is something that nearly half of students enrolled in management programs are very interested in pursuing. While female students are more likely to want to work for public sector companies, this could be due to reservations the Indian government has made for them. The aforementioned study also recommended that universities incorporate instruments for the development of specialized entrepreneurial skills into their curricula.

Abirami and Sathish Kumar's (2014) carried out a study to look at college students' awareness of entrepreneurship. The study's goals were to determine the degree of student awareness, examine sources of funding for entrepreneurship, and examine the variables

driving students to pursue entrepreneurship. For the study, a sample of 400 students was drawn from the Arts and Science colleges in the Tirupur area. The data was analyzed using the Chi-square Analysis technique. Compared to female students, the majority of male students showed a more positive attitude toward entrepreneurship, according to the study. Additionally, this study discovered that students struggle with the financial side of business. Researchers recommended that the government give technical information to female students, banks should finance students to launch new enterprises, and institutions should help students develop their entrepreneurial skills by holding lectures, seminars, and workshops.

Díaz-Casero et al.'s (2012) conducted a study to assess how university students' inclinations to pursue entrepreneurship are impacted by their institutional environment. The focus of the study was to evaluate how students in Portugal and Spain saw entrepreneurship in terms of its desirability, viability, and goal. Data was gathered by researchers from these two nations. 527 pupils from Portugal and 516 pupils from Spain were included in the sample. The data were analyzed using basic statistical methods like chi-square analysis and percentage analysis. According to the report, university students in both nations have a favorable opinion of entrepreneurship. Compared to university students in Portugal, those in Spain said entrepreneurship was less complicated. Lope Pihie and Bagheri's (2011) carried out a study to investigate the entrepreneurial self-efficacy and attitude orientation of Maley Secondary School students. 2574 students were chosen at random from three states in Malaysia: Perak, Pahang, and Negari Sembilan. Students from technical, vocational, and commerce education programs were chosen. A range of methods and tools, such as mean, correlation, cronbach Alfa, and surveys, were employed in the data collection and analysis process. The study's conclusions demonstrated that students studying technical and vocational topics had a favorable attitude toward entrepreneurship. A researcher proposed that schools should offer students entrepreneurial education and training in order to boost the potential for entrepreneurship among the younger generation.

Packham's (2011) conducted a comparison of the perceptions of entrepreneurship among students in France, Germany, and Poland. Undergraduate students at French, German, and Polish Higher Education Institutions were asked to rate their entrepreneurial attitude in response to a brief enterprise course using a five-point Likert scale. The study's conclusions showed that enterprise education beneficially impacts French and Polish students' entrepreneurial attitudes. Although male students profit more from enterprise education in terms of their entrepreneurial spirit, female students are also more likely to feel that they have gained more from the experience. Kumara and Sahasranam's (2009) examined the business management students' entrepreneurial traits. In addition, they studied how demographic factors impacted the traits of entrepreneurs. Convenience sampling was used to get a sample of 51 pupils. To test the attributes, a quiz with 25 statements that

compromised the "yes" or "no" statements was administered. The data was analyzed using a variety of parametric and non-parametric tests, including the F, T, and chi square tests. The results indicated that there was actually no relationship between entrepreneurial traits and grades in the tenth, twelfth, or degree classes. There was equality of variance regardless of whether they scored below or above 60%.

4 Data collection

Self-completion questionnaires served as the means for the research; questions created using a Google Form were sent across student social media groups. Luiz and Mariotti's (2011) study, "Entrepreneurship in an Emerging and Culturally Diverse Economy: A South African Survey of Perceptions," served as the model for the standard questionnaire utilized in the investigation. A total of 472 responses were received from the student groups studying in various colleges in the JNTUK region. The primary data was tabulated and analyzed by using Mean, SD, Anova, correlation and Regression through SPSS and presented the results.

5 Data analysis and discussion

Table 1. Frequency Distribution Of The Respondents Based On Gender

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Male	185	48.8	48.8	48.8
Female	194	51.2	51.2	100.0
Total	379	100.0	100.0	

From the above table 1, it is found that 48.8% of the respondents are male, and 51.2% are female. The table 2 presents the frequency distribution of respondents based on their father's occupation.

This distribution provides insights into the occupational backgrounds of the respondents' fathers within the surveyed population is given below:

- Govt Employee: 7.9% of the respondents' fathers work in government jobs.
- Private Employee: 17.2% of the respondents' fathers are employed in the private sector.
- Own Business: 27.4% of the respondents' fathers are self-employed in their own businesses.
- Others: 47.5% of the respondents' fathers have occupations categorized under "Others".

The table 3 illustrates the respondents' frequency distribution according to their income. This distribution provides an overview of the income levels among the surveyed

Table 2. Frequency Distribution Of The Respondents Based On Father’s Occupation

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Govt Employee	30	7.9	7.9	7.9
Private Employee	65	17.2	17.2	25.1
Own business	104	27.4	27.4	52.5
Others	180	47.5	47.5	100.0
Total	379	100.0	100.0	

Table 3. Frequency Distribution Of The Respondents Based On Income

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
1-2L	286	75.5	75.5	75.5
2-5L	64	16.9	16.9	92.3
5-7L	13	3.4	3.4	95.8
7-9L	8	2.1	2.1	97.9
Above9L	8	2.1	2.1	100.0
Total	379	100.0	100.0	

respondents, indicating that the majority have incomes in the 1-2 lakh range.

- 1-2L: 75.5% of the respondents fall within the income range of 1-2 lakhs.
- 2-5L: 16.9% of the respondents have incomes ranging between 2 to 5 lakhs.
- 5-7L: 3.4% of the respondents earn between 5 to 7 lakhs.
- 7-9L: 2.1% of the respondents’ incomes are between 7 to 9 lakhs.
- Above9L: 2.1% of the respondents earn above 9 lakhs.

Table 4. Descriptive Statistics For Entrepreneurial Opportunity

	N	Minimum	Maximum	Mean	Std. Deviation
Entrepreneurial Opportunity	472	1.22	5.00	3.0205	.70110
Valid N (listwise)	472				

The table 4 provide a summary of the distribution of scores related to entrepreneurial opportunity among the respondents, indicating the central tendency (mean) and variability

(standard deviation) of their responses. The mean value of 3.0205 for Entrepreneurial Opportunity suggests that, on average, respondents perceive moderate to high levels of opportunity for entrepreneurship. A score above 3 typically indicates a positive perception, suggesting that, in general, the respondents view entrepreneurial opportunities favorably. The mean serves as a central measure indicating the average level of perceived opportunity among the surveyed group, with higher values reflecting greater perceived potential for entrepreneurial activities.

Table 5. Descriptive Statistics For Attitude Towards Entrepreneurship

	N	Minimum	Maximum	Mean	Std. Deviation
Attitude towards Entrepreneurship	472	1.35	4.94	3.2494	.66058
Valid N (listwise)	472				

Table 5 shows that on average, respondents have a moderately positive attitude towards entrepreneurship. The mean score of 3.2494 suggests that the majority of respondents view entrepreneurship favorably, with scores ranging from slightly positive to strongly positive. The standard deviation of 0.66058 indicates that attitudes towards entrepreneurship vary somewhat among the surveyed population.

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.499 ^a	0.249	0.247	0.57322

^a Predictors: (Constant), Entrepreneurial Opportunity

A correlation coefficient (Pearson's R) of 0.499 indicates a moderate positive linear relationship between the variables in the regression model (see table 6). Here's how to interpret it:

- **Strength:** The value of 0.499 suggests a moderate correlation. In statistical terms, this indicates that there is a discernible tendency for higher values of Entrepreneurial Opportunity to correspond with higher values of the dependent variable being studied.
- **Direction:** The positive sign (+0.499) indicates that as Entrepreneurial Opportunity increases, the dependent variable tends to increase as well. This suggests that respondents who perceive more entrepreneurial opportunities also tend to have a more favorable attitude towards entrepreneurship, assuming the dependent variable is attitude in this context.

- Limitations: While 0.499 indicates a relationship, it doesn't imply causation. Other factors not included in the model could also influence attitudes towards entrepreneurship.

In conclusion, a Pearson's R of 0.499 offers insightful information on the connection between attitudes toward entrepreneurship and entrepreneurial potential, indicating a moderate positive association between these variables in the surveyed population.

Table 7. Results of ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	51.098	1	51.098	155.511	<.001 ^b
Residual	154.432	470	0.329		
Total	205.529	471			

^a Dependent Variable: Attitude towards Entrepreneurship

^b Predictors: (Constant), Entrepreneurial Opportunity

- Table 7 reveals that the regression sum of squares (SSR) of 51.098 indicates the amount of variance in attitudes towards entrepreneurship that is explained by the predictor variable, Entrepreneurial Opportunity. With an F-value of 155.511 and a significance level (Sig.) less than 0.001, the model is statistically significant. This suggests that Entrepreneurial Opportunity significantly predicts attitudes towards entrepreneurship.
- Residual: The residual sum of squares (SSE) of 154.432 represents the unexplained variance in attitudes towards entrepreneurship after accounting for the predictor variable in the model.
- Total: The total sum of squares (SST) of 205.529 is the total variance in attitudes towards entrepreneurship.

The ANOVA outcomes show that the model describes the variation in attitudes toward entrepreneurship significantly when Entrepreneurial Opportunity is included as a predictor. Considering the high F-value and extremely low p-value (< 0.001), it seems improbable that the observed association is the result of chance. Thus, Entrepreneurial Opportunity is a strong predictor of attitudes towards entrepreneurship among the surveyed population.

- Table 8 intercept the constant(1.830) represents the estimated Attitude towards Entrepreneurship when the predictor variable (Entrepreneurial Opportunity) is zero. In practical terms, it suggests the baseline attitude towards entrepreneurship in the absence of perceived entrepreneurial opportunities.
- Entrepreneurial Opportunity:
 - Assuming all other variables equal, the unstandardized coefficient (B) of 0.470 shows

Table 8. Coefficients

Model	Unstandardized Coefficients		Std. Coefficients	t	Sig.
	B	Std. Error			
(Constant)	1.830	0.117		15.670	0.000
Entrepreneurial Opportunity	0.470	0.038	0.499	12.470	0.000

^a Dependent Variable: Attitude towards Entrepreneurship

that, for each unit rise in entrepreneurial opportunity, there is an expected rise in attitude toward entrepreneurship of 0.470 units.

- The standardized coefficient (Beta) of 0.499 indicates the strength and direction of the relationship between Entrepreneurial Opportunity and Attitude towards Entrepreneurship, adjusted for the scale of measurement of the variables. It suggests a moderate positive effect of Entrepreneurial Opportunity on Attitude towards Entrepreneurship.
- The t-value of 12.470 and a significance level (Sig.) of 0.000 indicate that the coefficient for Entrepreneurial Opportunity is statistically significant, reinforcing that the relationship observed is unlikely to be due to random chance.

These coefficients provide quantitative evidence that Entrepreneurial Opportunity significantly influences and predicts Attitude towards Entrepreneurship among the surveyed population. The positive coefficients and their statistical significance indicate that perceiving more entrepreneurial opportunities is associated with more favorable attitudes towards entrepreneurship.

The table 9 indicates correlation coefficient of 0.499 suggests that there is a moderate positive linear relationship between Entrepreneurial Opportunity and Attitude towards Entrepreneurship among the respondents. P-value of 0 ($p < 0.01$) suggests a significant connection between positive attitudes toward entrepreneurship and perceived entrepreneurial prospects, making it extremely improbable that this correlation happened by coincidence alone. Both variables, Entrepreneurial Opportunity and Attitude towards Entrepreneurship, were measured on the same 472 respondents, ensuring consistency in the analysis.

Table 9. Results of Pearson Correlation

		Entrepreneurial Opportunity	Attitude towards Entrepreneurship
Entrepreneurial Opportunity	Pearson Correlation Sig. (2-tailed) N	1 472	.499** 472
Attitude towards Entrepreneurship	Pearson Correlation Sig. (2-tailed) N	.499** 0 472	1 472

** Correlation is significant at the 0.01 level (2-tailed).

6 Conclusion

Attitude towards Entrepreneurship among the surveyed population. The Pearson correlation coefficient of 0.499, with a p-value of less than 0.01, indicates that as perceptions of entrepreneurial opportunities increase, so do favorable attitudes towards entrepreneurship. This finding is further supported by the regression analysis, where Entrepreneurial Opportunity emerges as a strong predictor of attitudes towards entrepreneurship, explaining 24.9% of the variance. These results imply that fostering a conducive environment for entrepreneurial activities could potentially enhance societal attitudes towards entrepreneurship. Policies and initiatives aimed at promoting and supporting entrepreneurship may not only stimulate economic growth but also cultivate a more positive cultural outlook on entrepreneurial endeavors. Future research could explore additional factors influencing attitudes towards entrepreneurship and assess longitudinal changes in perceptions and attitudes across diverse demographic and economic contexts. Overall, these findings underscore the importance of entrepreneurial opportunities in shaping societal attitudes towards entrepreneurship, highlighting implications for policy and educational initiatives aimed at fostering entrepreneurial ecosystems.

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The IOT Revolution in Education: Balancing Technological Advancement and Interpersonal Growth

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Abstract

Educational institutions in India have gone through the traditional methods of learning, i.e. delivering face-to-face lecture in class rooms and few of the academic institutions have gone through the blended learning. Still today a lot of educational institutions restrain themselves to the old procedures. The deadly disease wave called Covid-19 caused by Corona Virus shook the entire world and W.H.O declared it as a pandemic. The global education system was put to the test by this issue, and educators were abruptly obliged to switch to an online form of instruction. Many academic institutions were forced to completely switch to online teaching-learning.

Keywords: E-Learning. Impact. Interpersonal skills. Traditional methods.

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1 Introduction

Over the past ten years, there has been a noticeable increase in the number of people pursuing online learning as people have been able to acquire new skills through backend support of internet (Kamraju et al., 2024). People's lives now revolve around online learning to update their skills. Online gain the immense popularity as a result of the pandemic forcing colleges, institutions and businesses to adopt the remote work policies. Research and Markets predicted the online education industry would arrive \$350 billion by 2025 (Koksal, 2020; Mittal, 2020). The purpose of this chapter is to know about how the online platforms rise due to the impact of Covid-19 and how does learning in e-platforms will effect in the interpersonal skills of the student or the user. Online learning has been more and more popular lately since it is affordable, flexible, and accessible. Traditional educational institutions have been impacted by the digital transformation of education, which has brought up both new opportunities and challenges.

1.0.1 Pros of E-Learning

- Covid-19 pandemic, the tough situation not permitted the students to attend to the physical classes there by the educational institutions, corporate have gone through the means and ways to conduct the classes they arrived for a common conclusion that only the way to educate the student through Online (E-Learning) and getting things done by the employee through online (Selvaraj et al., 2021).
- E-Learning is a boon for the few girl children and differently-abled children are not attending to school or colleges due to the poor facilities there. In some rural areas students faced the network problems.
- One advantage is there for the E-Learning. If we miss the class, we can listen it later the recorded information. Few of the student have optimally utilized this benefit of flexibility in E-Learning during covid-19 Pandemic.
- Student can have a great opportunity to watch the E-content for more number of times until to understand the concept.
- Teachers can have the great opportunity to educate the student through technology i.e explain the concept by connecting the online videos, animations there by the student can understand the concept easily.

1.0.2 Challenges of E-Learning

- Physical learning, we can control the students through face to face interaction. Controlling the students became difficult i.e when asking questions students are not responded, in online mode it showing that they are present, if you ask question or attendance they won't respond (Hollister et al., 2022). Faculty can have a great confusion to give at-

tendance or not. Whether student understood the lesson or not these problems faced by the faculty.

- Continuously looking at the screen cause for eye and ear strain (Kaur et al., 2022).
- Class room environment is live in nature whereas getting it through online is boring.
- Class room integration is live and great opportunity to the student to develop their personality whereas scope is negligible through online.
- Some students do not have the internet facility so e-learning deepens the inequality between the rich and poor in 21st century.
- The rule like regularly attending the class to maintain 75% of attendance to allow the students to appear for the end semester examinations Due to the network problems, due to their poor financial capacity few students are suffered allot to buy smart phone to grab the network signal speed.
- E-Learning may not generate seriousness as classroom learning. So, students may not be motivated enough to listen to the class.
- The student or the parent should be the technical savvy to clear the technical issues if it happens. In most of the families' parents are not technologically educated to help their children in case of technical issues.
- It is the foremost responsibility of the parent to supervise their child when he attends to the online class because they are get addicted to the YouTube and the other apps. Keep an eye on them he/she listens the class and responding to the queries of their professor.

1.1 About the Market

Millions of people are using the different online learning sites which includes Udemy, Coursea, Lynda, Skill share and Udacity basing on their interest (Bankovska, 2023). The many user vertical are also shaping these platforms. Skillshare platform offers workshops and classes on variety topics like design, photography, writing and business for the students of all skill levels. Users can take the classes in a variety formats, including video lessons, interactive projects. One of the unique feature of Skill share is its community aspect, where students can interact and engage with their peers, ask questions, share feedback, and learn together (Rumiantsev, van der Rijst, & Admiraal, 2023). While Coursera primarily serves academics by providing access to university courses. Reputable universities are also democratising education by offering online courses. Online courses in the fields of computer science, engineering, mathematics, business, art, and personal development are available from Stanford University and Harvard University. From the end of the learners it's a big challenge to find what skills are emerging, how to cope up in global market. Even learned the skill set, they have to update themselves according to the changes in the external environment. Online learning is becoming a huge catalyser to the companies and

for the people to help them to adapt of this rapid change in the world (Besser, Flett, & Zeigler-Hill, 2022).

2 Objectives and significance of the Study

- To know about the awareness of E-learning platform
- To know about the usefulness of E-learning.
- To find out what type of problems student or user are facing related to service delivered by the E-learning platform.
- Effects of E-leaning on student's interpersonal skills.
- To find out the level of student's satisfaction from the e- learning platforms.

3 Research Questions

- The services provided by the E-learning platforms is useful for the future of students or not.
- Students are facing any problems while using the E-learning platforms.
- Is there any improvement in the interpersonal skills of students while using the platforms?
- Is the content explained in the platforms are easily understandable or not?

4 Conceptual Framework

Figure 1 shows the conceptual framework of the hypothesis.



Figure 1. Conceptual Framework

5 Analysis and Discussion

From the observational study it is clear that male percentage is 85.7 and female is 14.3%. 96.1% respondents are aware about E-learning Platform and 3.9% are not aware about E-learning platforms. 96.1% respondents are aware about the login process of E-learning Platform and 3.9% are not aware about the login process of E-learning platforms. 52.4% Respondents are using Coursera, 12.8% respondents are using Unacademy, 6% respondents are using Udemy and 28.8% users are using other platforms (see table 1). A descriptive statistics is given in Table 2.

Table 1. Types of courses

Courses	Frequency	Percentage	Cumulative Percentage
Coursera	53	52.4	52.4
Unacademy	13	12.8	65.2
Udemy	6	6	71.2
Others	29	28.8	100
Total	101	100	100

Some of the important key findings are:

- Is e-learning platform are useful for this statement 4.9% respondents stated strongly disagree, 10.8% stated disagree, 9.9% were neutral, 58.4% were agreed to this statement and 15.8% were strongly agreeing.
- Is the certificate provided by the E-learning platform is useful in future for this statement 5.9% respondents stated strongly disagree, 8.9% stated disagree, 10.8% were neutral, 57.4% were agreed to this statement and 16.8% were strongly agreeing.
- The content provided through E-learning platform is updated for this statement 3% respondents stated strongly disagree, 6.9% stated disagree, 13.8% were neutral, 66.3% were agreed to this statement and 10.8% were strongly agreeing.
- Is the e-learning platform requiring high bandwidth for this statement 1.9% respondents stated strongly disagree, 13.6% stated disagree, 41.5% were neutral, 37.6% were agreed to this statement and 4.9% were strongly agreeing.
- Did the platform is asking money for the certificate of completed course for this statement 3% respondents stated strongly disagree, 23.7% stated disagree, 24.7% were neutral, 45.5% were agreed to this statement and 4% were strongly agreeing.
- Are you able to manage both the education and courses in time for this statement 2% respondents stated strongly disagree, 14.8% stated disagree, 34.6% were neutral, 43.5% were agreed to this statement and 4.9% were strongly agreeing.
- Did you get improvement in your interpersonal skills from E-learning Platforms for this

Table 2. Descriptive Statistics

Item	N	Minimum	Maximum	Mean	Std. Deviation
1. Are courses provided on the e-learning platform useful?	101	1	5	3.69	1.027
2. Is the certificate provided by the e-learning platform useful in the future?	101	1	5	3.70	1.044
3. Is the content provided through the e-learning platform updated?	101	1	5	3.77	0.811
4. Does the e-learning platform require high bandwidth?	101	1	5	3.29	0.852
5. Does the platform charge money for the certificate of a completed course?	101	1	5	3.23	0.958
6. Are you able to manage both education and courses in time?	101	1	5	3.35	0.865
7. Did you get improvement in your interpersonal skills from e-learning platforms?	101	1	5	3.63	0.946
8. Are the interpersonal skills you gained from e-learning platforms useful for your future career?	101	1	5	3.47	1.073
9. Do you enjoy learning through e-learning platforms?	101	1	5	3.48	1.092
10. Are the courses provided on the e-learning platform easily understandable?	101	1	5	3.59	1.002
11. Is the instructor of the course highly knowledgeable?	101	1	5	3.76	1.041
12. Are students able to interact with the instructor or trainer for any doubts?	101	1	5	3.66	0.993
Valid N (listwise)	101				

statement 3.9% respondents stated strongly disagree, 8.9% stated disagree, 18.8% were neutral, 60.3% were agreed to this statement and 17.8% were strongly agreeing.

- The interpersonal skills you gained from the E-learning platforms is useful for your future related career for this statement 8.9% respondents stated strongly disagree, 8.9% stated disagree, 17.8% were neutral, 55.4% were agreed to this statement and 8.9% were strongly agreeing.
- Do you enjoy learning through e-learning platforms for this statement 7.9% respondents stated strongly disagree, 10.8% stated disagree, 18.8% were neutral, 56.4% were agreed to this statement and 11.8% were strongly agreeing.
- Is the courses provided in e-learning platform is easily understandable for this statement 6.9% respondents stated strongly disagree, 5.9% stated disagree, 21.7% were neutral, 54.4% were agreed to this statement and 11.8% were strongly agreeing.
- Did the instructor of the course is highly knowledgeable for this statement 7.9% respondents stated strongly disagree, 4.9% stated disagree, 8.9% were neutral, 66.3% were agreed to this statement and 17.8% were strongly agreeing.
- Are the students are able to interact with the instructor or trainer for any doubts for this statement 4.9% respondents stated strongly disagree, 8.9% stated disagree, 17.8% were neutral, 54.4% were agreed to this statement and 14.8% were strongly agreeing

Hypothesis H0: There is no significance association between courses offered by E-learning platforms and students interpersonal skills(H0)

From the above correlation dependent variable is overall rating and independent variable are usefulness, problems faced by students, effects on interpersonal skills and level of satisfaction. Correlation is significant at 0.01 and 0.05 level. There is a significance between between courses offered by E-learning platforms and students interpersonal skills. So we can accept the alternative hypothesis (H1) and reject the null hypothesis (H0)

6 Conclusion

Online education is here and is highly likely to stay and grow. The review of its history clearly shows online education has developed rapidly, fuelled by Internet connectivity, advanced technology, and a massive market. It has evolved from 19th century correspondence programs to the 21st century's vibrant and well-designed institutional online offerings. We can well anticipate that online education will continue to increase its presence and influence higher education through a vigorous process of reshaping, refining, and restructuring. It is unlikely, however, to replace traditional higher education but merely to be an alternative. But, owing to its flexibility, accessibility and affordability, online education is gaining in popularity, especially for people who are otherwise unable. To enhance the performance of the online platform and address issues with slow loading times, it is crucial to implement optimizations that improve overall efficiency. Additionally, offering free





courses with certificates can attract a wider audience and encourage user engagement. By focusing on these improvements, the platform can provide a better experience for learners while simultaneously expanding its reach and reputation in the e-learning market.

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A Study on Leveraging Artificial Intelligence in Educational Institutions: Enhancing Human Resource Management Practices

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Abstract

The way that technology is transforming enterprises around the globe enables the incorporation of educational institutions into HRM practices an essential field of research. The ramifications, difficulties, and opportunities related to the integration of educational institutions into HRM are explored in this abstract. Artificial intelligence (AI) offers a plethora of resources and algorithms that have the ability to significantly transform HR procedures, such as talent management, performance reviews, hiring, and employee engagement. AI-powered

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automated screening techniques increase the effectiveness of candidate selection, leading to a more bias-free and productive hiring process. Insightful data on employee performance parameters is another benefit of AI-driven analytics, which supports information-driven strategies for talent development and retention. Despite these obstacles, educational institutions offer an abundance of prospective advantages in HRM. By automating routine tasks and applying predictive analytics, HR managers can devote greater attention to strategic projects and employee development. This would eventually result in a workforce that is more adaptable and resilient. Moreover, AI-driven insights empower HR departments to promptly adapt to evolving organizational requirements, fostering a culture of innovation and ongoing improvement.

Keywords: Educational institution. Artificial Intelligence (AI). Human resource management.

1 Introduction

Among the key determinants of an industry is technology. Robots have taken over human labor in production sectors since the 19th century. Human labor was replaced by machinery as the third revolution got underway in the 1970s when desktop computers and the internet entered the job market. The modern workplace is incorporating technological advances such as machine learning (ML) and educational institutions, which will bring about a shift in the business landscape. A corporation, establishment, community or similar entity that is committed to advancing a specific cause or purpose, particularly one that is public, educational, or philanthropic, is referred to as an educational institution. Educational establishments are essentially a platform for the development of human resources (Gonda, 2014). Reactive tactics, subjective decision-making, and labor-intensive procedures have been the hallmarks of HRM. But the introduction of AI technology has transformed everything, providing hitherto unseen chances to improve HR operations and boost corporate effectiveness. A new era of effectiveness, flexibility, and creativity in human capital management is brought about by the combination of Educational institutions and HRM. Even though there are still obstacles to overcome, AI has the unquestionable ability to revolutionize HR procedures and promote corporate performance. As we continue to explore this changing environment, we must ethically adopt AI and use its ability to assist individuals and organizations in overcoming the challenges of the contemporary workplace.

Duchessi, O’Keefe, and O’Leary’s (1993) in the research paper covered how technological innovation in educational institutions affects staff administration, organizational structure, personnel transfers and downsizing, cost savings and improved services, and accountability and ownership for decision making. Kapoor’s (2010) in this study the significance of business intelligence and its relevance to human resource management have been

discussed . In order to examine the business intelligence and data analytical capabilities integrated into human resource management modules, the researcher in this study examined the top business intelligence service provider. Palos-Sánchez et al.'s (2022) in the research article the role of human resource management in educational institutions was highlighted . According to the report, the majority of businesses employ contemporary technology in their HR departments, including cloud-based HR systems, performance appraisal techniques, and recruitment procedures. Cüneyt Dirican's (2015) researched the potential adverse consequences of robotics and educational institutional business on an organization's overall functions, including production, sales, performance management, strategic thinking, managing client relationships, banking systems, coaching, training, taxes, and so on. His research paper, "The Impact of Robotics, Educational Institution Business and Economics," details the results of his investigation. The authors of the research paper "Educational institution technologies in human resource development," Buzko et al.'s (2016), reflect on the obstacles posed by AI in the field of human resources, emphasizing that the technology is unable to determine the efficacy of training expenditures. The writers of the research report observed that educational institutions' technologies enable humans to analyze data quickly.

(R & Bhanu Sree, 2018). Recruitment through Artificial Intelligence: A Conceptual Study is the title of the research study. The researchers have explained the ways artificial intelligence functions in hiring, emphasizing the crucial role that educational institutions play in the hiring process. Educational institutions assist with hiring, employee relations, interview scheduling, applicant screening, and auto-generated messaging. H.'s (2018), Under the heading of Educational Institution and the Future of Work: Human-AI Symbiosis in Organizational Decision Making, he published a research paper. The research articles addressed how AI can benefit humans. Educational institutions have been beneficial in making decisions, managing uncertainty, and addressing the ambiguity of decisions made in an organization. Mon et al.'s (2023), The researcher sheds light on artificial intelligence's (AI) significance in human resource management in the research paper, A Study on Role of AI in Human Resource Management. According to the author, AI can be beneficial in the workplace and may assist HR professionals in understanding how they operate and seeing issues and trends ahead of time.

2 Research Objectives

- To examine the manner in which artificial intelligence affects the function that academic institutions play in improving HRM procedures.
- To assess the adoption of HRM techniques by educational institutions in different sectors and organizational environments currently .
- To look into the hurdles and impediments to the incorporation of educational organizations in HRM.

3 Research Methodology

Descriptive research design is the approach used in this investigation. The researcher employed secondary data in the course of research. The secondary data was gathered from published materials, survey reports from numerous research organizations, online portals, blogs on HR, and research papers.

4 Role of Educational Institutional in HR

To improve its ability to effectively handle HR, the HR department is currently embracing the digital revolution and utilizing cutting-edge technology like digital platforms, automation, and artificial intelligence (Wahdaniah et al., 2023) The majority of business enterprises use educational institutions or digital HR technology, such as chatbots, machine learning, and robotic process automation, to support various aspects of human resource management, including hiring, onboarding, screening, and interviews. The significance of educational institutions in human resource management is as follows:

1. Recruitment: The researcher Amla, Majnu ; Malhotra, Meenakshi's (2017) in their paper defined that only 40 percentages of companies and industries are using artificial intelligence. Organizations like SAT, Facebook, GE are using digital technologies in screening, interview, and identify the new talent for the recruitment process in an organizational. Through AI recruitment manager can examine the application and candidate can get quick response. Chat box system or automated answering machine plays essential role to solve the quires and problems regarding the process of recruitment in an organization.
2. Screening and Interview Process: Educational institution is helpful in automating the interview process by examining them with word or speech patterns exams. Through Ay software digital interview can take place and AI also helps to improve the candidate experience. Tools like Amy and Clara are used to scheduling interviews, working meetings.

3. Reduce Administrative burden: In an organization HR have to play multitasking roles where using technology and Educational institution companies try to reduce workload. AI provides solutions of problems and it helps to increase the efficiency of HR in an organization.
4. Selecting: AI human resource manager can able to trace right candidate in short time of span and technology will helps out to identify the suitable candidates as per required skills sets.
5. Reduce Discriminations: Artificial Intelligence is currently being used to lessen partiality and will contribute to greater workplace openness. An organization may decide on a resume in this manner. Job descriptions can be analyzed using AI software.
6. Increase Efficiency: Educational institutions will aid in minimizing employee layoffs in the workplace. Numerous robotic tasks have been implemented to enhance workplace productivity. Data collection, report filing, data copying, needed data identification from existing information, processing, data collection for payroll and HR systems, and other tasks are examples of robotic tasks.
7. Enrich workplace learning: These days, digital technologies and computers can handle the back-end work in industry. With the use of computers and contemporary technology, industries are able to handle data analysis, give immediate feedback during training, and change their course of action in response to input they get. Businesses adopted Microsoft 365, which facilitates employee work and boosts office productivity, to save time. AI tools are employed, such as Wade & Wendy (for career growth), Obie and Niles (that is, for content sharing), Engazify (for feedback), and Duolingo (for learning) (Amla, Majnu ; Malhotra, Meenakshi, 2017).

5 Benefits of Educational Institution in HR

- Minimize the workload on the organization's administrative employees.
- It will be help in the selection of the best applicant for the role and acquiring talent .
- It can operate effectively and transcend human constraints.
- Error probabilities will be reduced.
- It will keep the various departments' workflows intact.
- Employee engagement at work is going to improve as a result.
- It will mitigate the tendency for decision-making to be biased.

6 Challenges of Educational Institution in HR

First and foremost, if educational institutions are utilized, an enormous number of employment will require replacement; additionally, the organizational structure will be shattered, and an a great deal of transactional management tasks like data analysis, employee relations, primary recruitment, compensation, training, etc. will be handled by them, displaying enterprise managers superfluous. As more educational institutions are used, the labor force will decline and the unemployment rate will rise annually. Numerous low-end employment will be impacted, for instance, by Foxconn's extensive employment of robots to replace manufacturing line workers, as well as by unsupervised stores and driverless autos. There will be fluctuations in the demand for labor due to the rapid advancement of new technology like artificial intelligence.

Technology in educational institutions has lowered the number of individuals working in low-paying employment, but it has likewise raised the cost of equipment upkeep for businesses. It also elevates the bar for both the amount and caliber of experts working in educational institutions. There is currently a clear lack of skilled workers in the artificial intelligence space, particularly experienced employees who are proficient in the field's fundamental technologies. This will surely drive up the cost of maintenance for businesses that provide products to educational institutions. The only way we can appropriately address the lack of talent in AI is by establishing a solid framework for its widespread use. In the future, we want to concentrate on constructing skilled personnel training systems for educational institutions utilizing both a mechanism and mode . Every company's most valuable asset is its staff, and the AI system may have an influence on management levels, which will foster fearlessness in the intellects of the workforce. Selecting the right person to manage artificial intelligence systems is one of the industry's main challenges, and the HR department may find it challenging. Another restriction and difficulty is that technology is displacing the HR department's authority and role in everyday decision-making within a firm.

7 Conclusion





The industrial sector is expanding at a staggering rate in this age of competition. The primary challenge impacting industries is managing ongoing improvement. Most sectors are using current innovations to improve efficiency and for routine tasks. Digital technologies and tools for educational institutions are being recommended by the vast majority of researchers and professionals to industries. Numerous businesses in the human resource department are employing machine learning and educational institutions. AI is a key component of recruiting, selection, recruiting, performance analysis, data collection about employees, real-time information delivery, and accurate information delivery.

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A Study on Impact of Artificial Intelligence in Financial Services of Private Banks in Bangalore

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Abstract

This study looks into how private banks in Bangalore are using artificial intelligence (AI) to transform their financial services. Due to the rapid advancement of AI technology, private banking firms are increasingly implementing AI solutions to ensure strong risk management, improve client service, and increase operational effectiveness. This research aims to identify the specific artificial intelligence (AI) applications—such as fraud detection, automated customer support, predictive analytics, and customized financial advice—that private banks have put into place. The study thoroughly examines secondary data, questionnaires, and

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conversations with banking professionals to examine the benefits and challenges of implementing AI in banking. According to the findings, banking operations have been significantly improved by artificial intelligence (AI), which has reduced operating expenses and raised customer satisfaction. However, the paper also highlights concerns about data privacy.

Keywords: Artificial Intelligence. Banking industry. Financial Services. Technology and Private Banks.

1 Introduction

The financial services sector has grown significantly as a result of technological breakthroughs, especially in artificial intelligence (AI) (Han et al., 2023). Artificial Intelligence has emerged as a key player, transforming financial institutions' operations through increased accuracy, efficiency, and customer happiness (Narang, Vashisht, & Bajaj, 2024). Bangalore, a significant financial hub in India, is setting the standard for private banks by implementing AI-powered solutions to maintain their competitiveness and provide top-notch financial services. Artificial Intelligence (AI) technologies, including natural language processing, predictive analytics, and machine learning, are being used to personalize banking experiences, improve decision-making, and automate repetitive operations (Temara et al., 2024). Artificial Intelligence is revolutionizing the financial services industry with its sophisticated algorithms that detect fraudulent activities and chatbots that provide instant client help (Bello & Olufemi, 2024). AI-driven analytics also help banks anticipate market trends, better understand client behavior, and personalize financial solutions to match the needs of each customer. John McCarthy first developed the idea of artificial intelligence (AI) in the 1950s, defining it as the "science and engineering of creating intelligent machines" (Rajaraman, 2014). Technology has advanced to the point where artificial intelligence (AI) is becoming more and more well-known as a tool for banks to manage demands from the competition. The purpose of this study is to look into how AI is affecting financial services in Bangalore's private banks. It will center on determining the precise AI applications that are being used, evaluating their efficacy, and comprehending the benefits and difficulties associated with putting them into practice. This study will offer important insights into how artificial intelligence (AI) is changing Bangalore's private banking sector and suggest ways to optimize its potential while mitigating related dangers by utilizing both quantitative and qualitative research approaches. The Reserve Bank of India (RBI) named the top 10 private banks in the nation in 2019, emphasizing the banks' reputation for providing superior financial services, productive client relationships, and sound management. ICICI, Axis, HDFC, Kotak Mahindra, Yes Bank, Federal Bank, IndusInd Bank, RBL Bank, Karur Vysya Bank, and Bandhan Bank were among these banks.

These organizations have led the way in innovation, especially when it comes to implementing new technology to improve banking procedures and cater to clients' changing needs. The summary included important information about these banks, including their founding year, head office, organizational setup, and principal roles, highlighting their influence on the development of the private banking industry in India. These banks maintain their leadership positions by embracing customer-focused initiatives and integrating new technologies. Artificial intelligence (AI) has had a big impact on the financial industry by giving fintech companies a lot of benefits like better decision-making, more operational efficiency, and better customer service (Hidayat, Defitri, & Hilman, 2024). It empowers banks to evaluate enormous volumes of data, forecast patterns, and make well-informed choices through machine learning (ML) and natural language processing (NLP). AI's capacity to support decision-making by evaluating past data and changing trends is a crucial fintech application. This allows analysts to make both proactive and reactive decisions. Additionally, AI has changed the way the banking sector provides customer care by bringing in chatbots and virtual assistants as substitutes for conventional physical branches. In some areas, like the banking sector in Sweden, where AI is used to improve client interactions and customer service impressions, this has allowed banks to keep consumer engagement while minimizing the requirement for physical equipment.

The banking industry in India is gradually utilizing artificial intelligence (AI) as banks realize how critical it is to adopt cutting-edge technology to stay competitive and provide better services (Tewari et al., 2023). Artificial Intelligence has emerged as a crucial instrument for enhancing diverse banking processes, presenting substantial prospects for streamlining risk mitigation, delivering customized financial solutions, and augmenting overall efficacy. The associated technologies, especially ML and deep learning (DL), are becoming important to revolutionizing financial services by automating mundane processes, evaluating big datasets, and producing predicting insights. In contrast to conventional statistical techniques, machine learning (ML) emphasizes algorithms to enhance results, opening the door for more advanced financial services. AI will probably have a bigger impact on the financial sector as it develops, influencing future research and opening up more avenues for innovation.

1.1 Applications in Banking

- Analytics: Even without artificial intelligence, analytics has been a major area of attention for the financial industry for a number of years, greatly benefiting from technology developments. Significant advancements in data management and processing capacity have given human analysts more capable instruments for in-depth analysis.
- Chatbots: The chatbot is currently one of the most common uses of AI. A chatbot is an artificial intelligence (AI) service that converses via text or speech with users in a way

that sounds natural and human. In order to improve user interaction, some chatbots are built with personas—virtual agents having a name, avatar, and personality.

- **Robotic Process Automation (RPA):** RPA uses a range of techniques to more quickly, precisely, and efficiently automate repetitive human processes. At its foundation, robotic process automation (RPA) is the next step toward increasing the efficiency of back-office operations. RPA performs repetitive banking tasks that are normally handled by junior-level workers. RPA and AI integration make this possible.

1.2 AI Technology in Top 10 Leading Private Banks in India

- **HDFC BANK:** In banking, artificial intelligence (AI) has several uses. A plethora of use cases exemplify artificial intelligence’s potential to revolutionize the banking sector.
- **ICICI BANK:** With 200 robots completing 1 million transactions every day, ICICI Bank was the first bank in India and among the few worldwide to implement software robotics on a broad scale to optimize operations. Two years later, the bank increased the number of robots involved in its RPA program to over 750, managing roughly the same amount of daily transactions.
- **AXIS BANK:** In order to extract insights from unstructured data, Axis Aha! was developed and implemented using artificial intelligence (AI) approaches such as natural language processing (NLP), natural language understanding (NLU), and natural language generation (NLG) in conjunction with neural networks. These technologies aid with the interpretation of consumer intent, the selection of suitable actions, and the provision of user-friendly responses.
- **KOTAK MAHINDRA BANK:** Keya, the first bilingual voice bot powered by AI in India’s banking industry, was introduced by Kotak Mahindra Bank.
- **YES BANK:** YES ROBOT is a chatbot for personal banking that operates around-the-clock. Users are able to open Messenger on Facebook, search up YES ROBOT, and begin engaging with it to explore the different AI-powered banking services offered at YES Bank.
- **FEDERAL BANK:** Federal Bank has introduced a Virtual Agent, a digital chat service driven by AI. While every effort is made to ensure the accuracy of responses, the information provided through this service is not guaranteed to be fully accurate.
- **INDUSIND BANK:** IndusInd Bank launched an Alexa Skill, ‘IndusAssist’, which allows account holders to conduct both financial and non-financial banking transactions using Amazon’s virtual assistant, Alexa.
- **RBL BANK:** RBL Bank has strengthened its collaboration with the AI-based credit underwriting platform, Credit Vidya. This partnership leverages big data analytics and AI to enhance customer experience, offering personalized financial solutions to over 1.5 million clients.

- **KARUR VYSYA BANK:** Karur Vysya Bank (KVB) provides a variety of services, including personal, corporate, and agricultural banking, as well as offerings for NRIs and MSMEs. In personal banking, the bank uses AI to facilitate services such as home loans, personal loans, insurance, and fixed deposits.

2 Objectives of the Study

- To explore the impact of artificial intelligence on financial services.
- To examine the implementation of AI in private banks and assess how it has enhanced customer service in the sector.
- To understand the concept of artificial intelligence and its role in financial operations.

3 Data and Methodologies

The qualitative technique used in this study is descriptive in nature. Secondary data was gathered through a survey of the literature in order to investigate the current AI-facilitated banking sector services. The second goal is to examine the current AI-enabled banking services offered by the chosen institutions using information gathered from websites, books, journals, and literature reviews. The third goal is to examine and analyze how the top 10 banks in India and around the world employ artificial intelligence (AI) for primary data utilizing questionnaires and statistical tools like Excel, chi-square test software, reliability testing, and correlation.

4 Empirical result

The satisfaction of customers with banking services plays a crucial role in shaping their future decisions. By employing statistical tools like correlation analysis and the chi-square test, banks can gain valuable insights into the relationships between service quality and customer retention. These analyses allow banks to identify patterns, such as whether specific features—like personalized customer support or online banking ease—contribute to higher satisfaction levels. Table 1 illustrates the link between bank account holders and the quality of services they experience. The data not only reveals the importance of maintaining consistent service standards but also highlights areas for improvement, which can influence strategic decisions and foster long-term loyalty. Through this process, banking institutions can predict customer behavior, adapt their offerings, and ultimately secure a competitive edge.

Table 1. The bank account holders and quality of services

Particulars	Do you have bank account	If 1 then in which bank you have account	If 2 bank then in which bank do you have account	What do you feel about overall in 2 bank	Which attribute of the bank do you value the most	Do you trust the employees providing banking services
Correlation coefficient	-0.060	-0.035	0.062	-0.026	-0.154	-0.208*
Sig. level	0.517	0.704	0.502	0.778	0.091	0.023
N	121	121	121	121	121	120
	1	-0.141	-0.140	-0.106	0.173	0.017
		0.123	0.126	0.245	0.057	0.856
	121	121	121	121	121	120
	-0.141	1	-0.136	-0.209*	-0.012	-0.016
	0.123		0.137	0.021	0.899	0.863
	121	121	121	121	121	120
	-0.140	-0.136	1	0.179*	0.118	0.056
	0.126	0.137		0.050	0.197	0.542
	121	121	121	121	121	120
	-0.106	-0.209*	0.179*	1	0.395**	0.198*
	0.245	0.021	0.050		0.000	0.030
	121	121	121	121	121	120
	0.173	-0.012	0.118	0.395**	1	0.153
	0.057	0.899	0.197	0.000		0.096
	121	121	121	121	121	120
	0.017	-0.016	0.056	0.198*	0.153	1
	0.856	0.863	0.542	0.030	0.096	
	120	120	120	120	120	120

5 Interpretation

As the values travel in the opposite directions, we identified a negative correlation between the bank account holders in each of the correlation coefficients shown above in the table 2. The two are more changeable in this instance and have no relationship. Every customer's opinion of the banks is getting worse.

Table 2. Gender versus attributes of the bank valued the most

Gender	Which attribute of the bank do you value the most					Total
	Quality	Technology	Trust	Bank	6.0	
Male	27	15	17	5	3	67
Female	10	25	14	2	3	54
Total	37	40	31	7	6	121

5.1 Hypothesis

Ho= There is no correlation between a bank's characteristics and gender. H1= There is a relationship between gender and the bank's characteristics

Table 3 the P-Value is 0.031, less than the critical value of 0.05, and the chi-square value is 10.613. Therefore, we adopt the different hypothesis that there is a relationship between the gender and the bank's features and reject the null hypothesis.

Table 3. Chi-Square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.613 ^a	4	.031
Likelihood Ratio	10.858	4	.028
Linear-by-Linear Association	0.395	1	.530
N of Valid Cases	121		

^a 4 cells (40.0%) have expected count less than 5. The minimum expected count is 2.68.

6 Conclusion





There are many benefits that artificial intelligence may provide to the finance industry. Artificial intelligence is transforming client-facing services and business processes in India's banking sector. It is also used to verify individual financial soundness, identify extortion, and maintain administrative consistency. Artificial intelligence (AI) can be used to create more efficient business models, provide specialized services, and support larger goals like financial consideration. There's no denying that the traditional financial models are being rapidly impacted by the continuous push towards digitalization. However, it has also exposed the organizations to growing risks and weaknesses related to digital security. The banks are gradually looking at creating technologies like square chain and research to create a functional defense system against cybercrimes.

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Enhancing Credit Scoring Models with Artificial Intelligence: A Comparative Study of Traditional Methods and AI-Powered Techniques

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Abstract

This study compares traditional credit scoring techniques with artificial intelligence (AI) methodologies to investigate how credit scoring models have evolved. Logistic regression and linear discriminant analysis are two statistical models that have been widely used in traditional credit scoring. While these models are reliable, they frequently have difficulty capturing complex, non-linear data patterns. Artificial intelligence (AI)-based approaches, which include machine learning algorithms like ensemble methods, decision trees, and neural networks, offer a sophisticated substitute by efficiently handling big information and iden-

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tifying intricate patterns. This research uses data from a large financial organization to compare several ways based on how effective, predictable, and able they are to manage different types of data. To assess the efficacy of the models, critical performance metrics such as the F1-score, precision, recall, and area under the receiver operating characteristic (ROC) curve are employed. As evidenced by the data, AI-driven techniques can revolutionize credit scoring procedures as they perform better in predicted accuracy and resilience than conventional models. In order to enhance decision-making processes, financial institutions must adopt these cutting-edge techniques, as this research highlights the revolutionary impact of AI on assessing financial risk.

Keywords: Credit Scoring Model. Artificial Intelligence (AI). Traditional Method. Machine Learning. Financial Risk Assessment. Predictive Accuracy.

1 Introduction

As a key instrument for determining an individual's or company's creditworthiness, credit scoring is an essential part of the financial sector (Chernysheva, Milovanova, & Min'kov, 2016). Statistical methods like logistic regression and linear discriminant analysis have historically been used in credit scoring models, offering a trustworthy foundation for judgment. Unfortunately, managing intricate, non-linear relationships within the data and keeping up with the quickly changing financial scene are frequently challenges for these traditional methods (Dastile, Celik, & Potsane, 2020; Gautam & Mittal, 2022a). The emergence of artificial intelligence (AI) and machine learning has brought about a fundamental change in multiple fields, including finance (Gautam & Mittal, 2022b). Techniques powered by AI, like decision trees, neural networks, and ensemble methods, provide improved abilities to analyze large volumes of data, reveal concealed patterns, and generate more precise predictions (Jora et al., 2022; Soori, Arezoo, & Dastres, 2023). These sophisticated approaches have demonstrated potential in enhancing the accuracy and dependability of credit scoring models, tackling the limitations of conventional methods. The purpose of this research article is to compare, in terms of predictive accuracy, traditional credit scoring systems versus AI-powered approaches. Using a large dataset from a prominent financial institution, we will examine and contrast how well these models perform using important measures including area under the receiver operating characteristic (ROC) curve, precision, recall, and F1-score.

Smith and Johnson's (2020) in their comparative study highlighted that AI-powered techniques in credit scoring models significantly enhance predictive accuracy compared to traditional methods. They noted improvements in risk assessment precision and the ability to handle complex data interactions. Wilhelmina Afua Addy et al.'s (2024) discussed how traditional credit scoring methods often struggle with non-linear relationships and evolving data dynamics. They compared this limitation with AI techniques, which excel in captur-

ing intricate patterns and improving model robustness across diverse datasets. Paudel's (2024) emphasized the impact of AI-powered techniques on cost reduction and efficiency in credit scoring processes. Their research demonstrated that automation and optimization through AI led to streamlined operations and reduced overhead costs. Doumpos et al.'s (2023) explored the implications of AI on workforce management in credit scoring. They discussed how the integration of AI required retraining of personnel to leverage advanced analytical tools effectively, highlighting shifts in skill requirements within financial institutions. Balasubramaniam et al.'s (2023) discussed challenges in transparency posed by AI models and the importance of developing explainable AI techniques to maintain regulatory compliance and stakeholder trust.

2 Objectives

- Performance Comparison of Traditional and AI-Powered Credit Scoring Models.
- Identification and Mitigation of Bias in Credit Scoring Models.
- Evaluation of Ethical and Regulatory Implications.

3 Research Methodology

The research study is using the descriptive research design. In the research study the researcher has used secondary data. The secondary data has been collected from research papers, published materials, online websites and survey reports published by various research organizations.

4 Performance and Comparison of Traditional and AI-Powered Credit Scoring Models

4.1 Traditional credit scoring models

Credit scoring models have been the foundation of assessing credit risk for many years. These models, frequently utilizing statistical methods such as logistic regression, use information such as income, credit history, and employment status to produce a credit score. Despite being dependable, they do have their constraints.

- Limited Data Handling: Conventional models may miss important insights when dealing with huge and diverse datasets.
- Static Features: They depend on pre-established characteristics and miss changing borrower behaviour or new variables that impact creditworthiness.
- Limited Accuracy: The intricate interactions between the several elements influencing credit risk may be missed by traditional models.

4.2 AI-powered credit scoring models

Provide a more accurate and dynamic alternative. Many potential advantages may result from these models' use of deep learning (DL) and machine learning (ML) approaches to evaluate enormous volumes of data.

- **Enhanced Accuracy:** When compared to conventional approaches, AI models' ability to recognize intricate patterns in past data results in risk evaluations that are more accurate.
- **Dynamic Analysis:** By continuously adapting to shifting borrower behaviour and economic situations, these models offer a more forward-looking viewpoint.
- **Enhanced Inclusivity:** AI can integrate data from other sources, such social media or mobile phone usage, which may make credit available to people with little or no traditional credit history. However, it's important to take into account the limits of AI-powered models.
- **Interpretability:** A lot of AI models, especially those that use deep learning methods, are intricate and challenging to comprehend. The "black box" aspect of decision-making may give rise to questions about impartiality and openness.
- **Data Bias:** Bias in the training set of data might affect AI models. In order to prevent biased credit scoring processes, careful data gathering and mitigation strategies are essential.
- **Computational Cost:** Complex AI model implementation and operation can demand large computational resources, which could be prohibitive for smaller lenders.

5 Identification and Mitigation of Bias in Credit Scoring Models

Bias in both traditional and AI credit scoring models can lead to unfair lending practices and hinder financial inclusion. Traditional models rely on fixed criteria like credit history, which can disadvantage marginalized groups due to systemic inequalities. AI-based models, while more complex, can still inherit and even amplify biases present in the data they're trained on, such as discriminatory lending patterns or socio-economic disparities. Detecting and mitigating these biases is crucial to ensure ethical and responsible lending, promoting fairness and preventing discrimination in access to credit (see table 1).

Table 1. Comparison of Traditional Models and AI-Powered Techniques

Feature	Traditional Models	AI-Powered Techniques
Interpretability	High	Can be Low (Deep Learning)
Transparency	High	Can be Low (Deep Learning)
Accuracy	Moderate	Potentially High
Inclusivity	Limited	Potentially High (Alternative Data)
Data Handling	Limited	Can handle large, diverse datasets
Dynamic Analysis	Limited	Can adapt to changing conditions
Computational Cost	Low	Can be High (Deep Learning)

5.1 Sources of Bias

- **Data Bias:** The historical data that is utilized to build credit scoring models may contain bias. The model may reinforce prejudices if the data reflects prior biased actions.
- **Algorithmic Bias:** Deep learning models in particular are capable of amplifying pre-existing biases in the data that they are trained on. This may result in models that unfairly penalize particular groups of people.
- **Feature Selection:** A credit scoring model's feature selection may unintentionally cause bias. Inaccurate evaluations may result from leaving out relevant elements for particular demographic groups.

5.2 Determining the Bias

- **Disparate Impact Analysis:** This entails determining whether the model disproportionately disadvantages specific demographic groups concerning interest rates or loan approvals.
- **Model Explainability:** Methods such as feature importance analysis can be used to determine which features most significantly affect the predictions made by the model. This may make any biases in the feature selection process clear.
- **Fairness Testing:** It is possible to uncover biases in the model's performance by simulating use with hypothetical borrowers from different demographic groups.

5.3 Mitigation Strategies

- **Data Cleaning:** It's critical to identify and eliminate biases from the training data. This could entail making sure that all demographic groups are fairly represented, eliminating anomalies, and fixing mistakes.
- **Fairness-Aware Algorithms:** It can be advantageous to apply algorithms that are intended to reduce bias. In addition to prediction accuracy, these algorithms may give priority to fairness measures.
- **Feature engineering:** By adding pertinent features for various demographic categories, it is possible to guarantee that each application is assessed equally. For debtors with little traditional credit history, this may include leveraging alternative data sources.
- **Human Review and Supervision:** Human supervision is crucial, even in the case of AI-powered models. Review boards can make impartial and fair choices by examining loan applications that the models have indicated.
- **Model Monitoring and Improvement:** Over time, bias can be reduced by monitoring the model's performance across various demographics and retraining it with new data.

Credit scoring models with bias raise ethical issues and impede financial inclusion. Lenders can promote responsible and equitable credit risk assessment practices by proactively detecting and addressing bias through data cleansing, fairness-focused algorithms, and human supervision.

6 Evaluation of Ethical and Regulatory Implications in Credit Scoring

Significant ethical and legal issues arise when artificial intelligence (AI) is used in credit scoring. Credit scoring algorithms driven by artificial intelligence (AI) present improved efficiency and predicted accuracy, but they also bring up important issues with fairness, openness, and legal compliance. The difficulties and potential fixes related to AI in credit scoring are examined in this part, which dives into these ethical and legal ramifications.

1. **Fairness and Bias** The possibility of bias and discrimination is one of the main ethical issues with AI in credit assessment. Inadequately constructed and managed AI models have the potential to reinforce preexisting biases in the training set. This may result in some demographic groups—like minorities or those from lower socioeconomic backgrounds—being treated unfairly. Studies have indicated that certain populations may be disproportionately impacted by biased algorithms, leading to increased credit application refusal rates and unfavorable terms (Barocas, Hardt, Narayanan, 2019). To mitigate bias, it is crucial to implement strategies such as:

- Bias audits involve routinely checking AI models for discriminatory trends and adjusting them as needed to lessen bias.

- The implementation of fairness restrictions during the model creation process is necessary to guarantee that all applicants are treated equally.
 - A diverse training set of data is important to reduce intrinsic biases by making sure the data is representative of the whole population.
2. **Transparency and Explainability** Artificial intelligence (AI) models are sometimes criticized for being opaque and difficult to understand, especially when they are complicated like deep neural networks. Decision-making processes are "black box" in nature, making it challenging for regulators and consumers to understand. To ensure responsibility in credit scoring and to foster confidence, transparency is crucial. Possible solutions to enhance transparency include:
- **Interpretable Models:** Whenever possible, use interpretable AI models to make the decision-making process easier to understand, such as decision trees or linear models.
 - **Explainability Instruments:** using strategies and tools like LIME (Local Interpretable Model-agnostic Explanations) and SHAP (SHapley Additive exPlanations) values that shed light on how AI models make decisions.
 - **Effective Communication:** Giving customers brief, understandable explanations about the variables affecting their credit scores and how those scores are calculated.
3. **Data Privacy and Security** The processing of enormous volumes of personal data required for credit scoring using AI raises questions regarding data security and privacy. Financial organizations have to abide by laws that set tight standards for data management and customer privacy, such as the California Consumer Privacy Act (CCPA) in the US and the General Data Protection Regulation (GDPR) in the EU. Key measures to ensure data privacy and security include:
- **Data anonymization:** The process of removing personal identifying information from personal data while preserving its usefulness for analysis.
 - **Strong Security Protocols:** Putting in place robust cybersecurity procedures to protect private information from hacks and illegal access.
 - **Customer Consent:** Ensuring that customers understand their rights under applicable privacy regulations and give their informed consent for the use of their data.
4. **Regulatory Compliance** Artificial intelligence (AI)-driven credit scoring models have to abide by current financial laws, such as the Equal Credit Opportunity Act (ECOA) in the US, which forbids discrimination in credit transactions. Regulators are putting more emphasis on the need for justice, accountability, and openness as they consider

the effects of AI and machine learning in the financial services industry. To ensure regulatory compliance, financial institutions should:

- **Frequent Monitoring and Reporting:** Keep an eye out for regulatory compliance using AI models, and report any discoveries to the appropriate authorities.
- **Cooperation with Regulators:** Maintain contact with regulatory organizations to learn about new rules and best practices for implementing AI.
- **Ethical principles:** In accordance with industry norms and legal requirements, establish and uphold ethical principles for the use of AI in credit scoring.

5. **Ethical Considerations** When using AI responsibly for credit rating, ethical considerations are just as important as following regulations. Financial institutions should embrace AI with a holistic mindset, giving ethical values like accountability, transparency, and fairness top priority.

Among the suggestions for implementing ethical AI are:

- **The creation of ethics committees** to supervise the development and application of AI is one way to guarantee that moral issues are taken into account when making decisions.
- **Stakeholder Engagement:** Discussing and resolving ethical issues with a variety of stakeholders, such as consumer advocacy organizations.
- **Ongoing Education:** Encouraging staff members to receive regular instruction and training on the moral implications of artificial intelligence and appropriate AI activities.

7 Conclusion





This chapter highlights the transformative potential of artificial intelligence (AI) in the credit rating industry, demonstrating how AI-driven models surpass traditional methods such as logistic regression and linear discriminant analysis in both accuracy and predictive power. Leveraging machine learning algorithms like decision trees, neural networks, and ensemble methods, AI excels in handling vast, complex datasets, uncovering non-linear patterns, and providing more reliable risk evaluations. These advanced capabilities enable precise credit scoring that is better suited to the complexities of modern financial data. The integration of AI introduces a level of sophistication that can enhance decision-making, offering improved diversity, dynamic analysis, and better forecasting of creditworthiness. This shift promises not only more accurate and efficient credit assessments but also greater financial inclusivity and stability. However, the full potential of AI in this domain can only be realized by addressing the associated ethical and legal challenges, ensuring that AI-powered systems remains aligned with regulatory frameworks.

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A Study of Artificial Intelligence in Aviation Management

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Abstract

As technological advancements reshape the landscape of industries worldwide, the integration of Artificial Intelligence (AI) into aviation management practices emerges as a pivotal area of exploration. This abstract delves into the implications, challenges and opportunities associated with the infusion of AI in aviation management. AI offers a diverse range of tools and algorithms that have the potential to transform aviation operations, including safety management, flight planning, maintenance scheduling, and passenger experience enhancement. The potential advantages of AI in aviation management are significant, despite these challenges. Aviation professionals can devote more time to strategic initiatives and safety enhancements by automating routine processes and utilizing predictive analytics. This will

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ultimately result in a more resilient and efficient aviation sector, fostering innovation and continuous improvement.

Keywords: Artificial Intelligence (AI). Aviation Management. Machine Learning. Safety Management. Passenger experience.

1 Introduction

Technology has been a transformative force in the aviation industry since the early 20th century, with advancements such as radar, jet engines, and automation revolutionizing air travel (Hansman, 2005). In the contemporary era, Artificial Intelligence (AI) stands at the forefront of innovation, permeating various aspects of aviation management (Verma, 2024). AI technologies, including machine learning algorithms and predictive analytics, have the potential to optimize operational efficiency, enhance safety protocols, and improve passenger satisfaction across the aviation sector (Gautam & Mittal, 2022; Geske, Herold, & Kummer, 2024). Kashyap's (2019) explored the transformative impact of artificial intelligence (AI) and digital technologies on aviation management. The research highlighted AI's role in enhancing decision-making processes, reducing operational costs, and improving service efficiency within aviation organizations. How flight security can be enhanced through the advancement and usage of mining, utilizing its outcomes and knowledge-based engineering (KBE) approach in an all-encompassing methodology for use in airship reasonable outline, is discussed Kapoor's (2010) investigated the integration of AI and business intelligence in aviation management. The study emphasized how AI-powered analytics contribute to data-driven decision-making and operational optimization, particularly in safety management and fleet performance. Jain's (2018) discussed the application of AI in modernizing human resource management practices within the aviation sector. The research identified AI's role in streamlining recruitment processes, improving workforce efficiency, and enhancing organizational agility in response to market demands.

Cüneyt Dirican's (2015) examined the broader impacts of robotics and AI on business and economics, including their implications for aviation operations. The study highlighted AI's potential to revolutionize flight planning, maintenance scheduling, and passenger experience through automation and predictive analytics. Buzko et al.'s (2016) focused on AI technologies in aviation training and talent management. The research discussed challenges such as skills gap and training effectiveness, while also exploring opportunities for AI to enhance pilot training programs and operational safety. Kabashkin, Misnevs, and Zervina's (2023) provided insights into AI's role in transforming recruitment processes within aviation management. The study outlined how AI-driven algorithms improve candidate screening, optimize crew scheduling, and enhance overall workforce management efficiency in aviation organizations (Kasirzadeh, Saddoune, & Soumis, 2017).

2 Research Objectives

- To evaluate the current adoption of AI technologies in aviation management practices across different organizational contexts and sectors of the industry.
- To investigate the challenges and barriers associated with integrating AI into various aspects of aviation management, including flight operations, maintenance, and passenger services.
- To explore the long-term implications of AI in aviation management on safety protocols, operational excellence, and competitiveness within the aviation industry.
- To examine ethical considerations and regulatory challenges related to the implementation of AI technologies in aviation management.
- To propose recommendations for effectively integrating AI into aviation management practices to enhance efficiency, safety, and overall performance in the industry.

3 Research Methodology

The research study is using the descriptive research design. In the research study the researcher has used secondary data. The secondary data has been collected from research papers, published materials, online websites, HR blogs, and survey reports published by various research organizations.

4 Significance and Benefits of Artificial Intelligence in Aviation Management

In the contemporary aviation industry, there is a significant push towards leveraging digital technologies such as big data analysis, artificial intelligence (AI), and cloud computing to streamline operations and enhance efficiency. AI is increasingly integrated into various facets of aviation management, revolutionizing traditional practices and paving the way for advanced operational strategies and enhanced safety protocols.

1. **Safety and Maintenance:** AI plays a pivotal role in aviation safety and maintenance by predicting and preventing potential failures through data-driven analytics. AI algorithms analyze vast amounts of operational data to forecast maintenance needs, optimize fleet management, and minimize downtime, thereby ensuring optimal aircraft performance and safety.
2. **Flight Operations:** AI enhances flight operations by optimizing route planning, fuel consumption, and scheduling based on real-time data analysis. By processing historical flight data, weather conditions, and air traffic patterns, AI algorithms recommend efficient flight paths, reducing operational costs and environmental impact while maintaining high standards of operational efficiency (Merlo, 2024).

3. **Passenger Services:** AI technologies such as chatbots and natural language processing (NLP) are transforming passenger services by providing personalized and responsive customer support. Chatbots assist passengers with booking inquiries, flight updates, and travel information, improving overall customer satisfaction and operational efficiency (Baring Arreza, 2022).
4. **Safety Management Systems (SMS):** AI-powered predictive analytics in SMS proactively identify potential safety risks and hazards, allowing aviation management to implement preemptive safety measures and mitigate risks before they escalate. This proactive approach enhances safety standards and regulatory compliance, fostering a culture of continuous improvement and safety excellence.
5. **Operational Decision-Making:** AI supports strategic decision-making processes by providing real-time insights and predictive analytics. By analyzing complex data sets and operational parameters, AI enables aviation managers to make informed decisions regarding fleet management, resource allocation, and operational strategies, thereby optimizing overall performance and profitability.
6. **Training and Simulation:** AI-driven simulations and training programs simulate real-world scenarios, enhancing pilot training and proficiency. Virtual reality (VR) and AI-powered simulators provide immersive training experiences, enabling pilots and crew members to practice emergency procedures and improve their operational skills in a safe and controlled environment.
7. **Regulatory Compliance:** AI technologies assist aviation management in adhering to stringent regulatory requirements and safety standards. AI algorithms monitor compliance with aviation regulations, analyze safety data, and recommend corrective actions to ensure regulatory compliance and uphold industry standards.

Benefits of Artificial Intelligence in Aviation Management includes:

- **Enhanced Safety Measures:** AI facilitates predictive maintenance and real-time data analysis, thereby improving aircraft safety and operational reliability.
- **Optimized Operations:** AI optimizes flight routes, fuel consumption, and scheduling, leading to reduced costs and enhanced operational efficiency.
- **Improved Passenger Experience:** AI-driven chatbots and personalized services enhance customer satisfaction by providing responsive and efficient support.
- **Proactive Safety Management:** AI-powered predictive analytics identify potential safety risks and enable pre-emptive safety measures, enhancing overall safety standards.
- **Streamlined Regulatory Compliance:** AI assists in monitoring regulatory requirements and compliance, ensuring adherence to aviation standards and regulations.

- **Enhanced Decision-Making:** AI provides real-time insights and data-driven recommendations, empowering aviation managers to make informed decisions swiftly.
- **Efficient Resource Allocation:** AI optimizes resource allocation, including crew scheduling and maintenance planning, improving resource utilization and cost-efficiency.
- **Facilitated Training and Simulation:** AI-powered simulators and training modules enhance pilot proficiency and operational readiness through realistic scenarios and feedback.

5 Challenges of Artificial Intelligence in AM

- **Impact on Employment and Organizational Structure :** Firstly, the implementation of artificial intelligence in aviation management may lead to significant job displacements. Tasks such as data analysis, employee relations, recruitment processes, compensation management, and training, which traditionally required human intervention, can now be automated. This automation may reduce the demand for human labor, potentially increasing unemployment rates. For instance, automation in industries like Foxconn, where robots replace production line workers, highlights how AI can impact low-end jobs, leading to fluctuations in labor demand.
- **Increased Maintenance Costs and Demand for AI Professionals :** Secondly, while AI reduces low-end job roles, it also escalates equipment maintenance costs. AI-driven systems require regular upkeep and technical support, which can strain financial resources. Moreover, the quality and quantity of AI professionals are currently insufficient to meet industry demands. The shortage of skilled AI professionals, especially those adept in core AI technologies, poses a challenge for enterprises aiming to sustain AI applications. Addressing this talent shortage is crucial for ensuring the effective and sustainable deployment of AI in aviation management.
- **Impact on Human Resource Management and Organizational Decision-Making :** AI's integration in aviation management affects the hierarchical structure and decision-making processes within organizations. AI's ability to automate decision-making processes can diminish the role of human managers, leading to concerns among employees about job security and career progression. Moreover, selecting qualified candidates capable of handling AI tools presents a significant challenge for HR departments. This shift restricts the autonomy of HR departments in making day-to-day decisions, as AI increasingly influences organizational decision-making frameworks.

6 Conclusion

The integration of AI in aviation management enhances efficiency, safety, and passenger experiences. AI applications in safety, operations, services, and compliance offer substantial benefits like predictive maintenance and optimized operations. Challenges include job displacement, high maintenance costs, and a shortage of AI professionals. Balancing AI integration with ethical considerations is crucial, requiring robust talent development and regulatory frameworks. With careful navigation, AI can propel the aviation sector towards sustainable growth and superior safety standards, solidifying its leadership in technological innovation globally.

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A Study on Employee Engagement

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Abstract

Maintaining a high standard of performance over a prolonged period and achieving exceptional business results is one of the hardest difficulties facing business executives in today's dynamic business environment. The path to corporate success is through employee engagement. Motivating and retaining employees is one of the main issues that businesses face. Employee commitment, vigor, and productivity are all encouraged in an engaged workplace, which enhances overall corporate performance. Better profitability, reduced employee attrition, and more job satisfaction are all correlated with improved employee engagement. The following paper aims to investigate the idea and different aspects of employee engagement in detail.

Keywords: Employee Engagement. Corporate Performance. Employee Attrition. Performance. Satisfaction.

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1 Introduction

As explained by Kahn's (1990), engagement at work is the "harnessing of organizational members to their work roles." Within this framework, employee engagement pertains to how actively workers use their bodies, minds, and emotions to express themselves while performing their roles. Employee engagement is thus the level of commitment and involvement an employee has towards the organization and its values. An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefit of the organization. The organization must work to develop and nurture engagement, which requires a two-way relationship between employer and employee. Thus Employee engagement is a barometer that determines the association of a person with the organization. Employee engagement, also called worker engagement, is a business management concept. An "engaged employee" is one who is fully involved in, and enthusiastic about their work, and thus will act in a way that furthers their organization's interests. According to Scarlett Surveys, "Employee Engagement is a measurable degree of an employee's positive or negative emotional attachment to their job, colleagues and organization that profoundly influences their willingness to learn and perform it at work". Thus engagement is distinctively different from employee satisfaction, motivation and organizational culture. A modernized version of job satisfaction, Schmidt et al.'s influential definition of engagement was "an employee's involvement with, commitment to, and satisfaction with work". A disengaged employee will stumble around the office with lower morale and cost the company money. The idea of employee engagement is relatively new to researchers. While the theories of this construct may be blurred, many companies are beginning to see the clear picture – an engaged employee is a valuable, productive asset that can help the organization achieve its goals.

Kahn's (1990) was the first to suggest that employee engagement would positively impact on organisational level outcomes. The reasoning behind his contention was that because employees want to work for reasons other than "they get paid to do it", they will work to pursue success for their organisation. Bhatla's (2011) focused on the need for engaged employees and how their presence can improve the progress and work efficiency of the organization as a whole. Also focused on the challenges faced by the HR managers to improve employee engagement for an organization's survival. Sundary, Kumar's (2011) focused on various factors which lead to employee engagement and what should company do to make the employees engaged. Proper attention on engagement strategies will increase the organizational effectiveness in terms of higher productivity, profits, quality, customer satisfaction, employee retention and increased adaptability. Mathur's (2015) reinforced the importance of employee communication on the success of a business. She revealed that an organization should realize the importance of employees, more than any other variable, as the most powerful contributor to an organization's competitive position

2 Objectives Of The Study

- To understand the concept of employee engagement.
- To study in detail about the types of employee engagement.
- To understand the drivers of employee engagement.
- To analyze the various employee engagement activities.
- To examine and analyze the employee engagement strategies implemented by Indian companies in comparison to those employed by global organizations.

3 Employee Engagement and its Types

According to Paul M. Sanchez's (2007), employee engagement is defined as “an outcome of how employees perceive their work, leadership of their organizations, the recognition and rewards they receive, and the communication ethos of the organization”. Cook's (2008) defined Employee engagement as the term that is “personified by the passion and energy employee have to give of their best to the organization to serve the customer. It is all about the willingness and ability of the employees to give sustained discretionary effort to help their organization succeed”. Saks's (2008) argue that organizational commitment refers to a person's attitude and attachment towards their organization, whilst engagement is not merely an attitude; it is the degree to which an individual is attentive to their work and absorbed in the performance of their role. The 'Ten C's of Engagement' represent key steps management can take to enhance employee engagement. These include Connect, where management shows care and values its employees, and Career, which focuses on providing meaningful work that promotes professional development. Clarity ensures employees understand the organization's objectives, policies, and procedures, while Convey involves management sharing goals and providing feedback. Recognizing excellent work through Congratulate boosts morale, and Contribute highlights an employee's role in the organization's success. Control allows employees to lead and participate in decision-making, and Cooperate emphasizes teamwork over individual pursuits. Management's Credibility through transparency and integrity is essential, as is building Confidence by maintaining high moral and performance standards, fostering a positive workplace identity. Together, these elements create an environment of trust and motivation, leading to higher employee engagement. There are three types Of Employee Engagement: engaged, disengaged and actively disengaged

a Engaged

Engaged employees are enthusiastic, passionate and completely absorbed in their work. They always act in ways that are in the best interest of their organization (Ghani et al., 2023). They are driven and will always ensure that they know what their role in

the organization is. These individuals are known to have high levels of performance. They want to use their skills, abilities and competencies every day at work. Engaged employees are committed to their organization, tend to stay with the organization longer and are more committed to quality and growth. These employees are very proud of their organization and will tell everybody about their organization. Employees are engaged when:

- They have a strong relationship with their manager.
- There is clear communication between them and their manager.
- They have strong interpersonal relationships with colleagues.
- They encourage and motivate others to take risks and strive for excellence.

b Disengaged

Employees who are not engaged will put in the necessary time to finish a task, but will have no energy or passion for their work. They have no positive or negative feelings about their organization and go through the motions daily without committing themselves. These individuals are task orientated rather than goal orientated (Govindarajo, Dileep Kumar, & Ramulu, 2014). They expect to be told what to do, rather than take initiative and do something of their own accord. These employees tend to feel that their efforts are not appreciated and that their full potential is not being tapped. Disengaged will most likely cost an organization a lot of money.

c Actively Disengaged

These individuals are opposed to everything. They are not just unhappy at work, but they are actively living out their unhappiness at work. These individuals will not miss a chance to spread negativity. Actively disengaged employees are not interested in the goals and mission of the company; they rather openly express feelings of mistrust and hatred towards it. Employees that are highly disengaged will hold back physically, cognitively and emotionally. When they work they behave in a robotic, passive and detached way. These types of employees can hurt the image and functioning of the organization. Following could be possible causes of actively disengaged employees :

- Poor management.
- Lack of career growth and advancement opportunities.
- Poor communication.
- Lack of recognition.
- Employees' salaries are not market- related.
- Lack of training.
- Constant work overload.
- Lack of teamwork.

4 Drivers of Employee Engagement

- I Senior management's interest in employees' well-being : Employees want to know what management thinks and what they believe. They also want the opportunity to give their input; this will give them responsibility and accountability. A very damaging fact is that sometimes there is a huge gap between what management says and does. This can destroy trust and engagement very quickly.
- II Challenging work : Some jobs are repetitive and mundane by nature. There are, however, ways how employers can promote a stimulating and challenging environment (Mossavar-Rahmani & Zohuri, 2024). These include encouraging people to take initiative, being open and accepting change, coaching and developing individual's skills, and holding people accountable for their performance.
- III Decision-making authority : Employees will accept increased risk much easier if they think that they have control over decisions; have the relevant information and tools to make a sound decision.
- IV A clear vision from senior management about future success : It is thus clear that individuals who experience a strong sense of purpose at the work-place, who believe that they have all the necessary competencies to effectively do their work, who believe that they have the ability to influence the system they are in and who have self-endorsed goals are more engaged in their work (Sutin et al., 2023; Zhenjing et al., 2022).

5 Strategies and Activities to Build Employee Engagement

Organizations can enhance employee engagement by implementing targeted strategies and activities that foster a positive, productive work environment.

5.1 Strategies to Build Engagement

1. Use the Right Employee Engagement Survey: When a company asks for employee opinions, there is an expectation that meaningful action will follow. Surveys should be specific, relevant, and actionable across all organizational levels, and focus on data proven to influence key performance metrics.
2. Focus on Engagement at Local and Organizational Levels: Real change begins at the local workgroup level but requires leadership to set the tone. Leaders should integrate engagement into managers' performance expectations, empowering both managers and employees to identify barriers and opportunities for improvement.

This collaboration drives innovation, enhanced performance, and better workplace experiences.

3. **Select the Right Managers:** Great managers understand that their success depends on their employees' achievements. They recognize employee strengths, provide growth opportunities, and seek out ideas and feedback. Selecting managers with the unique talents required for effective people management can significantly improve employee engagement.
4. **Coach Managers and Hold Them Accountable:** Research shows that managers are primarily responsible for engagement levels. Coaching managers to actively build engagement plans with their teams, track progress, and maintain a focus on emotional engagement is critical. Managers should use employee engagement tools like the Q12 to create a structured, engaged workplace.
5. **Define Engagement Goals in Realistic, Everyday Terms:** Leaders must translate engagement goals into meaningful, everyday terms. By describing success in powerful and relatable language, employees can connect with the goals. Engagement should be part of daily interactions, discussed in team meetings and one-on-one sessions to embed it into the organization's culture.

5.2 Employee Engagement Activities

- **Create Team Values:** Encourage teams to create their own culture by defining 2-3 core values or ground rules. This collaborative process nurtures team identity and accelerates the development of a positive work environment.
- **Encourage Personal Projects:** Allow employees to dedicate 1-2 hours daily to personal projects. This fosters cross-departmental interaction and idea exchange, bringing fresh perspectives to work.
- **Assign a Buddy or Mentor for Newcomers:** During onboarding, a mentor helps newcomers adapt by answering essential questions and offering guidance. This connection ensures smoother transitions and quicker integration into the team.
- **Team Photos:** Display team photos around the office—group shots, candid moments, or event photos. This fosters camaraderie and helps employees feel more connected to their colleagues.
- **Encourage Volunteering:** Offer employees a couple of days a month to volunteer for a cause they support. This promotes a sense of purpose and social responsibility while building team spirit.
- **Increase Pay:** Compensation is a fundamental driver of employee satisfaction and engagement. Offering competitive pay reflects the organization's commitment.

- **Acknowledge and Promote Creativity:** Encouraging creativity leads to innovation. Employees who feel that their contributions are valued are more likely to stay motivated.
- **Honor Accomplishments:** Recognizing achievements, big or small, reinforces that employee efforts matter. Regular acknowledgment can prevent burnout and maintain high levels of motivation.
- **Appreciate the People:** Celebrating milestones such as birthdays, promotions, retirements, and welcoming new employees highlights the organization's appreciation for its workforce.
- **Give and Receive Feedback:** Open feedback channels are vital for growth and engagement. Employees who feel heard and have opportunities to give input are more likely to be committed to their work.
- **Incorporate Unique Engagement Ideas:** Small gestures, like introducing colorful mugs or air fresheners, can have a surprising impact on office morale and contribute to a more pleasant work environment.
- **Be Respectful:** Respect is foundational to all workplace interactions, regardless of hierarchy. A respectful work culture strengthens trust and engagement across all levels.
- **Inspire Learning:** Supporting employee learning and skill development enhances job satisfaction and engagement while preparing the team for future challenges.
- **Encourage Sustained Participation:** Engagement should be an ongoing effort. Develop a long-term employee engagement plan with specific goals and review it regularly to ensure continuous improvement.

By combining these strategies and activities, organizations can create a dynamic and engaging workplace that drives employee satisfaction, productivity, and long-term success.

6 Encouraging Employee Engagement at National and Global Levels

Tata Consultancy Services (TCS) encourages innovation among its team members by mentoring them in developing creative solutions for work-related challenges. This has resulted in the creation of helpful items that have contributed to prosperous commercial ventures. TCS developed the 'Ultimax' platform, an online forum where employees from various levels and locations can interact, promoting cross-cultural collaboration. TCS's diversity across geographic locations and cultures is reflected in its team dynamics. Similarly, Bharti Airtel Ltd. honors new hires and top performers by organizing special dinners or lunches with the company's Chief Operations Officer, fostering a sense of recognition and belonging among its employees. The Aditya Birla Group, through the chairman-led Organization Health Study (OHS), tracks employee engagement levels regularly. It provides employees with a platform to express their views openly and anonymously on various topics. The Aditya Birla Awards for Outstanding Achievement competitions such as the Value Leaders' Poll and Vision 2015, fosters engagement and recognition across the group.

In the hospitality sector, Indian Hotels, which operates the Taj network, evaluates staff performance based on customer focus and guidance from senior executives. This approach strengthens employee engagement by aligning individual efforts with organizational goals. Tata Motors, on the other hand, promotes engagement through the Tata Club in Jamshedpur, where staff and their families can socialize and network. Community Development Centres (CDCs) and merit awards for employees' children are also part of their engagement initiatives. Additionally, Tata Motors Cultural Group organizes cultural events, encouraging creativity and talent among employees and their families. Microsoft India, through its Employee Involvement Program, promotes professional and personal growth by fostering collaboration across groups and communities, thereby broadening employees' perspectives and enriching their workplace experience. Vodafone has introduced a "customer-centricity" strategy, centered on the principles of Speed, Simplicity, and Trust, with the aim of enhancing both employee and client satisfaction. ITC promotes collaboration and creativity among its workforce by consulting with local unions and employees before implementing major operational changes. This participative approach ensures that all voices are heard, contributing to a harmonious work environment. Lastly, Godrej & Boyce promotes a fun and engaging work culture with initiatives such as birthday celebrations, team lunches, and movie nights, while Tata AIG General Insurance hosts town halls where company leaders share updates and celebrate employee accomplishments.

6.1 Employee Engagement at International Level

At ABC Supply, the late CEO Ken Hendricks believed in putting people first to ensure that employees put customers first. He created a people-centric business built on relationships, fostering an engaged workforce across 350 locations in 45 states. Hendricks made an effort to treat his employees as friends and peers, dedicating time each day to interact with managers and employees face-to-face. His relationship-building initiatives included hosting weekly parties at his home and creating yearbooks for every ABC Supply location, which featured staff pictures, goals, and lists of employees. These personalized efforts helped build a culture where employees felt valued, supported, and connected to the company's mission. This focus on relationships proved to be a powerful employee engagement tool, ensuring staff loyalty and long-term commitment to the company and its customers. Similarly, Zappos, an online shoe retailer, has built a reputation as one of the best places to work due to its commitment to corporate culture. The company is highly selective in its hiring process, seeking candidates who align with Zappos' core values and company culture. Through a rigorous interview process and social gatherings such as luncheons and happy hours, the company ensures that new hires are a good cultural fit.

Reebok took a different approach to employee engagement by aligning its workforce with its company mission of "getting consumers moving." The athletic apparel company converted one of its warehouses into a CrossFit training facility exclusively for Reebok employees, encouraging staff members to adopt a healthy and active lifestyle that mirrored the company's external brand messaging. This initiative not only improved employee engagement but also strengthened Reebok's commitment to its mission by involving its employees in the lifestyle it promotes. This strategy helped create a more cohesive workforce that was deeply connected to the company's goals. Through such initiatives, both ABC Supply and Reebok have demonstrated that aligning company values with employee engagement efforts can lead to higher levels of motivation, satisfaction, and overall performance. Through these strategies Employee engagement leads to numerous positive outcomes for a company. Engaged employees are more likely to remain loyal, advocate for the company and its products, and contribute to its financial success. They tend to be more motivated, perform better, and foster stronger connections with the business, which translates into higher customer satisfaction and improved service quality. A strong correlation exists between employee engagement and profitability, as engaged workers are deeply committed to the organization's goals and policies. It has thus provided a competitive environments, engagement fosters loyalty, enhances trust, and creates a dynamic, stimulating workplace.

7 Conclusion

Employee communication is frequently referred to as employee engagement. It has a wide range of effects on businesses and is quickly growing in acceptance, utility, and significance in the workplace. Employee engagement highlights how crucial employee communication is to a company's success. Thus, people should be seen by an organization as the single most important factor influencing a company's ability to compete. Employee engagement should therefore be a constant process of education, development, evaluation, and action. Therefore, we would draw the conclusion that a company is responsible for fostering and sustaining employee engagement, and that accomplishing so demands the ideal balance of time, effort, commitment, and investment.



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Role of Women in Sustainable Agricultural Growth

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Abstract

The crucial and many responsibilities that women play in agriculture are examined in Importance of Women in Sustainable Agriculture Growth, especially in relation to sustainable growth. To effectively address issues like food security, environmental degradation, and climate change, it is critical to recognize and support women's contributions to agriculture. This study examines how women actively engage in a range of agricultural pursuits, from managing cattle to cultivating crops, and emphasizes the critical role that women play in the uptake of sustainable farming methods. It investigates the potential for gender-sensitive policies and programs to empower women and boost their participation in agriculture. The study also examines the social and environmental impacts of women employed in the agricultural sector, emphasizing the potential for increased food production, a decline in destitution, and the protection of the environment. This research emphasizes the value of acknowledging and promoting women's contributions to sustainable agricultural growth, thereby addressing global challenges and fostering equitable and resilient agricultural systems. It does this through a thorough analysis of case studies and empirical evidence.

Keywords: Agriculture. Women. Sustainable growth. Climate change. Contributions.

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1 Introduction

Women have always been the main holders of agricultural knowledge, passing on traditions and practices from generation to generation. In agricultural societies, women were responsible for important tasks such as planting, harvesting, seed storage, and animal care, all of which were essential to the community's livelihood (Doss & Morris, 2000). Today, women's role in agriculture has evolved significantly, with their participation spanning many different aspects of agriculture, agro-industry and rural development. Sustainable agriculture, which prioritizes environmentally friendly and economically viable practices, is essential to ensuring global food security. And environmental challenges. Research consistently emphasizes women's significant contributions to sustainable agriculture, including crop production, agroforestry, sustainable land management, and conservation of local crop varieties (Jora et al., 2022; Meinzen-Dick et al., 2019). Women's expertise in traditional and organic farming methods is invaluable in promoting sustainability. Despite their central role, women in agriculture must face many challenges. These issues include gender differences in involvement and information exchange, as well as restricted accessibility to land, financing, and extension services (Agarwal, 1994). Such barriers prevent women from realizing their full potential in sustainable agriculture and create obstacles to their economic empowerment. Furthermore, women play a vital role in protecting the environment and preserving biodiversity in sustainable agriculture. Their knowledge of local crop varieties and sustainable practices contributes significantly to the conservation of biodiversity and the preservation of diverse agricultural ecosystems. In addition to enhancing the availability of food and environmental sustainability, promoting women in environmentally friendly farming also has positive social effects including reducing poverty and promoting gender equality (Doss, 2018). It is also crucial for women to be involved in post-harvest tasks including manufacturing, protecting, and marketing agricultural products. Their proficiency in post-harvest handling contributes to the decrease of food waste and guarantees the availability of superior products.

Empowering women in sustainable agriculture not only improves food security and environmental sustainability but also creates social benefits such as poverty reduction and increased gender equality (Doss, 2018). Women's participation in post-harvest activities such as processing, preserving, and marketing agricultural products is also important. Their expertise in post-harvest management helps reduce food waste and ensure access to high-quality products. Women are essential to the agricultural and entrepreneurial sectors since they work in fields like value-added product development, marketing, and small-scale food processing. Achieving the Sustainable Development Goal 2, which aims to eradicate hunger, create adequate supplies of food, and promote sustainable agriculture, is strongly correlated with the contributions made by women in the agricultural sector (Lile, Ocean, & Balan, 2024; Mittal, 2020). In addition to improving food security, encouraging women

in agriculture provides wider economic benefits that lower poverty and enhance rural communities' standard of living. From planting and weeding to harvesting and post-harvest handling, underscores their significance in the cultivation of crops and the management of livestock. The preservation of traditional varieties of plants and seeds by women also adds to diversity in agriculture and resistance to shifting conditions in the environment. Notwithstanding, women in the agricultural sector encounter a multitude of obstacles, such as restricted field and property rights accessibility, restricted financial resources and credit availability, and uneven involvement in decision-making procedures (Doss & Morris, 2000). Reforming laws, funding training programs, and promoting sexual equality in the agriculture industry are just a few of the systemic measures needed to address these issues. Women who have contributions in agriculture are frequently disregarded and undervalued, despite their fundamental contributions.

They encounter time limitations due to household's duties, as well as puts at risk to well-being and security, particularly when dealing with machinery or chemicals. In addition, women frequently experience price discrimination, have restricted opportunities in markets and financial institutions, and find it difficult to obtain fair prices for their goods. Achieving food security and sustainable development depends on recognizing the value of women in agriculture and addressing challenges. They confront. Empowering women in agriculture requires comprehensive approaches, including legal reforms, investments in education and training, and initiatives to promote gender equality in decision-making. Regulations. The Sustainable Development Goals (SDGs) recognize the importance of gender equality in achieving sustainable agriculture. Empowering women in agriculture is linked to sustainable practices and is essential to achieving SDG targets related to ending hunger, health, sanitation, and reducing inequality (Agarwal, 2018).

2 Social Enterprises Working for Women Empowerment in the Farming Sector

The characteristic of Indian agriculture is the Existence of informal value chains. Small and marginal farmers need help to make an impact. Collective bargaining regarding reliable procurement of materials. A local moneylender is providing the loan, and it is completely They rely on intermediaries to obtain their products market (Malik & Kajale, 2024). Over time, many social enterprises were born, emerging as an important factor in agriculture, An ecosystem that provides inputs along the entire value chain. She Provides access to high-quality input and shares knowledge. Promotes good agricultural practices and supports farmers in this. Reduce post-harvest losses and increase agricultural activities Productivity, product gross profit realization, and improve market connectivity. Table ?? shows the services provided and the results achieved by Social enterprises across all stages of the value chain. Companies like Dhanuka Agritech and Ulink Organics. Some companies provide high-quality seeds and pesticides; Agrosaw, etc., are leaders in providing

agricultural machinery to Improve agricultural productivity and income (Peng, Zhao, & Liu, 2022). Socializing Companies also offer resources to support cultivation Harvesting and irrigation equipment, etc. Crop yield increases. EM3 and Oxen Farm Solutions employ a "Farming-as-a-Service" model that reduces the need for large capital. Spending on machinery, equipment, etc., throughout Germany's value chain. Some companies like Basix Krishi Samruddhi Focus on building community-driven business channels. They engage with the community by first building their community. Build capacity and deliver services with A special focus on productivity across all value chain Improvements, risk mitigation strategies, and alternatives. In India, social enterprise gives women a voice and is crucial to the farming community's agricultural value chain. These companies deal with Women are an integral part of the overall program chain. Some people prefer working with women. Provide training and facilitate access to credit Support through market collaboration. Many social enterprises People we talked to liked collaboration FPOs established by women stakeholders citing various reasons Reasons that lead to more efficient processes.

Table 1. Role of social enterprises across the agriculture value chain

Pre Harvest	Harvest	Post Harvest	Market Linkage
<ul style="list-style-type: none"> • Provide inputs • Innovative models like "farming-as-a-service" 	<ul style="list-style-type: none"> • Provide cultivation support 	<ul style="list-style-type: none"> • Storage and processing solutions • Collateral management • Agri-logistics 	<ul style="list-style-type: none"> • Linking bulk buyers to farmer group • Provide information and advisory support
Service			
Improved farm productivity Improved income	Increased crop yield Reduced water use	Minimized post harvest losses Enabled farm to market linkage	Increased market understanding Better market connectivity
Outcomes Achieved			
Dhanuka Agritech, Ulink Organics, Agrosaw, EM3, Oxen Farm Solutions	GreenMax Technology, Zamindara Farm Solutions	Arya, StarAgri, WayCool, Freshleaf	VegFru, Farmily, EkGaon Technologies, Moksha Yug Access, DeHaat
SEs			

3 Women Farmers Producers Organization Role for Sustainable Agriculture Growth in India

Farmer Producer Organizations (FPOs) are now the institutional vehicle of choice for policymakers and development organizations to mobilize farmers. It is the lynchpin strategy for Doubling Farmer Income - recent announcements of inclusion of FPO credit in The creation of 10,000 FPOs, the Priority Sector, and five-year tax reductions highlight the recognition of FPO as an institutional structure to address some issues facing small farmers (Nikam et al., 2019). The 10th Agriculture Census (2015–16) found that around 14% of the nation's operational holdings are female. A significant and worthwhile contribution that is frequently unseen is played by women in agriculture and related fields. According to the 2011 Census, of all female workers, 55% were employed in agriculture, and 24% were cultivators. There are three primary roles that women play in agriculture: wage laborers, cultivators, laboring on their property, supervisors of agricultural operations through the oversight of labor, and specific actions taken after harvest. In spite of their significant contribution, women in agriculture continue to face several structural challenges that limit their access to resources, decision-making power, and financial services. Female farmers often lack ownership of land, access to credit, and participation in agricultural cooperatives or organizations like Farmer Producer Organizations (FPOs). This exclusion perpetuates the gender gap in agricultural productivity, income, and opportunities for skill development. Moreover, their role tends to be informal, and they are less likely to benefit from government schemes and interventions aimed at enhancing agricultural output. Recognizing and supporting women in agriculture through policies that ensure equal access to resources and involvement in FPOs is critical to achieving the goal of Doubling Farmer Income and fostering a more inclusive agricultural sector.

Table 2 states that the vital role that Women Farmer's Producers Organizations (FPOs) play in India's sustainable agricultural growth is noteworthy. By improving their access to markets, resources, and knowledge, they enable women in agriculture. Food security, greater production, and biodiversity conservation are all aided by FPOs, who also address the special issues faced by women farmers and raise awareness of gender equality. Their combined might promote a robust and sustainable agriculture industry, which is essential for India's future.

Table 2. Active Women FPO and their Focus

S. No.	Name of the FPO	Establishment / No of Women Members	Focus
1	Jeevan Sangini Krishi Vikas Women Farmer Producer Company	6th July 2013 / 1553 Women farmers	New marketing opportunities for women who never dreamt of venturing out of their homes.
2	Mann Deshi Farmer Producer Company	2017 / 1335 members to 310,000 women in Western Maharashtra	To give the farmer greater bargaining power through the farm-to-market value chain by restructuring the agriculture market.
3	Aaranyak Agri Producer Company Limited	2009 / 2601 members	Agricultural and animal husbandry service activities, except veterinary activities.
4	Samridhi Mahila Crop Producer Company	2011 / 2310 members	To help farmers earn a living and create awareness among farmers on how best to start their agricultural enterprise.
5	Apni Saheli Producer Company Limited	2013 / 4500 members	Working as a cooperative for low-cost lending for its members, equipping them with requisite training in the cultivation process.
6	Shreeja Mahila Milk Producer Company	2014 / 75000 members	To procure, process, and market milk, maximizing value for shareholders while providing high-quality milk and products to customers.
7	Savitri Bai Phule Goat Farming Producer Company	2016 / 550 members	Strengthening farmer's capacity through best goat-rearing practices and productivity.
8	Saahaj Milk Producer Company Limited	2014 / 80871 members	Rural youth awareness programs to understand the importance of dairying as a source of livelihood and explain the importance of animal management, feeding, breeding, and health care.
9	Sakhi Mahila Milk Producer Company Limited	2016 / 18000 members	Arranging to provide technical input services in the areas of breeding, nutrition, care, and management of milch animals to increase milk productivity.
10	Rudi Multi Trading Company Limited	2014 / 65000 members	Strengthening small women farmers by setting up a rural distribution network.

4 Results and Discussion

According to the Economic Survey 2016–17, women are heavily involved in related endeavors as well. They work in a variety of fields including raising cattle, growing vegetables, processing of fish, and milk production and maintenance. Outside of the farm, women are primarily responsible for gathering water, firewood, and fodder, and they also play a big part in both water and land management. The integration diversity into the agriculture sector is an important strategy for the promotion of gender equality as well as green agriculture and rural development, given the significant involvement of women in all facets of agricultural and related activities. With 44 percent of the workforce dependent on agriculture for employment and a means of subsistence in 2018 and 17.2 per cent of gross value added in 2017–18, the agricultural sector continues to be essential for growth in the economy, alleviation of poverty, and environmental sustainability. Depending on their family’s socioeconomic standing, rural women make significant contributions in three different ways to the agriculture sector. They participate in agricultural cultivation and post-harvest operations as managers and supervisors, as well as paid and unpaid laborers who work on their own or family’s farm. They embrace an integrated approach on farming systems that places an emphasis on resource efficiency and sustainable agricultural methods, as well as playing a significant part in the preservation of ecosystem services and natural processes. Their capacity to address farming’s obstacles with creative solutions that prioritize smaller farm sizes, varied valuable and high-value goods and businesses, distinctive marketing approaches, and environmentally friendly procedures. diverse agro-climatic zones and areas have diverse roles for women in farming and rural labor markets. Women depend on land to a disproportionate extent, as evidenced by the gender shifts in occupations and allocation of labor across sectors. Of all female workers in rural regions, 73% and 55%, respectively, are dependent on land. Nonetheless, it is evident that women continue to earn less than males for their labor, whether they work in rural or urban settings. In rural areas, the earnings of a male regular worker is 1.4 to 1.7 times more than that of a female regular employee, and it is 1.2 to 1.0 times higher still. In cities, three times.

Additionally, according to India’s census data, the percentage of women working in agriculture fell from 39% in 2001 to 37% in 2011, while the percentage of female farmers in In 2001, there were 46% more women working in agriculture than there were in 2011. These results demonstrate how important women have been to agriculture throughout history, from conventional farming practices to contemporary farming systems. A wide range of responsibilities, including laborers, landowners, business owners, researchers, and legislators, have been played by women in support of the growth and sustainable growth of agriculture. Their enthusiastic involvement in sustainable endeavors like agroforestry, crop cultivation, and local variety preservation encourages methods that are both econom-

ically and environmentally sound. Women still confront obstacles, nevertheless, including unequal distribution of agricultural goods among genders and restricted opportunities for land, financing, and services for agricultural extension, in spite of their enormous contributions. Increasing environmental sustainability and food security, encouraging women in agriculture also lowers poverty and advances gender equality. Emphasize the most important tactics for resolving these issues and empowering women in agriculture. Securing land ownership and promoting legislative changes that guarantee woman's equal access to land are essential for decision-making. The productivity and decision-making abilities of women will increase with investments in their education and training in contemporary farming techniques. In addition to encouraging the formation of women's agricultural cooperatives that can boost income and access near the market, expanding access to finance and financial services also benefits women's agricultural investment and financial independence. Developing programs and initiatives to enhance women's access to contemporary agricultural technology and knowledge, acknowledging and appreciating their contributions—especially those that are unpaid—and protecting their health and safety while engaging in agricultural activities are some other suggestions. In order to enable women to participate in the value chains of agriculture through training, finance availability, and business partnerships, social enterprises must also be used to empower women. All things considered, these steps are necessary for advancing sustainable agricultural practices worldwide and to fully utilize the abilities of women in agriculture.

5 Conclusions

In agriculture, women have played and still play crucial roles that have greatly aided in environmental preservation, food security, and sustainable growth. Notwithstanding the contributions they make, women in agriculture confront a number of obstacles, such as hurdles based on gender and restricted access to contemporary technologies, finance, and land. Achieving gender equality, lowering poverty, and promoting sustainable development goals all depend on empowering women in agriculture. Women's cooperatives, gender-responsive policies, training and education, access to capital, and legislative reforms should all be priorities in the fight for the empowerment of women in agriculture. Generating lasting improvements in the agriculture industry requires acknowledging the achievements of women and increasing public awareness of their worth. Social enterprises facilitate women's involvement in agriculture value chains by offering market cooperation, finance availability, and training. These businesses support more productive and efficient procedures as well as improving the status of women in rural regions by attending to the particular demands and difficulties encountered by women in agriculture.

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Study on Domestic Institutional Investors Growth and their Impact on Indian Market from 2014-15 to 2023-24

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Abstract

With the liberalization of the Indian economy and the surge in capital markets, DIIs have emerged as significant players, influencing market dynamics. This chapter outlines how increased DII participation enhances liquidity, fosters market efficiency, and promotes price discovery by channelizing savings into productive investments, fuelling economic growth. It examines the spillover effects of DII activities in sectors like infrastructure, manufacturing, and services. By facilitating capital formation and fostering entrepreneurship, DIIs contribute to job creation and poverty alleviation. This study offers insights for policymakers, regulators, and stakeholders to harness the potential of DIIs while mitigating risks for sustainable growth and financial stability.

Keywords: Domestic Institutional Investors (DIIs). Indian Economy. Capital Markets. Economic Growth.

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1 Introduction

In recent decades, the Indian economy has witnessed a significant transformation, propelled by liberalisation, globalization, and technological advancements (Mohan, 2018). Corporate ownership is primarily controlled by institutional intermediaries who invest on behalf of the end beneficiaries—households. Their involvement has led to significant transformations across various areas of financial markets, including market practices, technological advancements, regulatory frameworks, liquidity depth, and the range of activities (Badhani et al., 2023). Central to this transformation has been the burgeoning presence of Domestic Institutional Investors (DIIs) in the country’s financial landscape. DIIs, comprising mutual funds, insurance companies, pension funds, and other institutional investors, have emerged as key players shaping the dynamics of the Indian capital markets (Genberg, 2016). The types of DII has been demonstrated in figure 1. Against the backdrop of economic reforms initiated in the early 1990s, DIIs have witnessed remarkable growth, reflecting the deepening of financial markets and the increasing participation of retail investors (Geels, 2013). The investment strategies adopted by DIIs, including their asset allocation patterns and sectoral preferences, the research endeavors to provide insights into their modus operandi and market behavior (Kapoor & Rana, 2022). DIIs contribute to market liquidity, foster efficiency, and facilitate price discovery, thereby enhancing the overall functioning of capital markets. The role of DIIs in mobilizing savings and channelizing them into productive investments, thereby fuelling economic growth, job creation, and poverty alleviation (Ma, 2023). Institutional investors, often described as the “elephants” of the stock market due to their financial power, play a pivotal role in influencing market movements. In emerging markets like India, their influence on stock performance is particularly pronounced. Garg and Chawla’s (2015) reveals two main categories of institutional investors: Domestic Institutional Investors (DIIs) and Foreign Institutional Investors (FIIs). The findings highlight the trends and patterns of institutional investments in the Indian stock market, along with the interrelationship between Foreign Institutional Investors and Domestic Institutional Investors.

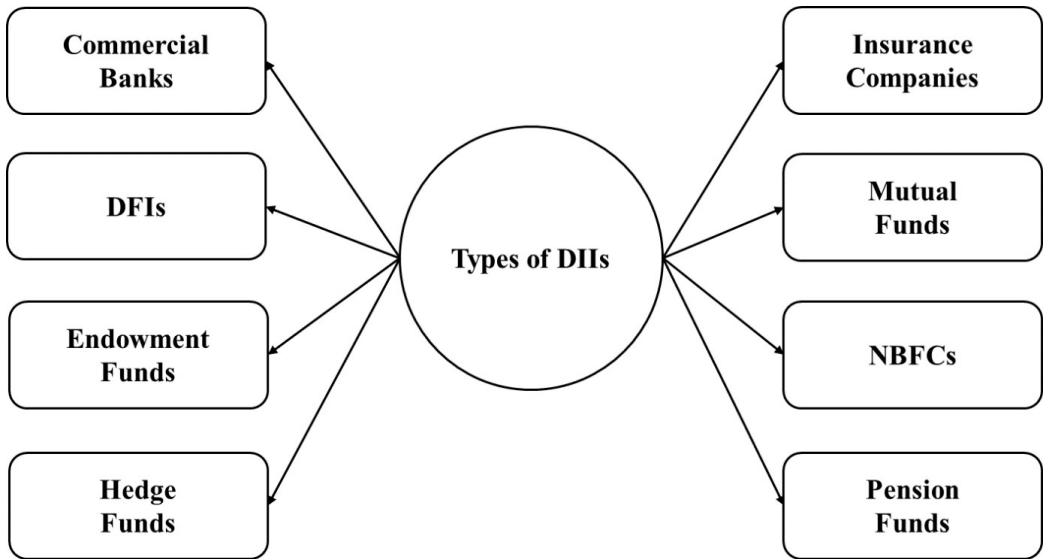


Figure 1. Types of DIIs

2 Significant Role of DIIs

DIIs play a multifaceted and pivotal role in the Indian financial markets, serving as crucial drivers of liquidity, stability, and long-term growth. With diverse entities like mutual funds, insurance companies, pension funds, and banks among their ranks, DIIs channel substantial domestic savings into productive investments, thus fuelling economic development. Their presence ensures market stability through their typically long-term investment horizon, countering the volatility often associated with foreign institutional investors (FIIs). Beyond financial investments, DIIs actively engage in corporate governance, advocating for transparency, accountability, and sustainable business practices (see figure 2). DIIs contribute to democratizing market access, making investment opportunities accessible to a broader spectrum of retail investors through avenues like systematic investment plans (SIPs). Thus, DIIs are instrumental in shaping the Indian market ecosystem, fostering resilience, integrity, and inclusivity for sustainable economic growth.

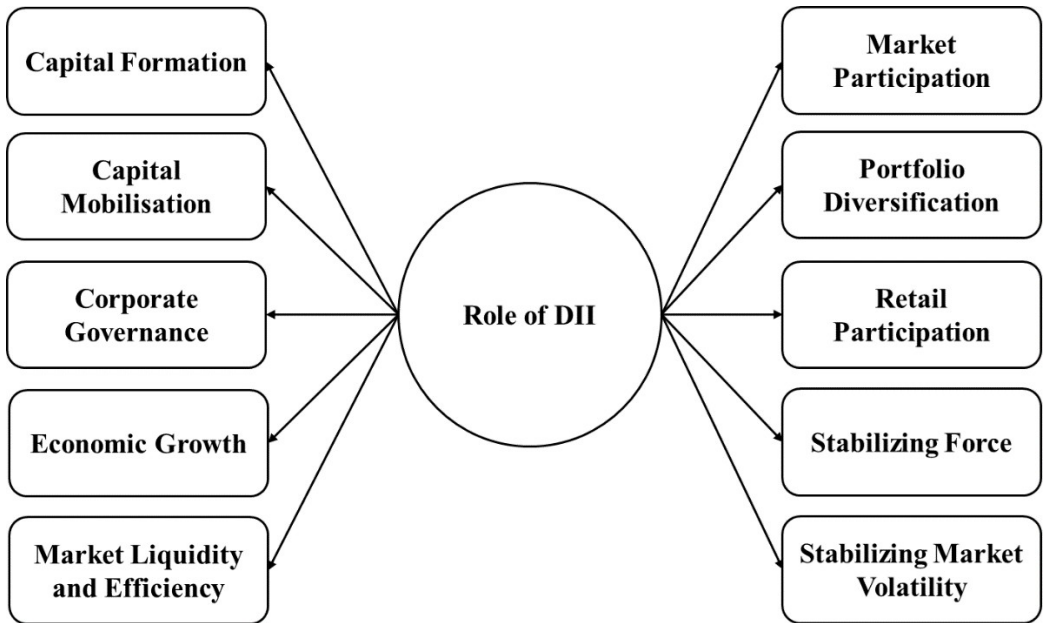


Figure 2. Role of DII

- DIIs play a pivotal role in mobilizing savings from retail investors and channelizing them into productive investments. By investing in a diverse range of financial instruments such as equities, debt securities, and alternative assets, DIIs facilitate Capital Formation, which is crucial for financing infrastructure projects, stimulating economic growth, and fostering entrepreneurship.
- DIIs play a crucial role in Mobilizing Funds from various sources such as retail investors, corporate entities, and government institutions. They pool these funds to invest in a diverse range of financial instruments, including equities, bonds, money market instruments, and alternative assets. By channelizing savings into productive investments, DIIs facilitate capital formation, which is essential for fostering economic growth and development.
- DIIs exert influence on Corporate Governance practices by actively engaging with investee companies on issues related to board composition, executive compensation, and shareholder rights. Through proxy voting, shareholder resolutions, and dialogue with company management, DIIs contribute to improving corporate governance standards and fostering a culture of transparency and accountability in the corporate sector.
- By allocating capital to productive sectors of the economy such as infrastructure, man-

ufacturing, and services, DIIs play a vital role in driving Economic Growth and employment generation. Their investments contribute to capital formation, technological innovation, and entrepreneurial development, thereby fostering sustainable economic development and prosperity.

- DIIs enhance Liquidity in the capital markets by providing a constant source of demand for securities. Their active participation in both primary and secondary markets ensures a smooth flow of funds, reducing transaction costs and improving market efficiency. Moreover, DIIs contribute to price discovery mechanisms by incorporating fundamental analysis and market insights into their investment decisions, thereby enhancing market transparency and reducing information asymmetry.
- DIIs are significant Participants in the Indian financial markets, operating across both primary and secondary markets. They contribute to market liquidity by providing a continuous source of demand for securities, thereby enhancing market efficiency and reducing price volatility. Additionally, DIIs play a vital role in price discovery mechanisms, incorporating fundamental analysis and market insights into their investment decisions.
- DIIs manage Diversified Investment Portfolios on behalf of their clients, which include retail investors, institutional investors, and high-net-worth individuals. By spreading investments across different asset classes, sectors, and geographies, DIIs help mitigate risk and optimize returns for their clients. This diversification strategy is particularly beneficial in volatile market conditions and helps investors achieve their long-term financial objectives.
- DIIs play a crucial role in democratizing access to financial markets by offering investment products such as mutual funds, pension funds, and insurance-linked investment schemes. These vehicles provide Retail Investors with opportunities to diversify their portfolios, manage risk effectively, and participate in the wealth creation process. Additionally, DIIs contribute to financial inclusion by extending financial services to underserved segments of the population, thereby promoting inclusive economic growth.
- DIIs often act as Stabilizing Forces in the financial markets, especially during periods of market turmoil or economic uncertainty. Their long-term investment horizon and diversified portfolio strategies enable them to absorb market shocks and maintain a balanced approach to risk management. By providing stability and continuity in their investment approach, DIIs instill confidence among investors and support overall market stability.
- During periods of Market Volatility and uncertainty, DIIs often act as stabilizing forces by providing counter-cyclical investment flows. Their long-term investment horizon and diversified portfolio strategies help mitigate short-term market fluctuations, thereby promoting market stability and investor confidence.

3 Growth and Impact of DIIs

The growth of DIIs in the Indian market has been a transformative force, marked by steady increases in assets under management (AUM), expanding market share, and significant contributions to market stability and economic development. As major players in the financial landscape, DIIs have channeled domestic savings into productive investments, fostering capital formation and infrastructure development. Their long-term investment approach has provided stability to the market, mitigating volatility and bolstering investor confidence, particularly during uncertain times. Additionally, DIIs play a crucial role in corporate governance, actively engaging with companies to promote transparency and accountability. Through initiatives like systematic investment plans (SIPs), they have democratized market participation, empowering retail investors and broadening the investor base. Looking ahead, the continued growth of DIIs is poised to further reshape the Indian market, underlining their integral role in driving liquidity, stability, and sustainable growth. Table 1 ten years comprehensive data on DII Trading Activity gross purchases and gross sales in cash.

Table 1. The bank account holders and quality of services related

Year	Gross Purchase	%	Weight	Gross Sales	%	Weight	Net Purchase
2014-15	3,98,916.09	-	3.704	4,18,179.68	—	4.26	-19,263.59
2015-16	4,67,178.75	17.11	4.338	3,88,492.21	-7.10	3.96	78,686.54
2016-17	5,66,181.59	21.19	5.257	5,36,250.05	38.03	5.46	29,931.54
2017-18	9,02,611.50	59.42	8.381	7,88,011.13	46.95	8.03	1,14,600.37
2018-19	9,19,881.45	1.91	8.541	8,47,474.66	7.55	8.64	72,406.79
2019-20	10,41,016.31	13.17	9.666	9,12,808.07	7.71	9.30	1,28,208.24
2020-21	10,70,317.60	2.81	9.938	12,02,706.73	31.76	12.25	-1,32,389
2021-22	15,94,072.12	48.93	14.801	13,72,412.23	14.11	13.98	2,21,659.89
2022-23	16,01,962.87	0.50	14.874	13,46,726.76	-1.87	13.72	2,55,236.11
2023-24	22,07,923.02	37.83	20.501	20,01,206.30	48.60	20.39	2,06,716.72

The total gross purchases for the last ten years are 1,07,70,061.30 and gross sales are 98,14,267.82. It is observed that due to market sentiment, the market leads to positive in case purchases and negative in case of sales. DII-managed investment vehicles, such as mutual funds and insurance funds, significantly influences their buying and selling activities. Positive corporate developments may lead to increased purchases, while deteriorating fundamentals could trigger sales. It is also observed that global economic conditions and investor sentiment can impact DII allocations to Indian equities. Due to specific invest-

ment objectives and mandates purchases and sales may vary based on market conditions.

Table 2. Monthly Cumulative of DII Trading Activity in Cash (Crores) for last Ten Years from 2014-15 to 2023-24

Month	Count	Gross Purchase	Gross Sales	Net Purchase / Sales
January	10	10,38,739.74	9,54,160.22	84,579.52
February	10	10,03,577.98	8,85,914.53	1,17,663.45
March	10	11,21,135.27	9,62,127.36	1,59,007.91
April	10	7,08,601.41	6,49,482.53	59,118.88
May	10	8,35,547.45	7,37,805.66	97,741.79
June	10	8,07,099.40	7,16,658.14	90,441.26
July	10	8,40,351.40	8,02,775.73	37,575.67
August	10	8,70,152.52	8,02,028.06	68,124.46
September	10	9,54,390.36	8,56,743.14	97,647.22
October	10	8,42,923.36	7,70,014.33	72,909.03
November	10	8,41,764.29	8,31,016.09	10,748.20
December	10	9,05,778.12	8,45,542.03	60,236.09

Table 2 depicts that monthly cumulative of DIIs Trading Activity. The graphical representation is seen in figure 3. It is observed that March month shows maximum performance in case of purchases and sales. The net difference of purchases and sales is positive and maximum in the month of March. Table 3 Descriptive Statistics of DII Trading Activity Gross Purchases for last Ten Years from 2014-15 to 2023-24. The gross sales is demonstrated in 4. Table 5 shows that a perfect correlation exists between gross purchases and gross sales is 0.95. The year-wise correlation also depicts that the growth of DIIs and their impact is mostly positively correlated.

Table 3. Descriptive Statistics of DII Trading Activity Gross Purchases for last Ten Years from 2014-15 to 2023-24

Year	Mean	Standard Error	Standard Deviation	Kurtosis	Skewness	95% C.I.
2023-24	1,83,993.59	14024.10	48,580.91	-1.13	0.21	30,866.84
2022-23	1,33,496.91	4575.05	15,848.45	0.71	-0.35	10,069.63
2021-22	1,32,839.34	6036.91	20,912.46	-0.13	-0.02	13,287.14
2020-21	89,193.13	4154.84	14,392.80	-1.06	0.24	9,144.75
2019-20	86,751.36	7262.30	25,157.36	6.42	2.18	15,984.23
2018-19	76,656.79	2948.65	10,214.43	1.90	1.19	6,489.94
2017-18	75,217.63	2978.93	10,319.31	-0.54	0.17	6,556.58
2016-17	47,181.80	3636.42	12,596.92	-0.40	0.09	8,003.70
2015-16	38,931.56	1460.81	5,060.40	-0.71	0.06	3,215.22
2014-15	33,243.01	1464.09	5,071.77	0.30	-0.51	3,222.45

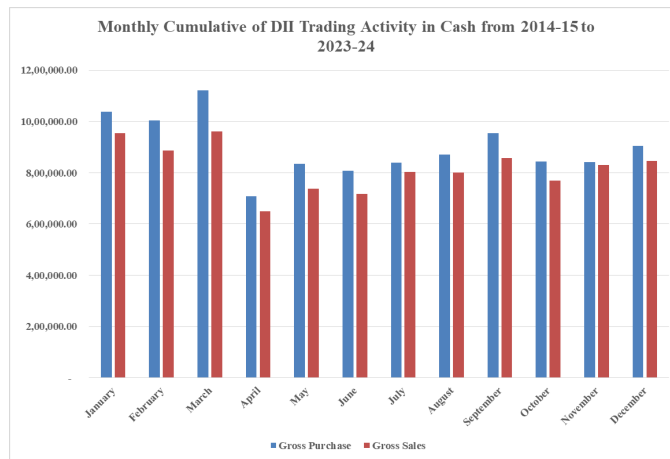


Figure 3. Monthly Cumulative of DII

Table 4. Descriptive Statistics of DII Trading Activity Gross Sales for last Ten Years from 2014- 15 to 2023-24

Sales	Mean	Standard Error	Standard Deviation	Kurtosis	Skewness	Confidence Level (95.0%)
2023-24	1,66,767.19	11177.27	38,719.19	-0.82	0.26	24,601.00
2022-23	1,12,227.23	4863.07	16,846.18	0.66	0.67	10,703.55
2021-22	1,14,367.69	5184.54	17,959.79	-0.57	0.49	11,411.10
2020-21	1,00,225.56	5015.64	17,374.70	-1.45	-0.08	11,039.36
2019-20	76,067.34	3547.58	12,289.16	1.03	0.59	7,808.16
2018-19	70,622.89	2060.14	7,136.52	2.91	1.37	4,534.33
2017-18	65,667.59	3441.86	11,922.96	1.17	1.04	7,575.49
2016-17	44,687.50	3518.12	12,187.12	0.31	0.63	7,743.33
2015-16	32,374.35	1641.10	5,684.94	6.51	2.22	3,612.04
2014-15	34,848.31	1448.51	5,017.77	-1.07	-0.54	3,188.14

Table 5. Correlation between Year-wise Gross Purchases and Gross Sales

Year	r	Result
2023-24	0.95	Perfect Correlation
2022-23	0.37	Moderate Correlation
2021-22	0.73	Strong Correlation
2020-21	0.40	Moderate Correlation
2019-20	0.80	Perfect Correlation
2018-19	0.36	Moderate Correlation
2017-18	0.86	Perfect Correlation
2016-17	0.83	Perfect Correlation
2015-16	-0.39	Negative Correlation
2014-15	0.60	Strong Correlation
Overall Correlation for Ten Years	0.95	Perfect Correlation

r means Correlation

4 Conclusion

DIIIs often adopt a more stable, long-term investment approach. This stability helps mitigate market fluctuations and enhances investor confidence, especially during periods of uncertainty. DIIIs have played a pivotal role in channeling domestic savings into productive investments, thereby fuelling economic growth. DIIIs' growing influence extends beyond investment to corporate governance and policy advocacy. As significant shareholders in Indian companies, DIIIs actively engage with management on matters of governance, sustainability and Shareholder value creation. Their collective voice can drive positive changes in corporate behavior and enhance transparency and accountability. The growth of DIIIs in the Indian market underscores their pivotal role in driving liquidity, stability, and development. As major institutional investors, DIIIs wield significant influence over market dynamics, corporate governance, and investor behavior. Their continued growth and responsible stewardship will be essential for fostering a resilient and vibrant financial ecosystem in India.

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Digital Governance And Service Delivery: Transforming Public Administration With Technology

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Abstract

The information and hyper-connectivity revolutions have profoundly altered citizens' relationships with governments throughout the globe. When e-government efforts fail to take root, it may be due to a fragmented knowledge of the field. The phrases "digital government" and "digital governance" are commonly used interchangeably even though they refer to different phenomena. That is why it's becoming harder and harder to resolve the conceptual confusion that exists between them. Neither concept has a single, agreed-upon definition. This kind of conceptual ambiguity hinders the growth of digital democracy. The goal of this article's study is to disperse the current uncertainty in distinctions between digital government and digital governance via empirical investigations and to create a greater grasp of these ideas.

Keywords: Digital. E-government. Democracy. Connectivity. Academic. Governance.

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1 Introduction

A company's "digital presence" includes its websites, mobile sites, social channels, and any other internet and web-enabled goods and services, therefore, "digital governance" is "a framework for establishing accountability, roles, and decision-making authority for an organization's digital presence." A clear chain of command over digital strategy, policy, and standards is the goal of digital governance. A "range of modern information and communication technologies such as the Internet, Local Area Networks, mobiles, etc., by the government to improve effectiveness, efficiency, service delivery, and promote democracy" is what is meant by "digital governance." This includes the political, social, and administrative spheres. The introduction of digital technology has resulted in significant changes in the public sector or public administration, including public governance, with far-reaching implications on social and economic realities (Ravšelj et al., 2022). This new model of public administration, known as Digital Era Governance (DEG), has had far-reaching effects on not only the inner workings of government but also on the relationship between government and citizens and between government and businesses. Over the last 20 years, however, the terminology used to describe this fast-expanding phenomenon has evolved, frequently serving to muddy the waters between previously distinct ideas. Therefore, DEG is also known as electronic government, digital government, electronic governance, and digital administration. The European Commission considers e-government 1.0 to be the foundation upon which the more expansive ideas of open (2.0), smart (3.0), and reformed (4.0) government have been built.

Citizens' relationships with governments throughout the globe have been profoundly altered by the information and hyper-connectivity revolutions. When e-government efforts fail to take root, it may be due to a fragmented knowledge of the field as a whole. Malodia et al.'s (2021) to correctly implement e-government, we present a complete conceptual framework of e-government based on considerable qualitative research. This study adds to the existing literature by stating that citizen orientation, as opposed to channel orientation or technology orientation, is the most crucial factor in determining the success of e-government project implementation. Moderators of e-government are identified, including the digital gap, economic development, and political stability. Perceived privacy and mutual comprehension are also proposed as moderating criteria in the study's proposed tangible and intangible consequences of e-government. Using big data may allow for a transition from traditional to smart governance. Academics, policymakers, and others have been debating how to effectively use big data to update governance for quite some time. It has been shown that government agencies may benefit from big data by using it to streamline their operations and increase productivity. In a meta-analysis, several indicators and rating systems are used. An in-depth analysis has shown the need for more research into the potential of big data to improve government services.

Hossin et al.'s (2023) discuss how the use of big data for smart governance has the potential to increase productivity, openness, and convenience in the public sector. According to these results, data-driven smart governance has the potential to significantly impact the timeliness and accuracy of service delivery to citizens, which in turn may aid in a country's economic growth. They believe that the use of big data technology is essential for all government agencies to implement smart governance that guarantees usability, accountability, and transparency. Research by Scupola's (2018) looks at the past two decades of the digital transformation in the Danish public sector, as measured by the DESI index, and follows the evolution of the policies and stakeholder participation that led to this point. This research employs a case study technique, which is qualitative. Particularly, we use a process tracing and longitudinal case study approach. The information comes from secondary sources such as government websites and consists of papers, news announcements, and initiatives for digital transformation. The case study describes the state of Denmark's digitization in comparison to the rest of the EU, the foundational digital policies and initiatives implemented by the government over the last two decades, and the major players in this transformation. The case study is significant because it provides insight into the digital transformation process in the DESI Index-leading nation and, by extension, offers lessons that may be applied to other countries.

In the academic literature or official papers, the phrases "digital government" and "digital governance" are commonly used interchangeably even though they refer to different phenomena. That's why it's becoming harder and harder to resolve the conceptual confusion that exists between them. Neither concept has a single, agreed-upon definition. The growth of digital democracy is hindered by this kind of conceptual ambiguity. Turap et al.'s (2023) article provides an approach, based on a comparison of the conceptual definitions of digital government and digital governance, according to which these two terms reflect two distinct but intertwined and interdependent ideas. In addition, the paper concludes with a proposed proposal for the creation of a new grand idea that incorporates elements from both of the previously mentioned conceptual frameworks. A process tracing analysis of digital transformation in India is presented here. As the world approaches revolution 4.0, new technologies like 5G and AI will improve the efficiency and efficacy of government (Pelser & Gaffley, 2020). Future governments will inevitably adopt a digital infrastructure as the present revolution carries the globe and the IoT along with it. To be ready for the digital government of the future, we must undergo this change now. The government must establish Political Objectives to increase public confidence in the system. This may be done by measures such as improved responsiveness and openness, as well as through expanding possibilities for individuals to actively participate in government (Tejedo-Romero et al., 2022).

2 Digitisation in India

Government programs such as "Digital India" are helping to propel India toward being a digital-first economy by giving people easier access to government services online and bolstering the country's digital infrastructure and internet penetration. India's GDP might grow by 20-30% if the country implemented the Digital India Program's three core vision areas: infrastructure as a utility for every person; on-demand government and services; and digital empowerment of people. Several Digital India projects have made significant headway. There are, however, a few obstacles that must be overcome before the program's full potential may be realized. To realize its goal of providing citizens with amenities, the government is investing heavily in constructing the necessary physical, software, and security infrastructure. All government agencies have been successfully digitized up to this point. The government must expand access to digital infrastructure in rural regions, make better use of existing networks, and raise citizens' understanding of the Internet to hasten the creation and widespread use of digital services. As the digital India program moves from its planning phase into its implementation phase, substantial progress has been made in executing a wide range of activities. The Digital India initiative is built on nine pillars with three main goals: universal access to digital infrastructure; on-demand government and services; and digital empowerment for all citizens. The success of the Digital India program depends on developing a method to ensure that all Indians have access to important services through digital means. The growth of India's digital infrastructure has been propelled in large part by two technologies: cloud computing and analytics. The government hopes that through using cloud computing, it will be able to improve coordination and service delivery to the public. Electronic Transaction Aggregation and Analysis Layer (e-TAAL) is a government data repository built using Analytics that visualizes people's real-time transactions with different government departments (Saini et al., 2023).

3 Situational Mechanism

As a result of rapid development in areas such as mobile connection and internet infrastructure, as well as the creation of start-ups in the digital revolution, India is rapidly becoming one of the most digitally advanced countries (Kayser, Telukdarie, & Philbin, 2023). However, the government sector and the Indian bureaucracy still face obstacles. The present Situational Mechanism for the difficulties of digital India is as:

- **Digital Infrastructure:** It is anticipated that digital infrastructure will have a revolutionary effect on almost every industry, opening doors for new entrants and allowing established businesses to expand rapidly. The delayed development of infrastructure is one of Digital India's main problems.
- **Application Ecosystem:** Finding vendors that can quickly and easily develop locally

relevant versions of apps and services is a major problem for the digital technology industry.

- **Rural Connectivity and Service:** Last-mile connection in unserved rural regions is a necessary step toward closing the digital divide. The primary reason for this is that service providers do not see enough potential profit in certain locations to justify investing in bringing mobile coverage there. Providers lack sufficient functioning confidence in these areas.
- **Policy Framework and Administration:** The vision of digital India is hampered by obstacles such as government rules and processes, right of way, prohibitive legislation, lack of clarity in policies, and the working purpose of local governments.
- **Contracting:** Contracting issues, such as the postponement of some PSU-assigned projects due to shortages of necessary skills, experience, and technical capabilities, have impeded the Digital India Program's implementation. Public sector organizations' (PSUs') reliance on external service providers might reach 100% at times.
- **Digital Literacy and Security:** The primary reasons why people don't use the internet are a lack of digital competence and a lack of awareness. The biggest problem with digital programs is when the network goes down. With the rise of cloud-based services, protecting sensitive information has become more difficult.

4 Digital Service: Three Governance Typologies

Recent improvements to digital government on the one hand, and the historical underpinnings of public sector administration on the other, have both influenced the maturation of digital government's service dimension. In the hierarchical and bureaucratically-focused perspective of traditional public administration, hence there are inherent contradictions between mobility and machinery. Historically, governments have been run via a strict chain of command, with elected politicians making policy choices and civil workers carrying them out. In this setting, the general public only watches while elected officials carry out their duties as part of the electoral machinery of representative democracy. Otherwise, government judgments in the public interest are made mostly inside the confines of the executive branch, with accountability ideally exercised by the legislative branch, and with little direct citizen engagement. This method of exercising power and authority is predicated on the principle of maintaining control. The public sector has a monopoly on providing services, and its rigid rules and regulations provide limited room for public managers to adapt their approaches to meet the unique needs of service users.

Proponents of "new public management" argue that excessive centralization may lead to bureaucratic overreach and the stifling of creativity and innovation. NPM favours decentralized authority because it allows for more responsiveness to "customers" in pursuit of better performance, especially in terms of cost-effectiveness. NPM-inspired societies

also tend to be more receptive to reforms meant to instil a more business-like ethos in the workings of the state, in addition to the business process outsourcing of both back- and front-end infrastructure and customer service. This change in thinking has given public administrators more latitude and autonomy to focus on results rather than processes when delivering services to the public. Stoker contrasts TPA with NPM by describing PVM's discursive and networked nature: The development of public value in the 'Government world' must be evaluated via the collective democratic procedures and conversation between people, lawmakers, and managers about what is delivered at what cost since, unlike the private sector, the creation of public value has no bottom line. In a more complex service delivery setting, public managers' capacity to serve as an anchor, or broker, in a dialogue between residents and legislators is more important than ever.

4.1 Improving Public Service Delivery

- **Public Works:** By disclosing budget statistics, lists of procurements, procurement status, project implementation progress, space for complaints, and a public information request facility, the Ministry of Public Works has established a benchmark for other agencies.
- **Community:** Rural Area Growth That's Being intending to increase citizens' knowledge and online exposure to socio-economic and local governance circumstances in project areas, the Indonesian government has launched a new platform called Jalin Suara as part of its community-driven development rural poverty alleviation initiative. The goal is to get people involved, so that they can provide useful feedback and service providers can be held responsible for the outcomes. Knowledge about PNPM operations at more local levels may be integrated via the Jalin Suara platform through the usage of social media and digitally connected online media.
- **Education:** Twenty per cent of the country's overall budget goes on education each year. However educational outcomes continue to be subpar. Problems with ownership and credit for performance arise when responsibilities overlap, and it's more difficult to negotiate performance contracts with authorities (Udayakumar, Rajendran, & Sugirtha Rani, 2024). Building the skills of key participants at the school and community levels and encouraging them to adjust their behaviour is important to the success of the Bantu Sekolahku program, which aims to increase the transparency, accountability, and efficacy of a School Operational Support fund program. With this system's reporting capabilities, stakeholders such as parents, students, teachers, principals, supervisors, districts (Kabupaten/Kota), provinces, and the Ministry of Education and Culture Directorates can address these concerns and share updates on students' progress toward benchmarks through platforms like Facebook and Twitter. The webpage also shows how many previously reported problems have been fixed.

4.2 Policy Implication

Governmental organizations and public administrations may benefit from using the suggested conceptual framework as a roadmap for e-government project development and execution. Using the insights and improved knowledge gained from the conceptual framework, one may construct an integrated policy framework for linked governance, which addresses the many facets and dimensions of e-government (Malodia et al., 2021). To better prepare citizens for the adoption of e-government, this research has significant implications for understanding and shaping the cultural background of public policy and implementation strategy. This research and the architecture it presents may be used by governments as the basis for a shared e-government vision and purpose. In addition, This national agenda may be used by the different federal agencies and state governments as a yardstick against which their performance can be evaluated. The government, as a policymaker, might utilize the proposed framework to pioneer the adoption of laws that encourage technical standards, paving the way for cross-agency and stakeholder collaboration (Kolade et al., 2022). The suggested theoretical framework has far-reaching consequences for building a PPP model that does more than just assure the financial viability of e-government; it also keeps important stakeholders feeling like they have some interest in the system as a whole. With the right legislation in place to define cooperative principles, guarantee economic feasibility, and encourage the ongoing growth of intermediaries, we believe they may make a substantial contribution to the success of e-government.

5 Limitations

To bolster the theoretical framework of e-government, this research seeks to do many things. First, it will characterize e-government as a multidimensional construct; second, it will identify its antecedents, results, and moderating variables; and third, it will integrate the current scattered information on the problem. Affirmative: it does not, however, conduct any actual tests of the framework; in the future, academics may conduct such tests to verify the model and increase its utility to policymakers. Similarly, This study's foundational features might be used in the future to construct a multidimensional scale of e-government, to measure the efficacy of e-government. Additional moderators may be added to the architecture via future research. Our hypotheses in this research are grounded on both qualitative in-depth interviews and theoretical triangulation. Future research might improve the universality of these claims by making them more easily operationalized and subjecting them to empirical verification. Finally, the present investigation only includes information from a single developing nation. Therefore, a comparative study of many developing nations might provide useful insights for advancing e-government theory and guiding policymakers.

6 Conclusion

In conclusion, it is becoming more and more important to distinguish between digital government and digital governance in order to promote greater understanding and execution as these lines continue to blur. Resolving this conceptual ambiguity is crucial to the advancement of digital democracy because it creates the foundation for interactions between individuals and governments that are more efficient, transparent, and participatory. Through empirical study, we add to a stronger theoretical base by differentiating these words. Consequently, this will make it possible for upcoming digital projects to better integrate and effectively meet the changing demands of contemporary governance.

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