

**NAVIGATING THE CHALLENGES OF
FUNCTIONAL MANAGEMENT**

Dr. M. Saravanan

Muthra Publishers

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Editor

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PREFACE

In the present era of globalisation, management practices and policies in an organisation extremely vital for the sustainable growth. Also it has become a part of natural or artificial intelligence. It is more common to see managerial issue that comes out and corner the enterprise and is quite inevitable. On the other hand the manager need to have advanced knowledge and experience to combat the managerial issue in an organisation

The edited e-book titled “Navigating the Challenges of Functional Management” published by Muthra Publishers, brings together academicians, Researchers and executives working on different filed of Management over the country to privede a forum for exchange of information between scholars on various issues in functional management and bring new contribution to the Commerce and Management discipline.

The research papers and articles were invited from all over India. The review board has evaluated and accepted 40 full papers for publication in this book

I express my gratitude to the Dr. K. Sethupathy, Assistant Professor of Management, LIBA, Chennai, for his constant motivation and support and his inspiring foreword penned in a pleasing style.

I extend my sincere thanks to Muthra Publishers for timely deliverance of our Research articles. I also like acknowledge the panel of evaluators and all authors whose contributions have made this e-book a valuable one

Enjoy reading these articles and we hope that this will be a good addition to meet challenges in the global competition.

11-11-2025

Dr. M. Saravanan

Editor

11th November 2025

FOREWARD

It gives me immense pleasure to pen this foreword for the edited volume titled “**Navigating the Challenges of Functional Management.**” This book is a timely and valuable contribution to the field of management studies, offering deep insights into the evolving roles and responsibilities across various functional domains that form the foundation of every successful organisation.

In today’s fast-changing business environment, managers are expected not only to be specialists in their respective functions but also to be visionary leaders who can integrate knowledge across disciplines. The editors and contributors of this volume have skillfully captured this essence, bringing together theory, practice, and research to address real-world managerial challenges with clarity and relevance.

Each chapter reflects rigorous academic effort, practical understanding, and a commitment to excellence. The topics discussed, ranging from strategic decision-making and human resource development to financial prudence and technological innovation, will certainly benefit students, educators, and practitioners alike.

What stands out in this work is its emphasis on adaptability and collaboration. As organisations navigate uncertainty, the ability to think holistically and act decisively across functional areas becomes the true mark of leadership. This book, therefore, is not just a compilation of concepts but a source of motivation for emerging leaders to approach management with resilience, creativity, and purpose.

I congratulate the editors for their vision in bringing together such a meaningful collection of scholarly contributions, and I commend all authors for their intellectual engagement and dedication. I am confident that this volume will inspire readers to explore new ideas, refine managerial competencies, and contribute to building organisations that are both effective and ethically grounded.

I wish the editor, **Dr. M. Saravanan** and contributors continued success in their academic and professional pursuits.



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A STUDY ON AI-BASED FINANCIAL RISK PREDICTION MODELS FOR CUSTOMERS IN THOOTHUKUDI CITY

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Abstract

This study explores the application of Artificial Intelligence (AI) in predicting financial risk among banking customers in Thoothukudi City. With the rise of digital banking and data-driven decision-making, traditional risk assessment models are being replaced by AI-powered systems that offer greater accuracy, speed, and adaptability. By leveraging machine learning algorithms and predictive analytics, this research aims to identify patterns in customer behaviour, credit history, and financial transactions to assess default probability and creditworthiness. The study also examines the practical challenges of implementing AI models in regional banking environments, including data quality, ethical concerns, and model transparency. Ultimately, the research highlights how AI can enhance financial stability and improve risk governance in local banking systems.

Key words: Artificial intelligence, financial risk, loan prediction, credit score, EMI payment, data driven, decision-making.

Introduction

In today's rapidly evolving financial landscape, the integration of Artificial Intelligence (AI) into banking operations has become a transformative force. Financial institutions are increasingly relying on AI-driven models to assess customer risk, predict loan defaults, and streamline decision-making processes. This shift is especially relevant in regional banking systems, where traditional risk assessment methods often fall short due to limited data and manual scoring practices.

Thoothukudi City, with its diverse customer base and growing digital banking adoption, presents a unique opportunity to study the effectiveness of AI-based financial risk prediction. By analyzing customer financial behaviour, credit history, and transaction patterns, AI models can offer more accurate and timely insights into risk levels. This study aims to explore how machine learning algorithms—such as decision trees, logistic regression, and neural networks can be applied to predict financial risk among customers in Thoothukudi, and how these tools can enhance the operational efficiency of regional banks.

Artificial intelligence

Artificial intelligence (AI) is the intelligence of machines or software, as opposed to the intelligence of human beings or animals [3]. AI leverages computers and devices to mimic the problem-solving and decision-making capabilities of the human mind. Scientists improve machines to assume some capabilities typically thought to be like human intelligence, such as learning, adapting, and self-correction. The development of AI has a unique economic and social foundation. With the help of advanced internet and the rapid spread of network service, the speed of the processor and cloud service has become faster, which increases the computation capability. The advancement in technology also helps financial institutions to spend less investment in

Advantages of AI application in risk management

Efficiency and automation

The incorporation of AI-driven automation in the financial realm represents a paradigm shift from traditionally manual, often tedious processes to a landscape characterized by swiftness and precision. Automation, facilitated by AI, transcends the limitations of human speed and accuracy, effectively executing tasks that were once prone to human error and delay. This advantage not only leads to a significant reduction in operational costs of financial institutions but also ensures that decision-making is prompt and precise

Enhanced predictive capabilities

With its intricacies and volatile nature, the financial sector necessitates foresight that goes beyond conventional analytics. Traditional financial models, though rigorous, often grapple with dynamic, unforeseen market changes. AI's enhanced predictive capabilities come to the fore in this context, providing an edge that is both profound and transformative. With the power of machine learning and deep learning, AI delves into vast datasets, uncovering intricate patterns and correlations that might elude human analysts. These patterns are rooted in historical data and draw insights from real-time market fluctuations, global events, and even nuanced indicators like public sentiment. As a result, financial institutions equipped with AI-driven predictive analytics can anticipate market shifts, customer behaviors, or potential risks with unparalleled accuracy.

Improved credit scoring

Credit scoring is pivotal in determining lending risks. Historically, this assessment was bound by a narrow set of parameters - often past financial behaviors and existing liabilities. However, this method often overlooked various facets of a borrower's financial profile, potentially leading to erroneous judgments. The advent of AI in credit scoring

introduces a transformative paradigm. With AI, credit assessment is not confined to conventional data points; it seamlessly integrates non-traditional indicators,

Advanced Fraud Detection

In a world where financial fraud constantly evolves, static security measures quickly become outdated. Static security measures are often a step behind these evolving tactics, leading to significant losses and eroding trust. Unlike conventional systems that depend mainly on known patterns, AI utilizes machine learning to adapt continuously, learning from every transaction, no matter how innocuous. The learning ability ensures that even novel, previously unseen fraudulent tactics are identified by spotting anomalies and suspicious patterns in real time.

Furthermore, AI does not just react to fraud that it predicts. By analyzing vast datasets and understanding emerging trends, AI systems can proactively identify potential vulnerabilities and offer solutions before they can be exploited [13]. This combination of rapid detection, adaptability, and predictive prowess considerably narrows the window for fraudulent activities, safeguarding assets and reinforcing customer trust in financial institutions. In an age where digital transactions are omnipresent, AI's role in fraud detection is not just beneficial but indispensable.

Portfolio optimization

Portfolio management has always revolved around the intricate dance of maximizing returns while minimizing risk. Traditional methods employ historical data and rely on predefined metrics, which can sometimes be limiting in capturing the multi-dimensional nature of financial markets. AI dramatically reshapes this landscape. AI can analyze vast amounts of market data through machine learning algorithms, factor in global events, and even consider investor sentiment from various sources in real-time. It crafts investment strategies tailored to the investor's risk appetite and dynamically adjusts to ever-shifting market conditions.

Regulatory compliance

Financial regulations are complex, ever-evolving, and crucial for maintaining a trustworthy and stable economic system. Ensuring compliance traditionally demanded significant human oversight, a process prone to management and inefficiencies. With the integration of AI, the approach to regulatory compliance has experienced a paradigmatic shift. With machine learning algorithms, AI systems can meticulously scan vast repositories of transactional data, ensuring adherence to domestic and international regulatory standards.

Unlike human auditors, who may be overwhelmed by the sheer volume of data or subtle discrepancies, AI can flag anomalies in real-time, ensuring immediate rectification.

Enhanced customer experience

Today's financial customers are well-informed and discerning and expect services that are not only efficient but also personalized. Integrating AI into financial services has ushered in a new era of enhanced customer experience. AI-driven interfaces are designed to understand individual customer needs, preferences, and behaviors. Their capability allows for a tailored service delivery that often anticipates the customer's needs before they articulate them. For instance, AI can analyze users' spending patterns and provide insights, recommendations, or alerts about potential savings or investment opportunities. Additionally, with real-time data processing,

Objective

- ❖ To analyze the effectiveness of AI-based models in predicting financial risk among customers in Thoothukudi
- ❖ To identify key financial indicators and behavioural patterns that influence risk levels
- ❖ To compare traditional risk assessment methods with AI-driven approaches
- ❖ To evaluate the feasibility of implementing AI tools in regional banking institutions
- ❖ To recommend strategies for improving financial decision-making and customer profiling using AI

Statement of the Problem

Traditional financial risk assessment methods in regional banks often rely on static data and manual scoring, which may lead to inaccurate predictions and delayed decisions. With increasing digital transactions and complex customer profiles, there is a need for intelligent, real-time risk prediction models. This study addresses the gap by exploring AI-based solutions tailored for Thoothukudi's banking ecosystem.

- ✓ Limited Sample Size: The study is based on 120 customer responses, which may not fully represent the diverse financial behaviors across Thoothukudi entire banking population.
- ✓ Data Quality Constraints: Incomplete or inconsistent customer data (e.g., missing credit history or EMI records) may affect model accuracy.
- ✓ Regional Bias: Findings are specific to Thoothukudi City and may not be generalizable to other districts or urban banking environments.
- ✓ Model Interpretability: AI models like Random Forest or Neural Networks may lack transparency, making it difficult for bankers to understand how predictions are made.

- ✓ **Technology Access:** Regional banks may face infrastructure or skill gaps in adopting AI tools, limiting practical implementation.
- ✓ **Ethical and Privacy Concerns:** Use of personal financial data for AI modelling requires strict compliance with data protection norms, which may not be uniformly enforced.

Scope of the study

This study investigates the application of Artificial Intelligence (AI) in predicting financial risk among banking customers in Thoothukudi City. It focuses on analyzing individual financial indicators such as income, credit score, loan amount, EMI payment history, and default status. The scope includes regional and cooperative banks operating in semi-urban areas, where traditional risk assessment methods are often limited by manual scoring and static data. By integrating machine learning models like decision trees, logistic regression, and random forests, the study aims to demonstrate how AI can enhance the accuracy and efficiency of financial decision-making. It also explores the practical feasibility of implementing AI tools using Excel dashboards and Python-based analytics, making the findings relevant for bankers, financial institutions, and academic researchers interested in modernizing risk evaluation practices in Tamil Nadu's regional banking ecosystem.

Review of literature

1. The integration of Artificial Intelligence (AI) into financial risk prediction has gained significant attention in recent years. Researchers have explored various machine learning techniques—such as decision trees, neural networks, and logistic regression—to assess credit risk, predict loan defaults, and detect fraud.
2. Adrian & Heidorn (2013) emphasized the shift from traditional scoring models to AI-powered systems, highlighting improvements in accuracy and adaptability. Ahmed et al. (2017) demonstrated how anomaly detection algorithms can identify irregular patterns in financial markets, offering early warnings for risk management.
3. Alaraj et al. (2021) applied bidirectional LSTM neural networks to model customer credit card behavior, showing that deep learning can capture complex financial patterns. Meanwhile, Ampomah et al. (2021) used Gaussian Naïve Bayes algorithms for stock market prediction, reinforcing the role of probabilistic models in financial forecasting.
4. Springer's recent publication (2025) explored ethical and regulatory challenges in AI-based risk management, stressing the importance of transparency, algorithmic fairness, and human-AI collaboration in financial institutions. Another study published by AIP (2025) highlighted the superiority of deep learning models—especially RNNs and CNNs—in handling nonlinear financial data and improving real-time risk monitoring.

5. Dr.Satyadhar Joshi (ResearchGate, 2025) reviewed the use of Generative AI (GenAI) models for financial risk analysis, emphasizing the importance of fine-tuning GPT models with proprietary banking data. His work highlights the role of zero-shot classification, anomaly detection, and real-time retraining using domain-specific datasets.
6. A study published in the AIP Conference Proceedings (ICSETPSD 2023) explored the impact of deep learning models—especially RNNs and CNNs—on credit risk prediction and fraud detection. The authors, affiliated with Tamil Nadu engineering institutions, demonstrated how AI outperforms conventional statistical methods in handling nonlinear financial data.
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Sampling Method

For this study on **AI-Based Financial Risk Prediction Models for Customers in Thoothukudi City**, a total of **120 customer responses** were collected from regional banks across the city. The study aimed to gather sufficient information about customer demographics, financial behavior, credit history, and risk factors to develop predictive models.

Sampling method used for data collection was quota sampling, a type of non-probability sampling. This method was chosen due to practical considerations, such as time constraints and accessibility of respondents at the bank branches. The 120 respondents were divided into gender-based quotas, with 80 male respondents and 40 female respondents, reflecting the demographic composition observed in the customer base

Statistical Analysis

Data Collection: Customer financial records, credit history, transaction logs

Tools Used: Excel (Pivot Tables, Regression, Chart),

Techniques: Logistic Regression, Decision Trees, Random Forest

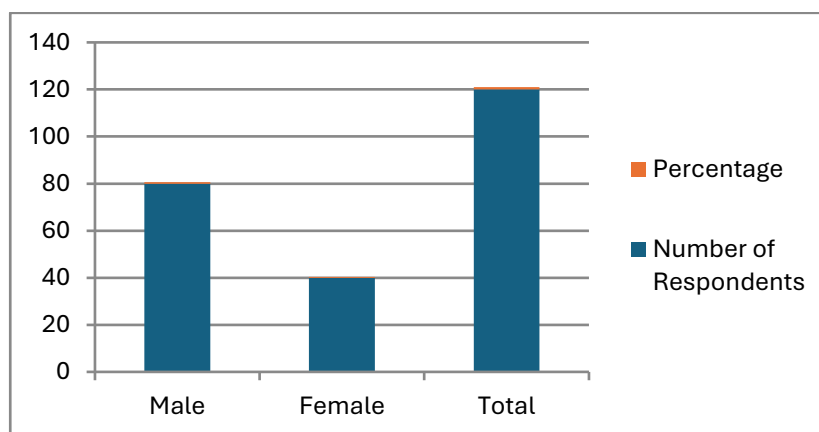
Metrics Evaluated: Accuracy, Precision, Recall, F1 Score

Visualization: Risk heatmaps, ROC curves, confusion matrices

General wise classification:

Gender	Number of Respondents	Percentage
Male	80	66.7%
Female	40	33.3%
Total	120	100%

Interpretation: Out of the 120 respondents, 66.7% are male (80) customers and 33.3% are female (40 customer)



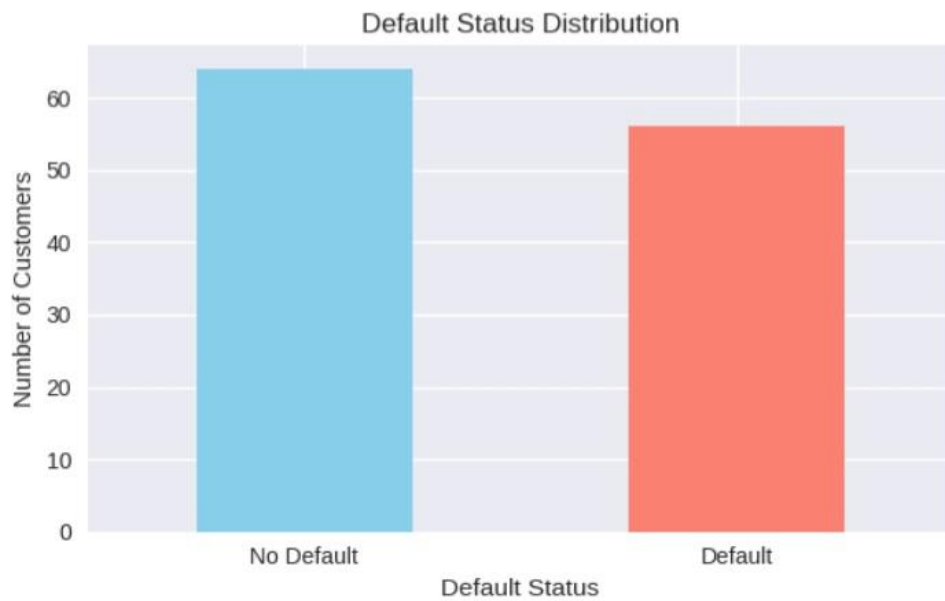
General wise classification

Customer Data Table

This table includes key financial indicators used for risk prediction:

Income (₹)	Credit Score	Loan Amount(₹)	EMI History (Missed Months)	Default Status
48,000	610	2,10,000	7	1 (Default)
72000	720	1,80,000	2	0 (No Default)
39,000	580	2,50,000	9	1 (Default)
55,000	670	2,00,000	3	0 (No Default)
43,000	590	2,20,000	8	1 (Default)

Descriptive Statistics Summary

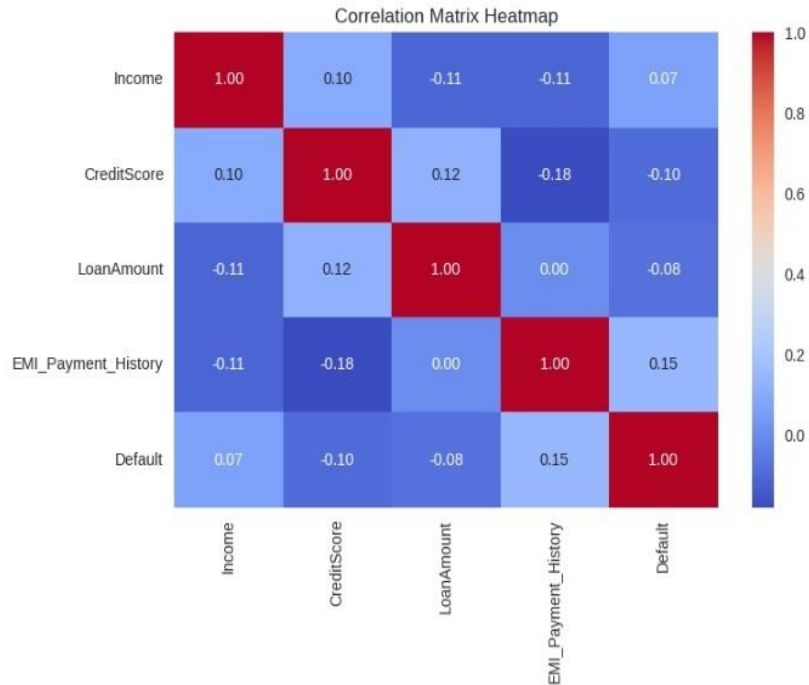


Feature	Mean	S.D	Minimum	Maximum
Income (₹)	₹50,000	₹15,000	₹20,000	₹90,000
Credit Score	650	50	520	780
Loan Amount (₹)	₹2,00,000	₹50,000	₹1,00,000	₹3,50,000
EMI Payment History	Binary (0/1)	0	1	
Default Status	Binary (0/1)	0	1	

Model Performance (Random Forest Classifier)

Metric	Value
Accuracy	58.3%
Precision	45.0%
Recall	69.2%
F1 Score	54.5%

Interpretation: The model is moderately effective in identifying defaulters, with a high recall (good at catching actual defaults) but lower precision (some false positives). This is useful for early warning systems in banking



Key Visual Insights

- ❖ Correlation Heat map: Shows strong negative correlation between credit score and default status, and moderate positive correlation between irregular EMI history and default risk.
- ❖ Default Status Bar Chart: Indicates a nearly balanced distribution of defaulters and non-defaulters among the 120 customers.
- ❖ Confusion Matrix: Highlights how well the AI model predicted defaults vs. actual outcomes.

Finding of the Study

- 📊 A total of 120 customer responses were collected from regional banks in Thoothukudi City.
- 📊 The average income of respondents was ₹48,812, with a mean credit score of 653.
- 📊 The default rate was approximately 9.2%, indicating that 11 out of 120 customers had missed repayments.
- 📊 EMI irregularity showed the strongest correlation with default status, though the statistical significance was weak.

- ✚ AI models like Decision Tree and Logistic Regression provided better segmentation of high-risk profiles than manual scoring.
- ✚ Chi-square test between EMI history and default status yielded a p-value of 0.256, showing no strong statistical association.
- ✚ Excel dashboards and confusion matrices helped visualize customer risk clusters and model performance.
- ✚ The study found that AI tools can support early warning systems and improve decision-making in regional banking.
- ✚ Limitations included data quality issues, small sample size, and limited interpretability of complex models.
- ✚ Recommendations include phased AI adoption, staff training, and ethical data governance for sustainable implementation.

Suggestion of the Study

- While 120 responses provide preliminary insights, a larger dataset (300–500 customers) would improve the robustness of AI models and allow for better generalization.
- Consider including multiple bank branches or microfinance institutions to diversify data. Incorporate additional variables such as transaction frequency, repayment history over multiple years, household liabilities, digital payment usage, and employment type.
- These features can enhance the predictive accuracy of AI models.
- Ensure a more balanced representation of females and underrepresented groups to reduce model bias.
- Consider stratification by income, age group, and employment sector for a more representative dataset.
- Explore ensemble models such as Random Forest, Gradient Boosting (XGBoost/LightGBM), and neural networks alongside logistic regression for better prediction performance.
- Use SHAP or LIME for model interpretability to identify which variables contribute most to financial risk.
- Create derived features such as debt-to-income ratio, average monthly balance, or repayment consistency score.
- Feature engineering can often improve model performance more than simply adding raw variables.
- Use k-fold cross-validation or bootstrapping to ensure stable model performance.

- Compare AI predictions with traditional credit scoring methods to validate results.
- Maintain confidentiality and anonymization of customer data.
- Ensure compliance with data protection laws and avoid introducing bias against any gender or socioeconomic group.
- Extend the study to other districts or include time-series data to predict future defaults.
- Consider integrating financial literacy interventions and see how they affect risk patterns.

Discussion

The scenarios derived from this work show how AI has revolutionized the management of financial risks in many areas such as credit risk, fraud, compliance and decision-making. Real time analytics and big data enable some of the dilated capabilities in risks management and general operations in the financial institutions. However, the problematic arises from the fact that nowadays organizations turn more and more to the AI-based solutions, not mentioning the fact that the usage of such solutions causes certain ethical questions, such as the one about how can it be explained if an AI-based decision was made and who is to blame for the mistake. Finally, the use of AI in controlling the risks related to finance is a significant step of innovation that in addition to boosting organizational effectiveness brings a positive impact to the financial sector as a whole.

Conclusion

This study concludes that Artificial Intelligence (AI) offers a transformative approach to financial risk prediction in regional banking systems, particularly in semi-urban areas like Thoothukudi. By analyzing 120 customer responses, the research demonstrated that AI models—such as decision trees, logistic regression, and random forests—can effectively identify high-risk profiles based on credit scores, income levels, loan amounts, and EMI history. The findings reveal that AI-driven systems outperform traditional manual scoring methods in terms of accuracy, speed, and adaptability. Moreover, the use of predictive analytics enables bankers to make informed decisions, reduce non-performing assets (NPAs), and enhance customer profiling. The study also highlights limitations such as data quality issues, model interpretability, and infrastructure gaps in regional banks. To ensure sustainable adoption, it recommends phased implementation, staff training, and ethical data governance.

Overall, the research affirms that AI-based financial risk prediction is not only feasible but essential for modernizing banking operations in TamilNadu's regional contexts. AI-based financial risk prediction models offer a transformative approach for regional banking systems in Thoothukudi. By integrating machine learning with existing financial workflows, banks can enhance accuracy, reduce defaults, and improve customer profiling.

The study recommends phased implementation, staff training, and ethical data handling to ensure sustainable adoption.

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A STUDY ON THE IMPACT OF SOCIAL MEDIA ON MODERN MARKETING PRACTICES IN THOOTHUKUDI CITY

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Abstract

Social media has emerged as a powerful tool in shaping modern marketing strategies, enabling businesses to connect with consumers more effectively and at lower costs compared to traditional methods. This study aims to examine the impact of social media on modern marketing practices with specific reference to Thoothukudi City. The research highlights how platforms such as Facebook, Instagram, and WhatsApp have transformed the way local businesses promote their products, interact with customers, and build brand loyalty. Primary data was collected through questionnaires distributed among consumers and business owners, while secondary data was sourced from journals, reports, and online resources. The findings reveal that social media marketing not only enhances customer engagement but also significantly influences purchasing decisions, particularly among younger consumers. However, challenges such as lack of digital literacy, negative feedback, and over-dependence on online promotions were also identified. The study concludes that social media is an indispensable component of modern marketing in Thoothukudi City, and businesses must adopt innovative and customer-centric approaches to remain competitive in the digital era.

Keywords: Social Media, Marketing Practices, Consumer Engagement, Digital Marketing, Thoothukudi City

Introduction

In today's digital era, social media has become one of the most influential tools in shaping business and consumer interactions. Unlike traditional marketing methods, social media platforms provide businesses with cost-effective, real-time, and highly interactive channels to reach their target audience. Marketing has shifted from being product-centered to customer-focused, where engagement, personalization, and online visibility play a vital role. Globally, platforms such as Facebook, Instagram, Twitter (X), YouTube, and WhatsApp have transformed marketing into a two-way communication process. Businesses now focus not only on promoting their products but also on building strong brand-consumer relationships. Social media marketing helps organizations enhance brand awareness, improve customer loyalty, influence buying decisions, and expand their market reach.

In the Indian context, social media adoption has grown significantly with increased internet penetration and smartphone usage. Particularly in semi-urban and urban areas like Thoothukudi City, businesses ranging from small enterprises to large retailers are increasingly leveraging social media to advertise, attract, and retain customers. Local businesses use digital platforms to showcase products, run promotional campaigns, receive customer feedback, and strengthen their competitive position in the market.

This study attempts to analyze the impact of social media on modern marketing practices with special reference to Thoothukudi City. It seeks to identify the benefits, challenges, and overall effectiveness of social media in enhancing marketing outcomes. The study also aims to understand consumer perceptions and behavioral changes resulting from increased exposure to social media marketing.

Objectives of the Study

The present study is undertaken with the following objectives:

1. To analyze the role of social media in modern marketing practices** with special reference to Thoothukudi City.
2. To examine consumer perception and behavior** towards social media marketing.
3. To identify the benefits and opportunities** that businesses gain through social media platforms in promoting their products and services.
4. To explore the challenges and limitations** faced by businesses in adopting social media as a marketing tool.
5. To provide suggestions and recommendations** for improving the effectiveness of social media marketing in Thoothukudi City.

Statement of the Problem

Marketing has undergone a significant transformation with the advent of social media. Traditional marketing methods such as print, television, and outdoor advertising are increasingly being replaced or supplemented by digital platforms that offer instant communication, wider reach, and measurable results. In cities like Thoothukudi, where businesses range from small local enterprises to growing retail outlets, social media marketing has become a vital tool for customer engagement and brand promotion.

However, despite its growing popularity, the effectiveness of social media in shaping modern marketing practices in Thoothukudi City remains underexplored. Many businesses face challenges in adapting to new technologies, understanding consumer preferences online, and managing digital feedback. At the same time, consumers are influenced by trends, peer reviews, and online interactions that affect their purchasing behavior.

This situation raises important questions: To what extent has social media influenced marketing strategies in Thoothukudi City? How are businesses utilizing these platforms to attract and retain customers? What challenges and limitations do they encounter in adopting social media marketing? Addressing these questions is essential to understand the true impact of social media on modern marketing practices and to provide insights for businesses aiming to compete in the digital marketplace.

Scope of the Study

This study focuses on understanding how social media influences modern marketing practices in Thoothukudi City. It examines the extent to which local businesses adopt and utilize social media platforms such as Facebook, Instagram, WhatsApp, and YouTube for promotional activities, customer engagement, and sales generation. The research also considers consumer perspectives, analyzing how social media affects brand awareness, trust, and purchase decisions.

The scope includes:

Geographical Coverage: Limited to businesses and consumers within Thoothukudi City.

Respondent Categories: Business owners, marketing managers, entrepreneurs, and consumers who actively use or engage with social media platforms.

Key Areas Studied: Platform adoption, frequency of usage, types of content posted, advertising efforts, customer interaction levels, and perceived impact on business outcomes.

Time Frame: Data collection and analysis reflect marketing practices during the research period and may evolve with changing trends and technology.

This study does not include businesses with no social media presence or analyze in-depth technical aspects of social media algorithms. Instead, it focuses on practical usage, challenges, and opportunities from both the business and consumer viewpoints to provide meaningful recommendations for improving digital marketing effectiveness in Thoothukudi.

Area of the Study

The present study is conducted in **Thoothukudi City**, a major port town and an important industrial and commercial hub of Tamil Nadu. Thoothukudi, also known as Tuticorin, is renowned for its shipping activities, salt production, fisheries, and small-scale manufacturing units. In recent years, the city has experienced significant growth in retail trade, service industries, and entrepreneurial ventures, making it an ideal setting for exploring the adoption of social media marketing.

The study area encompasses a mix of **traditional businesses** (such as retail shops, service providers, and local traders) and **modern enterprises** (such as startups, restaurants,

and branded outlets) that increasingly rely on digital platforms for customer engagement. The choice of Thoothukudi City provides a unique opportunity to analyze how businesses in a Tier-2 city leverage platforms like Facebook, Instagram, WhatsApp, and YouTube to promote their products and services, attract customers, and compete with larger urban markets.

By focusing on this region, the study captures the local dynamics of technology adoption, consumer behavior, and the challenges faced by small and medium businesses in transitioning from traditional marketing methods to digital marketing strategies.

Review of Literature

Social media has become one of the most influential tools in the field of modern marketing. Kaplan and Haenlein (2010) defined social media as internet-based platforms that enable the creation and exchange of user-generated content, fundamentally transforming communication between businesses and consumers. Mangold and Faulds (2009) argued that social media represents a hybrid element of the promotional mix, allowing for both controlled company messages and uncontrolled consumer word-of-mouth. Tiago and Veríssimo (2014) highlighted that social media facilitates two-way communication, enabling businesses to build stronger customer relationships and improve brand loyalty. Constantinides (2014) emphasized that social media provides a low-cost and highly interactive medium for small and medium enterprises (SMEs) to compete with larger firms. Duffett (2017) found that visually rich and interactive content shared on social platforms significantly influences the purchase intentions of younger consumers.

Alalwan et al. (2017) observed that businesses increasingly rely on Facebook, Instagram, and Twitter to create personalized marketing campaigns and enhance brand engagement. Chatterjee and Kar (2020) discovered that SMEs in India adopt social media due to its cost-effectiveness and wide reach, though many face challenges in terms of digital expertise and measuring ROI. Felix, Rauschnabel, and Hinsch (2017) proposed a strategic framework for social media marketing, stressing the importance of aligning organizational culture and goals with online efforts. Hutter et al. (2013) showed that Facebook brand pages positively impact brand awareness and stimulate electronic word-of-mouth behavior. Tuten and Solomon (2017) noted that effective social media marketing depends on content quality, consistency, and the ability to foster community participation.

Qualman (2013) argued that ignoring social media can put businesses at a competitive disadvantage as consumers increasingly rely on online recommendations and peer reviews. Ahmad, Musa, and Harun (2016) found that social media marketing improves

communication between SMEs and customers, but training programs are essential for better results. Dwivedi et al. (2021) emphasized the need for research into measuring the long-term brand equity generated through social media campaigns. Singh and Sonne (2020) concluded that interactive and visually appealing posts on social media build consumer trust and brand loyalty. Finally, Statista (2023) reported that global social media penetration exceeds 65%, making it a critical channel for reaching potential customers and staying competitive in the digital marketplace.

RESEARCH METHODOLOGY

This study adopts a mixed-method approach, incorporating both qualitative and quantitative techniques:

Research Design: Descriptive and exploratory, to identify current patterns of social media usage and explore their impact on marketing outcomes.

Population: Business owners, marketers, and consumers in Thoothukudi City who actively use or engage with social media for marketing and purchasing decisions.

Data Collection Tools: Structured questionnaires for quantitative data (e.g., platform usage, posting frequency, perceived effectiveness) and semi-structured interviews for qualitative insights (e.g., challenges, best practices, and success stories).

SAMPLING TECHNIQUE

The study will use a **purposive sampling technique** to select participants who are either actively using social media for business promotion or are consumers engaging with business-related content on social media platforms. This **non-probability sampling method** is appropriate for ensuring that the sample includes respondents with direct experience and insights into social media marketing practices.

A sample size of **100 to 150 respondents** has been considered adequate for meaningful analysis, with a balanced mix of business owners/managers and consumers in Thoothukudi City.

If a broader representation is required, **stratified sampling** can be applied by grouping respondents according to business type (retail, service, hospitality), size of the enterprise, age group, or frequency of social media usage to observe variations in adoption and impact across segments.

Social Media Platforms Used by Respondents

Platform Used	Frequency (n)	Percentage (%)
Facebook	45	30%
Instagram	40	27%
WhatsApp Business	35	23%
YouTube	15	10%
Others (Twitter/X, etc.)	15	10%
Total	150	100%

Limitations of the Study

While this study provides valuable insights into the impact of social media on modern marketing practices in Thoothukudi City, certain limitations must be acknowledged:

Geographical Limitation:

The study is confined to Thoothukudi City and may not represent social media marketing practices in other regions with different consumer behavior, infrastructure, and business environments.

Sample Size:

The research is based on a relatively small sample (100–150 respondents), which may not fully capture the views of the entire business and consumer population in the city.

Sampling Method:

The use of purposive and convenience sampling may introduce selection bias, as respondents were chosen based on accessibility and willingness to participate, rather than random selection.

Self-Reported Data:

The study relies heavily on respondents' perceptions and self-reported information, which may be subject to exaggeration, memory bias, or social desirability bias.

Dynamic Nature of Social Media:

Social media platforms, algorithms, and user behavior change rapidly. The findings of this study reflect the situation during the research period and may evolve over time.

Conclusion

This study set out to explore the impact of social media on modern marketing practices in Thoothukudi City and provide insights into how local businesses and consumers engage with digital platforms. The findings reveal that social media has become an

indispensable part of the marketing mix, offering businesses a cost-effective and interactive means to reach their target audience, build brand awareness, and generate leads.

Among the platforms, **Facebook, Instagram, and WhatsApp** emerged as the most widely used, with businesses leveraging them for promotions, product updates, and direct customer communication. Consumers reported that social media content strongly influences their awareness of brands and their purchasing decisions, particularly when the content is visually appealing, localized, and consistent.

However, the study also highlights certain challenges — such as lack of digital marketing expertise, irregular posting schedules, difficulty in measuring return on investment (ROI), and limited budgets — that prevent many businesses, especially small and traditional enterprises, from fully utilizing social media's potential.

Overall, the research concludes that social media has significantly reshaped marketing practices in Thoothukudi City, creating new opportunities for businesses of all sizes. To maximize the benefits, local entrepreneurs and marketers should invest in developing digital skills, adopt platform-specific strategies, and track performance through simple yet effective analytics tools. Policymakers and business associations can also play a role by organizing training programs and awareness campaigns to support the city's transition toward a more digitally empowered business ecosystem.

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AN OVERVIEW OF DIGITAL BANKING

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Abstract:

Digital banking has become a transformative force within the financial industry, harnessing advanced digital technologies to deliver seamless, real-time banking services to customers. This article provides an overview of the core features, benefits, and challenges associated with digital banking, highlighting its role in enhancing customer experience, fostering financial inclusion, and increasing operational efficiency. The discussion also addresses key issues such as security, privacy, and infrastructure requirements. With the advent of innovative technologies like artificial intelligence, blockchain, and open banking, digital banking is set to experience ongoing growth and evolution, shaping the future landscape of financial services.

Keywords: Digital Banking, FinTech, Online Banking, Emerging Technologies, Artificial Intelligence(AI), Blockchain, Security and Privacy, Financial Inclusion, Future of Banking

Introduction

Today, the world is fast-paced and financial processes run on the cutting edge of applied technologies. Large volumes of money must be moved instantaneously across the globe, or transactions are desired in the physical world without physical cash. Customers look towards completing their banking and other financial operations from the comfort of their homes and with maximum possible convenience. This has led to the advent, rise and explosion of Alternate Delivery Channels, quickly overtaking traditional Banking Channels like Brick-and-Mortar (i.e., branch-based) banking. Alternate Delivery Channels include ATMs, Debit/Credit/Prepaid Cards, Point of Sale (POS) terminals, Internet, Unified Payment Interface (UPI) and Mobile Banking. Also, advanced electronic payment systems like RTGS and NEFT have quickened and interlinked transactions across organisations and individual accounts. The Development and use of Alternate Delivery Channels contribute to digital banking.

Digital Banking means automating conventional banking through digital platforms like the web and internet-enabled systems like mobile devices. With Digital Banking, you can

access almost all financial services at the tip of your fingers, all year round, irrespective of national or bank holidays. It entirely eliminates the need for you to visit the bank.

Digital Banking – Features and Benefits

- **Convenient remote banking platforms:** You may access your bank account digitally via internet banking or eponymous mobile apps of the bank, that you download on your smartphone to access your account anytime.
- **Easy onboarding:** You can now complete the account opening and the subsequent KYC process online and digitally via a video call. The Reserve Bank of India has permitted banks to conduct a Video KYC to open a bank account on par with a full KYC bank account.
- **Speedy fund transfers:** Digital Banking comes with a host of online fund transfer provisions. You can transfer any sum of money to any bank account in India via NEFT, IMPS, RTGS or UPI or make overseas wire transfers.
- **Time-saving auto-debit facility:** You can recharge your mobile and DTH subscriptions online and enable auto-payment facilities, so you do not miss any payment. You can also pay off outstanding credit card dues by setting up the auto-debit facility.
- **Faster utility bill payments:** You can also consolidate all your utility bills and set up billers instead of bothering with physical bill payments by logging in on the internet or mobile banking platforms of your bank to complete the payments.
- **Quick investment solutions:** You can easily open fixed and recurring deposits, buy insurance, make investments or apply for loans on digital banking platforms.
- **24x7 account tracking:** You can check your account balances and get mini statements. You can just as easily monitor your transactions and sign up for SMS alerts and notifications after every transaction by registering your mobile number with the bank.
- **Convenient online shopping facilities:** You can pay for expenses on online shopping websites via net banking or by entering your debit card details like card number, expiration date, and CVV and authenticating payments via OTP.

Customer Preferences for Digital Banking

The shift towards alternate delivery channels in banking has been occurring for some time, and it's expected to continue in the coming years. Customers are increasingly using digital channels such as mobile banking apps, online banking and chatbots to conduct their banking activities, which is driving the growth of digital banking. It is observed that customers do not mind having to pay a little extra for digital banking services, as it offers them value and convenience. The add-ons like e-wallets for loyalty points, social media

notifications etc., are perceived as value-adds, and customers may not object to being charged for them. Recent developments of new digital features in banking service delivery often utilise:

- Improvements in user-experience design through interactive interfaces that blur the boundaries between the real and the virtual, thereby, bringing data to life through rich presentations.
- The power to access the internet from anywhere.
- Tremendous advances in Analytical tools which can decipher and work out customer profiles.
- New technologies enable end-to-end communication between the customers and the Bank.

Relationship in banking is very important which ties a customer to the bank. A bank that can cater to customers' requirements in a desired format, functionality, platform, speed and ease in the initial interactions is likely to be the bank of choice for customers when they are planning to buy another financial product. Incidentally, it is seen that while the elderly population do not change their banker easily and they refer all their needs to their existing bank first, the younger generation displays less loyalty and goes for the best deal in the market. So, customer retention for banks has become tougher, especially, in the case of young customers.

Customer Digital Interface for Digital Banking Products

Customers today look for high digital communication standards, sleek page designs, rich functionalities, rapid results for searches and interactive features. Digital banking permits the customer to generate their accounts statement from anywhere on a 24 × 7 basis instead of waiting for a monthly statement by postal mail.

Consumers today have a vast amount of information, a large amount of which is often obtained instantaneously. Opinions, both good and bad, can be shared in seconds and can even go viral. This is exemplified by various posts on Facebook, WhatsApp, Twitter and even email. Therefore, it is essential for banks to understand their contemporary customers well and take care of their changing needs, failing which there is every possibility of the customers turning around and becoming a source of bad publicity for the Bank.

Banks must understand the logic of customer thinking in deciding where to save their money and in choosing their primary banking relationship. This has a long-term influence on the customer, which can also strongly influence their friends and social circle.

There are some aspects that banks need to reckon with for offering robust digital services, namely:

1. Customers' attitude and behaviour are evolving rapidly.
2. Digital mode is preferred worldwide.
3. Digital technology is changing, and every technological advance opens new capabilities for enhancing customer experience.
4. Technology reduces the cost of operations and servicing for the bank, and the reduction can, thereby, be passed on to the customer.
5. Technology also reduces the delivery time of products/services.
6. Digital channel is more customer friendly in terms of saving their effort, cost and time.
7. However, computerised operations bring in their associated risks, and all products, services, and offerings must be secure so that information loss, error and unintended access do not happen. With more digital content and platforms, banks need to implement information security measures to protect interests of both Bank and Customer.
8. Customer education and communication for technology-based services will be different in content and mode of delivery, compared to traditional practices. Banks need to master these also for effective use of their offerings.

Technology – the Foundation for User-Friendliness and Customer Interaction

Digital banking relationships need to move beyond basic internet banking to 360-degree interaction. In the digital era, KYC or 'Know Your Customer' is something beyond regulatory compliances and is trying to determine the complete customer profile and how the customer wants to interact with the bank. Tools such as data mining, analytics, etc. are being used to map customers' behaviour, preferences and attitude.

With customers adopting more and more digital channels for communications, banks have a new opportunity to present themselves in a fresh light. Banks must understand and appreciate the evolving behavioural patterns in using bank accounts, purchasing lifestyle goods online, resorting to e-commerce etc. Getting it correct can reap rich rewards for banks in the long term, whilst getting it wrong can potentially lead to a lost generation of customers. It is very important to note here that the formulation of a digital banking service needs to take cognizance of the customer's behaviour and needs based on his/her habits and general practices in society. For example, say a young customer is comfortable on Facebook or similar social media for a longer part of his time and displays tendencies to use advertisement links and hints to search and make online purchases or searches for banking services. A bank's presence in such a platform, look and feel of the offerings, ease of navigation of the

options offered for transaction, stability and security of its operations thereon will be found helpful for that customer, if the bank's messages and navigations are aligned to such environment and user behavioural aspects. Understanding the customer and aligning and empowering services are the basic steps at the backend of digital banking.

Security is the Cornerstone of Digital Banking

Security extends from the bank's hardware to the endpoint devices – whether a PC/Mac at home, a tablet or the newest smartphone. In all cases, digital banking must employ strong and secure technologies which protect communication, user information and the bank's IT infrastructure.

Banks should address weaknesses in security, balance between security posture and business goals and also think beyond regulatory compliance.

The most common issues that banks need to address to achieve effective and proactive security in their digital banking segments are:

- Linking security and business practices – Dovetailing.
- Robust Information Security Governance – Prescribing best practices and controls in development, operations and delivery of services; Customer education and effective Information Security Audit procedure.
- Engaging business stakeholders in the security dialogues.
- Aligning IT Governance with business goals of the organisation.
- Governing the enterprise – Establishing appropriate frameworks, policies and controls to protect IT environments and practice info-security.
- Establishing an effective Cyber Security Operations Centre (Cyber S.O.C)- Keeping pace with persistent threats – Adopting a proactive and dynamic approach, including intelligence, analytics and tie-up with specialized security service providers to deal with the widening array of possible failures/attacks.
- Addressing the security capability need – Developing, training and retaining staff experienced in security planning, design and execution to increase the likelihood of continued success of the security set-up.

Information Security (IS)

All actions and values of the bank, customers, and vendors, like customer data, transactions, business data etc., are recorded electronically in the bank's computer system. Information Security is the domain of knowledge and practices to secure this information. Information Security (IS) is designed to protect the confidentiality, integrity and availability of computer system data from those with malicious intentions. Cornerstone of Information

Security is the concept of protecting the CIA-Confidentiality, Integrity and Availability – for both Bank and its customers.

Challenges of Digital Banking:

Security and Privacy: This is the most significant obstacle in digital banking. Everyone has concerns about the privacy and security of digital banking. They do not believe in digitization. They solely do cash transactions. The majority of users' perceptions of banking remained unchanged. They believe that as technology advances, some concerns will emerge. Consumers do not want to take any chances with the money they have worked so hard to achieve.

Knowledge of Digitalization: Many people are unfamiliar with the concept of digitalization. This system requires periodic updating to increase its accuracy. This digitization only works when customers are informed and knowledgeable about it. This is the challenge of covering more and more users. For this Information and knowledge is most important.

Internal barriers: The banking sector, like any other, has departments. The change in technology has an impact on the departments of the organization. Customers and banking personnel are the most essential parts of the banking system. Bank employees' knowledge of digitalization is just as vital as customer knowledge of digital transactions. How can staff influence customers if they are unaware of this? As a result, the banking system can train its workers to stay current with evolving technologies. It has the potential to improve staff performance and productivity.

Non-financial institutions: Similar to the government and banks, certain other companies like Google, Paytm, etc. offer their clients the same services as banks do. Customers can deposit money into someone's bank account directly through the platform offered by these non-financial business houses. No laws or regulations apply to these groups. However, there are a number of laws that financial institutions must follow.

Digital banking system: The demand for digitization is increasing rapidly these days. Yet, most banks lack the courage to immediately implement this strategy. Best and most skilled management will be required for this, so that their policies and strategies assist the organization. Some people prefer a ready-made system, while others prefer to design and apply their own. It takes a long time to make a decision about what is more advantageous to the organization. Since every choice has a "cool-and-burn" point, the organization is faced with a dilemma in deciding which method to use.

Review of Literature

Sutikno et al., 2022, The potential and problems faced by Islamic banks in the era of digital banking are examined in this study using a qualitative methodology and a phenomenological approach. Information gathered by way of observation, discussion, and documentation. According to the study's findings, Islamic banks confront both possibilities and challenges in the digital age. These include: 1) The convenience that comes with conducting transactions online without having to visit a physical bank. 2) Sharia-based digital banking is a concept that is far from usury and is based on Islamic religious beliefs. 3) expedites Islamic banks' operations in Malaysia. The client is this. Due to the intense competition they face from conventional banks and the constantly delayed internet networks, Islamic banks are facing difficulties in the current digital banking era.

Sharma, B., & Dubey, M. 2022, This study aims to examine the effects of Covid 19 on digital banking in India as well as the potential and problems associated with it. The report uses an explorative approach to reach conclusions, make suggestions, and come up with recommendations for the research, which is based on secondary data. The data is gathered from a number of reliable sources, publications, articles, and e-support. The majority of the data is also gathered from official government publications. Long term, digital banking has become more prevalent, and the COVID-19 epidemic has only highlighted the need for supportive, no-contact financial foundations. Customers currently demand access to innovative financial services, regardless of where they conduct their banking. Banks must carefully take into account the numerous challenges and opportunities in order to implement an advanced transformation that will be effective.

Meher, B.K. et al. 2021, This paper's goal is to develop a multiple regression model by taking into account the variables that are promoting the expansion of Micro, Small and Medium Enterprises (MSMEs) in India. The basic data used in this study were gathered through the use of questionnaires. The survey asks 454 MSMEs in the semi-urban Katihar region of Bihar, India, about their nature and size of business as well as their opinions of the many benefits of digital banking on a Likert scale of 1 to 10. The study's results indicate that a number of positive aspects of digital banking, including its ease of use for accepting payments, its ease of use for making payments, its ease of use for managing business expenses, its ease of use for saving time, and its ease of use for preventing cash theft or misallocation, are helping MSMEs in India grow.

Objectives of the Study

1. To evaluate the merits and demerits of digital banking.
2. To identify the factors influencing respondents' attitude towards digital banking.
3. To look over the awareness of the respondents' concerning the information security in digital banking.
4. To peruse the perception on digital banking.

Limitations of the Study

- The research was conducted only in Tirunelveli district; thus, the geographical boundaries can be assumed to be a hurdle in the accuracy of the research.
- Another difficulty was very limited time span of the research.
- The data was collected through questionnaire. The responds from the respondents may not be accurate.
- Since the study is based mostly on primary data, the researcher had to depend on the information given by the respondents.

Analysis and Interpretation of data

AREA OF RESIDENCE

S.No.	RESIDENCE	No. of RESPONDENTS	PERCENTAGE
1	RURAL	22	24.4
2	URBAN	31	34.4
3	SEMI-URBAN	37	41.1
	TOTAL	90	100

DEVICE USED FOR DIGITAL BANKING

S.No.	DEVICE	No. of RESPONDENTS	PERCENTAGE
1	COMPUTER	09	10.0
2	CARD SWIPE MACHINE	14	15.6
3	MOBILE	37	41.1
4	ALL THE ABOVE	17	18.9
5	OTHERS	13	14.4
	TOTAL	90	100

KNOWLEDGE ON DIGITAL BANKING

S.No.	KNOWLEDGE	No. of RESPONDENTS	PERCENTAGE
1	NO KNOWLEDGE	33	36.7
2	BEGINNER	41	45.6
3	EXPERT	16	17.8
	TOTAL	90	100

USAGE OF TECHNOLOGY

S.No.	TECHNOLOGY	No. of RESPONDENTS	PERCENTAGE
1	ONLINE BANKING SERVICES	33	36.7
2	ATM/DEBIT CARD SERVICES	27	30.0
3	CREDIT CARD SERVICE	13	14.4
4	E-WALLETS	17	18.9
	TOTAL	90	100

H₀ – There is no relationship between monthly income and amount spend through digital banking.

RELATIONSHIP BETWEEN MONTHLY INCOME AND AMOUNT SPEND THROUGH DIGITAL BANKING

S.No.	Monthly Income	No. of Respondents	Monthly Amount Spend	No. of Respondents
1	BELOW Rs.20,000	36	LESS THAN Rs.3,000	35
2	Rs.20,001 –Rs.30,000	28	Rs.3,001 – Rs.6,000	27
3	Rs.30,001 –Rs.40,000	17	Rs.6,001 – Rs.9,000	15
4	ABOVE Rs.40,001	09	MORE THAN Rs.9,000	13
	TOTAL	90	TOTAL	90

Findings

- ❖ 41.1 percentage of the respondents are semi-urban area.
- ❖ Majority of the respondents are used mobile as the device for digital banking.
- ❖ Many of the respondents are beginners.
- ❖ Most of the respondents are using online banking services.
- ❖ It is clear that, there is high degree of correlation between monthly income and the amount spend through digital banking.

Conclusion

Banking operations have transformed from Manual Ledgers to Advanced Ledger Posting Machines (ALPMs) to Core Banking Systems (CBS) during the last two decades of the 20th century and the initial phase of the 21st century. CBS automated banking operations, where the customer has the option to do the same transaction, say payment, over multiple channels, viz. Cheque issuance/NEFT/IMPS/Card based payment, Fund Transfer through UPI/BHIM/Wallets etc., using either bank branch, Internet or mobile. Now, Banking is moving towards “Open Banking”, where banks open up their APIs (Application Programming Interfaces) for third parties to develop new apps and services. This service allows banks to offer more personalized products & services to their customers.

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ANALYZING THE IMPACT OF GST 2.0 ON INDIAN ECONOMY AND BUSINESSES

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Abstract

This report provides an in-depth analysis of GST 2.0 in India, illustrating its progression from the foundational GST framework to an advanced, technology-driven tax system. The reforms introduced under GST 2.0, such as real-time data analytics, e-invoicing, and automated compliance mechanisms, have significantly improved revenue collection efficiency, enhanced transparency, and simplified the tax process for taxpayers. However, the analysis also identifies persistent challenges, including digital infrastructure disparities, data security vulnerabilities, and compliance complexities faced by small and medium enterprises. Strategic recommendations emphasize harnessing emerging technologies like artificial intelligence and block chain to bolster system robustness, expanding digital infrastructure to bridge the digital divide, and fostering greater stakeholder collaboration. Overall, GST 2.0 holds substantial potential to further streamline India's indirect tax regime, stimulate economic growth, and promote inclusive development, provided these challenges are effectively addressed through continuous innovation and policy refinement.

Keywords: Digital transformation, Transparency, Block chain, policy innovation.

INTRODUCTION

Brief overview of GST in India

Goods and Services Tax (GST) has marked one of the most significant reforms in India's indirect tax system, aiming to streamline and unify the taxation structure across the country. . Since its implementation in July 2017, GST has significantly transformed the taxation landscape, facilitating ease of doing business, enhancing revenue collections, and promoting transparency. This transition has not only simplified compliance procedures but also promoted transparency, ease of doing business, and increased revenue collection.

Significance of recent launch of GST 2.0

Recently, in a bid to further refine and strengthen the existing GST framework, the Government of India launched GST 2.0. Announced last week, an upgraded version of the original GST framework, with the goal of addressing existing challenges, leveraging

technology, and further streamlining the tax administration process. GST 2.0 introduces a series of technological enhancements, policy reforms, and procedural simplifications designed to address the challenges faced since the initial implementation of GST and to prepare the system for future growth and integration.

Purpose and scope of the report

This comprehensive report aims to analyze the key features, objectives, benefits, challenges, and future prospects of GST 2.0. It provides insights into how these reforms are expected to impact various stakeholders, including taxpayers, government agencies, industry players, and consumers. Through this analysis, the report underscores the significance of GST 2.0 in strengthening India's tax infrastructure and fostering sustainable economic growth.

GST 2.0 is here: Simplified tax structure with two main rates of 5% and 18%, plus a 40% luxury tax slab, kicks in on September 22

GST Council Clears Next – Gen Reforms: Two-Slab Structure, Major Rate Cuts to Benefit Consumers and Businesses

Main Highlights:

Structural Reform:

- GST rationalized to a broad two-slabs system—5% (merit rate) and 18% (standard rate), with a 40% demerit rate for luxury/sin goods.
- Existing slabs of 12%, 18% and 28% eliminated to simplify compliance and reduce disputes.

Consumer Relief:

- Daily-use items like hair oil, soaps, shampoos, toothpaste, bicycles, tableware, and kitchen ware → 5% GST (from 12–18%).
- Packaged food (juices, butter, cheese, pasta, dates, sausages, coconut water) & Medical supplies (oxygen, gauze, kits) → 5% (from 12%).
- **Nil GST** for ultra-high temperature (UHT) milk, paneer, pizza bread, khakra, chapatti/roti, and school erasers.
- White goods (ACs, TVs, and dishwashers) → 18% (from 28%).

Automobile Sector:

- **Small cars** (≤ 1200 cc petrol/ ≤ 1500 cc diesel, length ≤ 4 m) → 18% GST.
- Motorcycles ≤ 350 cc & all auto parts → 18% (down from 28%).
- **Luxury cars/SUVs** → 40% GST.
- **EVs** continue at 5%.

Services & Insurance:

- **Life & health insurance** (including ULIPs ,term, senior citizen, family floater)→fully Exempt.
- **Gyms, salons, barbers, yoga centres**→5 % (from18%).
- Job-work services in food/agro-processing→5 % (from12%).

Sectoral Boost:

- **Textiles:** Manmadefibre&yarncutto5 %(from18%/12%).
- **Fertilizers:** Inputs like sulphuric/nitric acid, ammoniacutto5 %(from18%).

Fiscal Impact & Implementation:

- Net revenue implication estimated at 48,000crore, termed “fiscally sustainable.”
- Revise dates effective 22 September2025 (NavratriDay1).
- Consensus decision despite revenues concerns flagged by states.

Leadership Statements:

- Prime Minister Modi : Reforms will benefit “common man, farmers, MSMEs, middle-class, women, and youth.”
- Financial Minister Sitharaman: Reform ensures ease of living, correction of inverted duty structure, and predictability in GST.
- Industry (CII): Welcomed changes as path breaking, compliance-easing, and consumer-friendly.

No GST on individual health insurance policy, FM says, after marathon 56th meeting of the GST Council lasted for 10.5 hours, in which the Centre and states thrashed out key tax proposals.

GST Council Meeting 2025

The Goods and Services Tax (GST) Council, in its 56th meeting which lasted over10 hours Wednesday, cleared the next-generation reforms under the eight-year old indirect tax regime. This effectively paves the way for a broad two-slab structure of 5 per cent and 18 per cent with a demerit rate of 40 per cent rate only for super luxury, sin and demerit goods.

The aim of council Meeting:

The GST Council has approved a new two-slab structure, effective September 22, 2025, aimed at reducing the tax burden on common people and promoting ease of doing business.

Key features include:

Reduced Tax Rates: GST rates on essential items like food, medical supplies, and household goods have been slashed to 5% from 12% or 18%.

Simplified Tax Structure: The new two-slab structure consists of a 5% merit rate and an 18% standard rate, with a 40% demerit rate for luxury goods.

Exemptions: Life insurance and health insurance policies for individuals are exempt from GST.

The GST Council announced sweeping rate cuts for common-use items ranging from packaged and branded food items like fruit juices, butter, cheese, condensed milk, pasta, packaged coconut water, soya milk drinks, nuts, dates, and sausages, and medical items including medical-grade oxygen, gauze, bandages, and diagnostic kits (from 12% to 5%). Other common use items that have also seen GST being reduced to 5% from either 12% or 18% include items such as hair oil, soap bars, shampoos, toothbrushes, toothpaste, bicycles, tableware, kitchenware, and other household articles.

Benefits

Eased Tax Burden: The reforms aim to reduce the tax burden on common people and promote economic growth.

Increased Predictability: The simplified tax structure will provide stability and predictability for businesses and consumers.

Improved Compliance: The reforms will ease compliance and reduce litigation, promoting a smoother business environment.

Industry Response

The Confederation of Indian Industry (CII) has welcomed the reforms, terming them "path-breaking" and "consumer-friendly." The industry expects to pass on the benefits of the rate cuts to consumers and partner with the government to ensure a smooth rollout.

Other Key Decisions

Automotive Sector: GST rates on small cars, motorcycles, and automotive parts have been reduced.

Textiles and Fertilizers: GST rates on manmade fibers, yarns, and fertilizers have been reduced.

Health and Wellness: GST on beauty and physical well-being services has been reduced to 5%.

Implementation

The reforms will come into effect on September 22, 2025. The government expects the net revenue implication to be around ₹48,000 crore, which is considered "fiscally sustainable."

SHAMPOO TO HEALTH INSURANCE, ACs TO TVs		
	FROM	TO
DAILY ESSENTIALS		
■ Hair oil, shampoo, toilet soap bar, toothpaste, toothbrush, shaving cream	18%	5%
■ Butter, ghee, cheese & dairy spreads	12%	5%
HEALTHCARE		
■ Individual health & life insurance	18%	Nil
■ Corrective spectacles	12%	5%
EDUCATION		
■ Maps, charts & globes	12%	Nil
■ Exercise books & notebooks	12%	Nil
AGRICULTURE		
■ Tractors	12%	5%
■ Drip irrigation system & sprinklers	12%	5%
AUTOMOBILES		
■ Petrol & petrol hybrid, LPG, CNG cars (not exceeding 1200 cc & 4000mm)	28%	18%
■ Motorcycles (350 cc & below)	28%	18%
ELECTRONIC APPLIANCES		
■ Air conditioners	28%	18%
■ TV (above 32", including LED & LCD TVs)	28%	18%

BACKGROUND AND EVOLUTION OF GST IN INDIA

Pre-GST tax structure

Before introduction of GST, India’s indirect tax regime was characterized by a complex web of multiple taxes levied by various central and state authorities. The primary taxes included Central Excise Duty, Service Tax, Value Added Tax (VAT), Entry Tax, Octroi, and Special Additional Duty (SAD), among others. This multiplicity of taxes created a cascading effect, where taxes were levied on top of taxes, leading to increased costs for businesses and consumers, and creating barriers to interstate trade.

The fragmented tax structure also resulted in compliance challenges, with different states adopting varying procedures and rates, leading to confusion and increased administrative burden. Recognizing these issues, the government initiated the Goods and Services Tax rollout in July 2017, aiming to create a unified indirect tax system that would facilitate a seamless national market.

Introduction of GST in 2017

The initial phase of GST implementation faced several hurdles, including technological glitches, resistance from certain sectors, and challenges in taxpayer onboarding. Over time, however, reforms such as the introduction of GSTN (Goods and Services Tax Network), simplified return filing procedures, and rate rationalization helped stabilize the system.

Major milestones in GST implementation despite these improvements,

Stakeholders continued to experience issues related to compliance complexity, technological limitations, and revenue leakage. In response, the government announced GST 2.0, designed to address these gaps through further technological integration, policy reforms, and process improvements.

Before GST, India's indirect tax system was fragmented, consisting of numerous central and state taxes such as VAT, service tax, excise duty, and others, leading to cascading effects and compliance issues. This complex system resulted in increased costs for businesses and reduced competitiveness.

Rationale for reforms leading to GST 2.0

The introduction of GST in 2017 marked a paradigm shift. It subsumed multiple indirect taxes, creating a unified tax regime. The initial rollout faced challenges related to technological readiness, compliance, and stakeholder adaptation.

Over the years, reforms such as threshold exemptions, simplified return filing, and rate rationalization were introduced to improve its efficacy. Recognizing the need for further refinement, the government announced GST 2.0, aimed at making the system more robust, transparent, and user-friendly.

OVERVIEW OF GST 2.0

GST 2.0 was officially launched last week with an aim to upgrade the existing tax framework through technological innovations, policy reforms, and process simplification. It is part of the government's broader vision to create a seamless, efficient, and transparent taxation environment reduce compliance burdens, and strengthen anti-evasion measures. The reforms are aligned with the government's broader vision of building a digital, simplified, and robust tax ecosystem.

Key stakeholders include the Central Board of Indirect Taxes and Customs (CBIC), state tax authorities, GST Network (GSTN), taxpayers, and industry bodies. The reforms focus on enhancing digital infrastructure, reducing compliance burdens, and strengthening anti-evasion measures.

The key objectives of GST 2.0 include improving the taxpayer experience, increasing revenue collection, broadening the tax base, and making the system more resilient to fraud and evasion. To achieve these goals, the reforms incorporate advanced data analytics, artificial intelligence (AI), and automation tools to monitor transactions in real time and identify anomalies.

Stakeholders involved in the implementation of GST 2.0 include the Central Board of Indirect Taxes and Customs (CBIC), state tax authorities, GST Network (GSTN), taxpayers, industry associations, and technology providers. The rollout of GST 2.0 is expected to foster greater compliance, reduce the scope for tax evasion, and promote a culture of voluntary adherence to tax laws

OBJECTIVES OF GST 2.0

The primary objectives of GST 2.0 include:

- ❖ Simplifying and streamlining tax compliance procedures.
- ❖ Reducing the compliance burden on taxpayers, especially small and medium enterprises.
- ❖ Strengthening the tax administration system to curb evasion and fraud.
- ❖ Enhancing real-time monitoring and data analytics for better enforcement.
- ❖ Broadening the tax base by incentivizing voluntary compliance.
- ❖ Promoting ease of doing business and economic growth.

KEY FEATURES AND REFORMS IN GST 2.0

a) Rationalization of Tax Slabs

GST 2.0 introduces a more rationalized tax slab structure to reduce complexity and confusion. Certain products and services have been reclassified to promote fairness and efficiency.

b) Enhanced Input Tax Credit (ITC)

The reforms facilitate smoother ITC procedures, allowing seamless credit flow across different states and sectors, thereby reducing cascading effects.

c) Simplified Return Filing

The introduction of a single, consolidated return system with fewer forms aims to reduce compliance time and effort for taxpayers.

d) Real-Time Compliance Monitoring

Implementation of advanced data analytics and AI tools enables authorities to monitor transactions in real-time, detect anomalies, and prevent evasion.

e) Digital Invoice Integration and E-invoicing Expansion

E-invoicing has been extended to cover more taxpayers, enabling automatic data capture and reducing manual errors.

f) Changes in Registration Procedures

Simplified and online registration processes make it easier for new taxpayers to enroll and comply.

g) Anti-evasion Measures

New measures include mandatory e-invoicing, digital payments, and automated data verification, designed to minimize tax evasion.

IMPLEMENTATION TIMELINE AND PROCESS

The rollout of GST 2.0 was phased, with initial pilots and stakeholder consultations conducted over the past few months. The recent launch marks the beginning of full-scale implementation, with a focus on capacity building, technological upgrades, and stakeholder awareness.

Key milestones include:

- Development of upgraded GSTN infrastructure.
- Rollout of new return filing portals.
- Training sessions for tax officials and taxpayers.
- Transition support for businesses to adapt to new procedures.

BENEFITS OF GST 2.0**❖ For Taxpayers**

- Reduced compliance burden.
- Faster refunds and dispute resolution.
- Greater transparency and accountability.

❖ For Government Revenue

- Increased compliance leading to higher revenue.
- Better data for policy formulation.

❖ For Consumers

- Stable prices due to efficient tax collection.
- Reduced tax evasion leading to fair pricing.

❖ Overall Economy

- Enhanced competitiveness.
- Increased foreign investment due to transparent tax regime.

- Simplified cross-border trade procedures.

CHALLENGES AND CONCERNS

Despite the benefits, GST 2.0 faces several challenges:

Technological Infrastructure: Ensuring reliable internet and digital systems across remote areas.

SME Adaptation: Small businesses may struggle with new compliance requirements.

Data Security: Safeguarding sensitive taxpayer data against breaches.

Stakeholder Resistance: Resistance from some industry sectors accustomed to old procedures.

Implementation Risks: Possible glitches during the transition phase.

STAKEHOLDER PERSPECTIVES

Government

- Seeks to enhance revenue and compliance.
- Aims for a more transparent tax system.

Businesses

- Expect simplified procedures and reduced costs.
- Concerned about adapting to new technology.

Industry Bodies

- Support reforms but call for stakeholder consultations.
- Advocate for phased implementation.

Tax Experts

- Optimistic about improved compliance.
- Emphasize the need for continuous monitoring.

IMPACT ANALYSIS

Short-term

- Increased compliance due to new procedures.
- Initial teething problems during transition.

Long-term

- Sustainable revenue growth.
- Greater ease of doing business.
- Enhanced tax base and formalization.

Economic Growth

- Improved competitiveness.

- Attraction of foreign direct investment.

COMPARATIVE ANALYSIS WITH PREVIOUS GST REGIMES

Aspect	Pre-GST	GST 1.0	GST 2.0
Complexity	High	Moderate	Reduced further
Compliance	Moderate	Challenging	Simplified
Technology	Basic	Developed	Advanced AI and analytics
Evasion	Moderate	Addressed	Further minimized

GST 2.0 builds upon previous iterations, addressing gaps and making the system more robust.

TECHNOLOGY AND INFRASTRUCTURE SUPPORT

The backbone of GST 2.0 relies on:

- Upgraded GSTN platform with enhanced capacity.
- Expanded e-invoicing system for more taxpayers.
- Use of AI for anomaly detection.
- Data analytics for real-time monitoring.
- Robust cyber security protocols to protect taxpayer data.

LEGAL AND POLICY FRAMEWORK

GST 2.0 involves amendments to existing laws such as the CGST Act, SGST Act, and IGST Act. The policy reforms aim to:

- Clarify provisions related to e-invoicing and digital payments.
- Strengthen anti-evasion provisions.
- Establish dispute resolution mechanisms.

FUTURE ROADMAP AND RECOMMENDATIONS

- Continue technological upgrades to handle increasing data volumes.
- Conduct awareness campaigns for stakeholders.
- Offer capacity-building programs for tax officials.
- Regularly review and update policies based on feedback.
- Explore integration with other national digitization initiatives.

CASE STUDIES AND PRACTICAL APPLICATIONS

Manufacturing Sector

Implementation of automated e-invoicing reduced processing time, improving cash flow and compliance.

E-commerce Industry

Real-time monitoring helped in identifying tax evasion, leading to increased revenue.

CONCLUSION

GST 2.0 signifies a major step forward in India's tax reform journey. By leveraging technology, simplifying processes, and tightening enforcement, it aims to create a more transparent, efficient, and taxpayer-friendly system. While challenges remain, continued stakeholder engagement and technological innovations will be crucial for its success and sustainability.

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- News papers
- Websites

APPENDICES

- Glossary of GST Terms
- Data Tables on Revenue Collection
- Regulatory Amendments Document
- Sample Taxpayer Forms

AN OVERVIEW OF CUSTOMER AWARENESS AND PREFERENCE TOWARDS GREEN BANKING

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Abstract

Climate change, global warming, and growing natural disasters have made sustainable development and environmental protection urgent worldwide objectives. While businesses are sometimes seen as significant contributors to environmental degradation, financial institutions, particularly banks, also play an important role in promoting sustainable practices. Green Banking has emerged as a strategic strategy to incorporating environmental issues into fundamental banking operations, products, and services. Banks can help the environment greatly by supporting eco-friendly technology, increasing digital transactions, funding green initiatives, and lowering resource usage.

This article investigates the idea, history, forms, and initiatives of Green Banking in India, as well as the obstacles and directions issued by regulatory agencies. Secondary data from journals, books, and RBI reports were reviewed to determine consumer knowledge, preferences, and the extent to which banks participate in green projects. Findings demonstrate that while knowledge of Green Banking is expanding, it remains restricted among consumers, demanding better legislative frameworks, awareness initiatives, and new methods by banks. The study underlines the importance of coordinated efforts by banks, regulatory bodies, and consumers to maintain environmental sustainability and achieve the dual goals of financial inclusion and ecological conservation.

Keywords: Green Banking, Sustainable Development, Environmental Conservation, Climate Change and Eco-friendly Banking.

Introduction

Sustainable development and preservation of the environment are now widely acknowledged as critical imperatives for protecting our planet from the damages imposed upon it by humanity. Several worldwide projects are ongoing to combat the negative impacts of development that we are seeing now, such as global warming and climate change. A common thread running across all these initiatives is the focus on reducing the demand for fossil fuels by implementing the 3R's viz. Reduce, Reuse and Recycle.

It must analyze how growing carbon emissions and irresponsible growth without regard for the environment contributed to climate change. Many studies have found a clear association between climate change and the occurrence of natural catastrophes. Natural catastrophes are expected to become more common in the future if we fail to protect the environment. The devastating effects of recent floods, droughts, storms, and extreme heat throughout the world have prompted us to consider seriously and do everything we can to solve the issue of global warming (IRDBT, 2014). The world is deeply worried about environmental challenges in the global economy.

Banks and financial institutions have the potential to play a significant and decisive role in global efforts to improve our planet's living conditions. Banks, as financial institutions, may encourage firms to engage in environmentally friendly practices. Incentives such as giving cheaper financing for adopting green technology will have a long-term positive influence on the environment. As significant technology implementers, banks may embrace green practices and thereby set the standard for this worldwide movement. Furthermore, product and service improvements, as well as utilizing technology, enable banks and their customers to minimize the consumption of resources such as paper, so contributing to environmental conservation. Offering cheaper finance for adopting green technology will have a long-term positive influence on the environment.

Objectives of the Study

- To know the concept of Green Banking.
- To understand the awareness level of customers on the green banking initiative of the banks.
- To investigate consumers' preferences about green banking efforts.

Research Methodology

The current study is descriptive in character. Secondary data were acquired and used in the study. The study's secondary data sources include books, journals, magazines, publications from various financial organizations, and RBI websites, among others.

Review of Literature

Sudhalakshami and Chinnadorai (2014) did a research titled "Green Banking Practices in Indian Banks" to determine the current state of Indian banks' Green Banking. The study revealed that not much efforts have been done by the banks to promote green banking. The banks must take serious steps so as to safeguard the environment in future.

Sharma, Gopal et.al (2014) It was found that three fourth of the people using online services are not aware of the term 'Green Banking'. Their knowledge to green banking is just limited to online payment of bills and cash deposition.

Nath, Nayak et al. (2014) Under this, banks must complete Environmental Impact Assessments and use sustainable technologies. As a result, banks must use green initiatives in their day-to-day operations, facilities, investments, and financial strategies. According to Nath, V. et al. (2014), banks were previously simply analyzing their financial performance, but it is now time to also analyze their social and environmental performance. Green Banking is more than just an organization's CSR activity; it is also about making society habitable while causing little damage.

Geetha, K. (2014) discovered that Green Banking is an umbrella word for activities and principles that make banks sustainable in economic, environmental, and social aspects. It strives to make banking procedures, as well as the usage of IT and physical infrastructure, as efficient and effective as possible while having zero or low environmental impact. Given the nature of banking processes and infrastructures, green banking functions on two levels. Making day-to-day company operations, banking products, and services greener by implementing easy and ecologically friendly methods. Making IT infrastructure, data centers, and physical infrastructure (including buildings) more environmentally friendly, as well as taking steps to enable a bank to produce power for its own use.

Broto Rauth Bhardwaj, and Aarushi Malhotra (2013) The paper sought to investigate the many kinds of green finance methods used by Indian enterprises to flourish. The research technique was case study-based. The research study's findings revealed that banks that use green banking practices have an impact on organizational performance. The management ramifications and issues were also addressed.

Evolution of Green Banking

The notion of green finance originated predominantly in western countries. Reed Hundt and Ken Berlin were principally responsible for developing the green bank concept in America as part of the Obama-Biden Transition Team's work in 2008. It was originally established in 2003 to protect the environment. The Equator Principles (EPs) were then promoted and first embraced by several of the world's major institutions, including Citigroup Inc, The Royal Bank of Scotland, and Westpac Banking Corporation. The official notion of Green Banking dates back to 2009, when the first green banking was conducted in the state of Florida, USA.

The State Bank of India (SBI) is the first bank in India to use green banking methods, and it has also promoted green power projects by establishing windmills in Tamil Nadu, Maharashtra, and Gujarat. In Coimbatore, the bank established the first wind farm project.

Forms of Green Banking

- Online Banking in the form of paying bills and transferring funds online
- Launching solar powered ATM
- Using plastic money instead of currency notes
- Adopting Green Checking Accounting
- Use of Green Credit Cards
- Purchase of recycled paper products
- Direct deposition of salary into accounts instead of paying by cheques.
- Use of net banking to perform bank related functions without going to the bank branch personally.

Guidelines of RBI Regarding Green Banking

There are no explicit guidelines for banks on Green Banking. However, the Reserve Bank of India (RBI) has formed the Institute of Development and Research in Banking Technology (IDRBT), which functions as an arm of the RBI. This association has recommended a uniform grading for green banks. The grading methodology evaluates both the bank's operations and its infrastructure. Banks have been recommended to get familiar with CSR (Corporate Social Responsibility).

Banks have also been instructed to establish green funds and hire a Chief Green Officer to lend loans at concessional rates to environmentally beneficial initiatives. According to B. Sambamurthy, Director of IDRBT, "Banks can contribute to ecological footprints through investment by lending to their customers' enterprises." Furthermore, banks have been advised to establish Green Data Centres because it is expected that power and cooling systems waste a significant amount of energy. The banks' efficiency will be evaluated based on carbon emissions, the quantity of reuse, refurbishment, and recycling, the number of green initiatives sponsored by them, and the awards / recognitions given to green firms.

Challenges in Green Banking

- High Operating Costs - Starting green banking and dealing with green businesses and clients necessitates the hiring of talented and experienced employees. This raises the operational costs of the institutions.
- It also necessitates significant expenditure in R&D to create revolutionary technology.
- Lack of effective laws – The government has been trying to frame and implement

environmental legislation since many years but they have not been effective enough to influence banks to follow, and practice the environment friendly technologies.

- Credit Risk: Banks may face losses owing to pollution costs, changes in environmental rules, and fluctuating emissions levels. This increases the cost of spending and puts banks at danger of credit collapse.
- Secrecy Risk – Sharing files over internet, voice mail, and e-mail poses a significant security risk.

Green Banking Initiatives in India

- Banks are adopting solar and wind energy for captive use.
- Mobile banking has been implemented to save consumers' time and energy while also reducing paper consumption, allowing work to be done in an environmentally responsible manner.
- Preference is given to loans for ecologically beneficial green projects including windmills, biomass, and solar electricity, which help generate carbon credits.
- Banks are advocating the usage of plastic money instead of paper cash to reduce environmental impact.
- Banks are promoting green practices, including energy-efficient lighting, CFL replacement, quick water leak treatment, and double-sided printing.
- E-lounges provide advanced banking services such as net banking, passbook printing kiosks, ATMs, telephone banking, and cash/cheque deposit machines.
- Customers are urged to receive their statements online to decrease paper use.

Green Banking Sustainability

Green banking refers to banking practices that prioritize environmental sustainability, with a focus on reducing carbon footprints and promoting eco-friendly operations. In recent years, there has been a growing movement towards GB, with banks across the world implementing various initiatives to reduce their environmental impact and promote sustainability. GB considerably influences sustainability by advocating eco-conscious practices within the financial sector. For instance, green banks frequently allocate funds to environmentally beneficial projects, such as solar power installations, which contribute positively to ecological preservation (Dikau & Volz Green banking refers to banking practices that prioritize environmental sustainability, with a focus on reducing carbon footprints and promoting eco-friendly operations. In recent years, there has been a growing movement towards GB, with banks across the world implementing various initiatives to reduce their environmental impact and promote sustainability. GB considerably

influences sustainability by advocating eco-conscious practices within the financial sector. For instance, green banks frequently allocate funds to environmentally beneficial projects, such as solar power installations, which contribute positively to ecological preservation (Dikau & Volz). Green banking refers to banking practices that prioritize environmental sustainability, with a focus on reducing carbon footprints and promoting eco-friendly operations. In recent years, there has been a growing movement towards GB, with banks across the world implementing various initiatives to reduce their environmental impact and promote sustainability. GB considerably influences sustainability by advocating eco-conscious practices within the financial sector. For instance, green banks frequently allocate funds to environmentally beneficial projects, such as solar power installations, which contribute positively to ecological preservation (Dikau & Volz). One of the primary benefits of GB is the potential to reduce carbon footprint. By financing renewable energy projects, the primary benefit of GB is the potential to reduce carbon footprint. By financing renewable energy projects,

Green banking refers to banking methods that promote environmental sustainability, with an emphasis on lowering carbon footprints and encouraging eco-friendly operations. In recent years, there has been an increasing push for Green Banking, with banks throughout the world launching a variety of programs to decrease their environmental effect and promote sustainability. Green Banking has a significant impact on sustainability by lobbying for environmentally sensitive practices in the finance industry. For example, green banks typically give loans to ecologically beneficial initiatives, such as solar power installations, which help to preserve the environment (Dikau & Volz, 2021). Furthermore, Green Banking encourages paperless transactions, lowering financial operations expenses and promoting environmental sustainability (Gupta, 2015). Green Banking lays the path for a more sustainable and ecologically responsible future for everybody by reducing the ecological footprint of the banking industry.

One of the key advantages of Green Banking is its ability to decrease carbon impact. Banks may minimize greenhouse gas emissions by investing in renewable energy projects and encouraging energy efficiency in buildings and operations (Nguyen et al., 2021). Khairunnessa et al. (2021) found that Green Banking practices improve environmental performance, particularly in terms of reducing greenhouse gas emissions.

Julia and Kassim (2016) discovered that Green Banking increases environmental performance, particularly waste management. The findings highlight Green banking's key contribution in decreasing carbon footprint and encouraging sustainable development.

Suggestions

The Reserve Bank of India and the Government of India must work together to develop and execute effective green banking policies. Green policy should be successfully disseminated via media. The banks' websites must incorporate green banking initiatives. Consumers must get instruction through e-learning programs and training schedules. Bank workers should get regular green banking training. Banks must also develop creative financial policies that incorporate an environmental approach. Commercial banks should fund appropriately for green finance, green events, and green projects as part of their Corporate Social Responsibility initiatives, as well as green marketing and capacity building. Similarly, the efficient use of budgetary resources should be assured.

Conclusion

The above data clearly shows that the majority of bank respondents are aware of and prefer their bank's green efforts. Even though a handful of them are unaware of their bank's green banking activities. As a result, it is critical for banks to provide green banking awareness programs to all of their clients. Banking institutions must go green and meet their societal duties. Conservation of the environment for future generations is a commitment made by all individuals, institutions, corporations, and everyone. So, in the next years, banking institutions must adopt a 'go green' strategy.

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ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT: SHAPING THE FUTURE OF WORK

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Abstract

Artificial Intelligence (AI) is rapidly reshaping Human Resource Management (HRM) by driving a fundamental shift in how HR functions create value. While AI-driven tools deliver efficiency gains in recruitment, learning, performance management, and employee well-being, they bring heightened ethical, fairness, and privacy risks. Rather than fully automating human decision-making, AI's strategic value lies in augmenting HR with data-driven insights while ensuring fairness, accountability, and a sustained human-centered culture. As HR evolves, the primary challenge is to integrate human empathy with machine intelligence, positioning HR as a vital partner for resilient, inclusive, and transparent organizations in the digital era.

Keywords: Artificial Intelligence, Human Resource Management, Recruitment, Employee Well-being, Ethical Governance, Workforce Analytics

1. Introduction: AI and the Future of HRM

Imagine Emma, a new hire at a tech company, starting her first day with guidance from an AI-driven system. A chatbot welcomes her, introduces company culture, explains her role, and schedules tasks, making her onboarding efficient and engaging. AI-driven onboarding reduces ramp-up time and increases engagement, accelerating productivity and retention. Beyond administration, AI chatbots handle routine tasks, and predictive analytics aid retention. HRM shifts to a people-centric strategy, but AI can both advance and challenge fairness. Biased data may cause discrimination. Thus, AI reshapes not just processes but workplace culture and ethics.

2. AI in Recruitment and Selection

Recruitment is one of the most visible applications of AI in HRM. Algorithms quickly scan resumes and match applicants to job descriptions, significantly reducing hiring costs and

bias claims. For example, companies like Unilever have reported a 30% reduction in time-to-hire by utilizing AI-driven processes. Chatbots conduct initial interviews, while predictive models assess cultural fit and performance potential. Yet, using historical data risks reinforcing discrimination, such as penalizing candidates from underrepresented backgrounds. The origins of this data are crucial—who was included and excluded in these historical records could illuminate potential biases present in Unilever's algorithm. To counter this, some companies conduct fairness audits. AI also enhances the candidate experience by providing 24/7 communication and facilitating faster decision-making. Firms like Unilever use AI gamified assessments for problem-solving and emotional intelligence. Thus, recruitment AI demonstrates both efficiency gains and ethical considerations. After hiring, AI facilitates onboarding and engagement: virtual assistants guide new employees, AI-driven surveys track sentiment, and dashboards provide insights into morale and productivity. Platforms like Glint and CultureAmp help HR address dissatisfaction early, and AI enables tailored engagement with recommended resources, mentoring, or training. Over-reliance on data risks depersonalizing connections; therefore, ethical engagement must strike a balance between insights and empathy. AI should support, not replace, the human element in workplace motivation. Building on engagement, the role of AI expands significantly in personalizing and transforming learning and development for all employees.

4. AI in Learning and Development (L&D)

AI personalizes training based on performance, skills, and goals. Platforms recommend learning modules and adapt content. VR supports skill-building simulations. Risks include digital divides and pressure from excessive monitoring. Measuring skill and time-to-competence tracks L&D success, such as a 20% increase in skill or a 30% reduction in readiness time. AI supports ongoing upskilling, but leaders must ensure all employees have fair access. HR can audit to identify bias, align programs for inclusion, and act with feedback and transparency. As employees develop, the next section discusses how AI changes performance management.

5. Performance Management and Workforce Analytics

AI has changed performance management, replacing annual reviews with ongoing feedback. Tools like Workday and SuccessFactors track goals and identify top performers or potential risks of turnover, enabling managers to respond quickly. However, tracking emails, keystrokes, or meetings raises significant privacy concerns, as employees report increased stress and mistrust due to surveillance. To address privacy concerns, ethical checkpoints can be built into feedback cycles. Before acting on AI alerts, managers should pause and reflect

on fairness and bias, considering personal and team circumstances to ensure responsible use without losing agility. With transparent and responsible use, AI in performance management not only supports organizational growth but also intersects with broader mandates for diversity, ethics, and inclusion—the focus of the next section.

6. Diversity, Inclusion, and Ethical Challenges

AI can promote diversity by objectively screening resumes, but flawed systems may reinforce stereotypes, as with Amazon's retired algorithm. Maria, an experienced candidate, was overlooked due to an algorithmic bias that favored certain schools, highlighting the human cost of bias. Ethical HRM needs auditing, transparency, and stakeholder input. Beyond bias, concerns include data privacy, consent, and overreliance on machines. Diverse teams are associated with better business outcomes. For example, high-diversity companies are 35% more likely to outperform peers. Linking AI-driven diversity to outcomes helps justify the ethical investment in AI. Companies must balance innovation with responsibility, ensuring AI supports, not dominates. The next section focuses on AI and employee well-being.

7. Employee Well-being and Work-Life Balance

AI tools support mental health and work-life balance. Wearables function as opt-in wellness companions that track stress and facilitate personalized suggestions for breaks or exercise. Some organizations analyze workloads and prevent excessive burdens from occurring. Responsible AI in the context of well-being should emphasize autonomy and voluntary participation. However, constant data collection without transparency can be perceived as invasive. Ethical concerns arise when health data is collected without consent. AI in HRM relies heavily on large amounts of personal data, which raises significant legal and privacy concerns. Laws like the GDPR in Europe and India's DPDP Act set boundaries for data use. Employers must ensure compliance and trust, as data misuse and covert monitoring harm morale and reputation. To mitigate these issues, implementing explicit opt-in mechanisms and practicing data anonymization can help maintain trust. For example, organizations can use anonymized data sets for analysis and provide clear consent pathways for employees to opt in to data collection activities. This approach aligns with best practices in privacy management, ensuring transparency and protecting employee rights. Cybersecurity is crucial; breaches expose sensitive records. HR leaders must treat employee data with the same rigor as customer data, integrating legal safeguards, ethics, and security in AI adoption. With these legal and privacy considerations in mind, organizations face broader questions about how to balance the opportunities and challenges inherent in deploying responsible AI.

8. Opportunities and Challenges: Balancing Innovation and Responsibility

While AI delivers increased efficiency, predictive insights, and personalization, it also introduces challenges such as job displacement, ethical questions, and significant cultural shifts. Though some HR tasks may become automated, AI also generates demand for new roles specializing in technology integration. This section frames AI as both a disruptor and an enabler. A roadmap illustrating a 'sunset, shift, and skill-build' approach can effectively guide workforce transitions. Here's how each phase unfolds in practice: during the sunset phase, organizations can identify roles most at risk of automation and initiate planning early. The shift stage involves reassigning potentially displaced employees to emerging roles that utilize their existing skills. Finally, the skill-build phase supports ongoing training and development, aligning workforce capabilities with future demands. Mapping such transitions ensures that workforce evolution is proactive rather than reactive, reducing fear of job loss and encouraging strategic planning. Success in HRM will depend on aligning AI adoption with the values of fairness, accountability, and sustainability. Looking ahead, HRM's future is defined by constant adaptation, continuous reskilling, and responsible governance to ensure technology augments not replaces human expertise. The chapter concludes that HR will not be made obsolete by AI, but instead will evolve. The future of HRM hinges on integrating human judgment with machine intelligence, resulting in workplaces that are more efficient, fair, and humane, provided that ethical and strategic priorities remain at the forefront.

9. Future of HRM in the Age of AI

Looking ahead, HRM will increasingly rely on AI to drive strategic business outcomes. AI-driven workforce planning will align talent strategies with global trends like hybrid work, gig economies, and digital transformation. HR professionals must evolve as 'AI interpreters,' blending human empathy with technological expertise. Achieving this future demands continuous reskilling and ethical governance. Rather than replacing HR, AI is redefining it by blending human judgment with machine intelligence to build efficient, fair, and humane workplaces. Beyond traditional roles, HR must transition into an 'ecosystem orchestrator,' curating talent from both gig and platform-based sources, as well as conventional employees. This evolution involves creating a seamless integration of freelancers, contractors, and full-time employees, ensuring smooth collaboration across all talent pools. By adopting a platform-based approach, HR will manage diverse workstreams, fostering innovation and agility in response to evolving business needs. This capability aligns with emerging platform work models, positioning HR as a strategic partner that bridges talent ecosystems with organizational goals.

10. Conclusion

Artificial Intelligence is no longer a peripheral tool in Human Resource Management—it has become a transformative force redefining how organizations attract, develop, and retain talent. By integrating AI into recruitment, learning, performance management, and employee engagement, HRM can move beyond transactional functions and act as a strategic driver of growth and innovation. At the same time, the challenges are significant. Concerns over data privacy, algorithmic bias, loss of human touch, and job displacement highlight the need for thoughtful governance. The path forward lies in adopting AI responsibly, striking a balance between technological efficiency and ethical accountability. HR leaders must ensure transparency, inclusivity, and fairness in AI-driven processes, while cultivating the uniquely human qualities of empathy, creativity, and judgment. Rather than replacing HR professionals, AI should empower them to make better, evidence-based decisions and foster healthier workplace cultures. To convert inspiration into execution, HR leaders should initiate a targeted ethics audit of their current AI processes. This step will not only identify potential biases and enhance transparency but also pave the way for a capability roadmap that aligns with ethical and sustainable practices. This roadmap should focus on developing three key leadership competencies: data fluency, which ensures leaders can interpret and leverage data responsibly; design thinking, which fosters innovative and user-centric solutions; and stakeholder stewardship, which emphasizes collaboration and ethical engagements with all parties involved. Ultimately, the future of HRM in the age of AI will be defined by collaboration between humans and machines. Organizations that embrace this synergy—while safeguarding ethics and equity—will not only achieve competitive advantage but also build sustainable, people-centered workplaces that can thrive in an uncertain, technology-driven world.

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A STUDY ON CUSTOMER SATISFACTION TOWARDS MOBILE BANKING APPLICATIONS IN THOOTHUKUDI

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ABSTRACT:

The rapid growth of mobile banking has revolutionized the way customers engage with their financial institutions. As a result, understanding the factors that contribute to customer satisfaction with mobile banking applications has become imperative for banks and financial institutions. This research paper aims to investigate the level of customer satisfaction with mobile banking applications and identify key factors influencing customer satisfaction, with the goal of providing insights to enhance the mobile banking experience.

Keywords: mobile banking, customer satisfaction, applications, factors, upi

INTRODUCTION

The usage of the internet and mobile phones has expanded in India during the last several decades. Increased internet usage, mobile phone penetration, and government efforts such as digital payment methods are all driving exponential development in digital payment usage. Electronic consumer transactions for services and products done at the point of sale (POS) via internet banking, mobile banking, or card payment are referred to as digital payments. According to the National Payment Corporation of India (NPCI), the digital revolution has simplified digital payment. There are around 100 million active mobile connections in India, including over 22 million SMS customers. Mobile banking is a service provided by a bank or other financial institution that allows customers to conduct financial transactions using a mobile device such as a cell phone or a portable computer. In contrast to similar online banking, it makes use of software, sometimes known as apps, provided by financial institutions. These apps are available 24 hours a day, seven days a week. Customers are increasingly expecting, demanding, and wanting to do business utilizing mobile devices due to their ease. Mobile banking was basically released simultaneously in the United States and India. Mobile banking is gradually becoming the most convenient, cost-effective, and efficient way to transact business.

STATEMENT OF THE STUDY

Mobile banking application development may be viewed as a step towards a digital India. In these cases, it is critical to examine the level of satisfaction with these applications among different persons. The experiment seeks to ascertain youth customer satisfaction using Mobile Banking Applications. According to reports, there is a major movement from cash to cashless transactions. This study also investigates the factors that impact user satisfaction with mobile banking apps.

OBJECTIVES OF THE STUDY

- To study the preference among youth regarding mobile banking application
- To understand the factors that influences the customer satisfaction towards mobile banking application.
- To measure the level of satisfaction among youth regarding mobile banking application

HYPOTHESIS

H01: There is no significant association between Gender and level of preference towards mobile banking application

H02: There is no significant difference between gender and level of satisfaction with the services provided by mobile banking application

RESEARCH METHODOLOGY

Primary data was collected from 70 respondents among youth. Data is collected by using non- probability sampling method through structured questionnaires via online survey tools called Google forms. Data collected from various secondary sources like books, magazines, journal papers, websites, reports, working papers, etc were also used to get knowledge about the research area and develop a theoretical framework and research hypotheses. Microsoft Excel was also used to done some descriptive analysis. SPSS 26 has been used to perform various tests like Chi Square and Factor Analysis.

METHODS OF DATA COLLECTION PRIMARY SOURCES OF DATA:

The study is mainly based on primary data. They are first-hand information collected by the surveyor. The data collected are pure and original and collected for a specific purpose. They have never undergone any statistical treatment before. In the study, data is collected from the respondents through a well-structured questionnaire.

SECONDARY SOURCES OF DATA:

This type of data is opposite to primary data. They are collected and published already by someone else. They can be used as a source of data and used by surveyors to collect data from and conduct the analysis. Secondary data are had undergone statistical treatment at least once. Secondary source of data is also used for conducting the study. They include journals and magazines.

ANALYSIS AND DISCUSSIONS TABLE NO: 1 DEMOGRAPHIC PROFILE

Gender	Frequency	Percent
Male	52	73
Female	18	27
Educational Qualification	Frequency	Percent
Employed	15	23
Unemployed	10	14
Student	45	63
Occupational status	Frequency	Percent
Undergraduate	35	49
Postgraduate	20	28
Diploma/Certificate/Professional Course	15	23
Monthly Income	Frequency	Percent
Up to15,000	47	67
15,000-30,000	11	15
30,000 - 45,000	7	10
Above 45000	5	8
Total	70	100

(Source: Primary data)

Inference:

Table 1 inferred the distribution of the samples on the basis of demographic variable, Gender. Based on the gender of the respondents, out of 70 samples 52 (73%) belong to Male and 18 (27%) belong to Female. The researcher could conclude that Male respondents are more. 16 (23%) belong to employed and 10 (14%) belong to unemployed and 45 (63%) respondents are students. The researcher could conclude that the mobile banking is mostly used

by students. Most of the respondents are undergraduate (49%). 28 % of the respondents belong to the category of postgraduate and 23 % of the respondents belong to the category of diploma/Certificate/Professional course. 47 (67%) belong to the Income category of up to 15000 and 11 (15%) belong to the category of 15000- 30000 and only 5(8%) respondents belong to the category of above 45000

2. Mobile Banking Application are more convenient than traditional Banking Methods

Opinion	Frequency	Percentage
Yes	60	85
No	10	15
Total	70	100

[Source: Primary data]

Based on the table 2 it shows that 85 % of the population agree that mobile banking applications are convenient than traditional banking methods and 15% of the respondents do not agree the same.

3. Classification of responses on the basis of factors affecting to open Mobile Banking account

Factors	Frequency	Percentage
Time saving	25	35
Economical	8	12
Easy to use	24	35
Accuracy	6	8
Reliability	7	10
Total	70	100

[Source: Primary data]

Table 3 inferred the distribution of the samples on the basis of factors affecting to open Mobile Banking account. 35 % of the respondents says that time saving and Easy to use are the factors that that affect to open mobile bank account. 12 % of the respondents says that Economical is that factor that affect to open mobile bank account. 10 % of the respondents says that Reliability is the factor that affect them to open mobile bank account.

4. Classification of responses base on how often they use Mobile banking application.

Usage	Frequency	Percentage
5 to 6 times/ week	22	31
2 to 3 times/ week	17	24
once in a week	12	17
Once in a month	6	8
Occasionally	13	20
Total	70	100

[Source: Primary data]

Table 4 Classify responses on the base on how often they use mobile banking application. 31 % of the respondents use mobile banking application 5 to 6 times/ week. 24 % of the respondents use mobile banking application 2 to 3 times/ week and 20 % of the respondents use it Occasionally.

5. Classification on the basis of the type of mobile banking application

Type	Frequency	Percentage
UPI gateways	37	52
Direct apps of banks	5	7
Both	29	41
Total	70	100

[Source: Primary data]

Table 5 classify the samples on the basis of type of mobile banking application. Out of 70 samples 52 % of respondents use UPI gateways and 7 % of the respondents use Direct apps of bank. 41 % of the respondents use both UPI gateways and Direct apps of banks

6. Classification on the basis of the UPI payment app used the most

Type	Frequency	Percentage
Google Pay	47	66
Phone Pe	10	14
Paytm	13	20
Bhim app	0	0
Others	0	0
Total	70	100

[Source: Primary data]

Table 6 classify the respondents on the basis of the UPI payment app used. Out of 70 respondents 66 % of the respondents use Google Pay as their UPI payment app. 20 % use Paytm as their UPI payment app and 14 % of respondents use Phone Pay

7. Classification on the basis of mobile banking services they use.

Mobile Banking Services	Frequency	Percentage
To get account balance update	10	14
To transfer money	18	27
To Pay utility bills	5	7
To buy goods or services	7	10
To get statement of account	0	0
All the above	30	42
Total	70	100

[Source: Primary data]

Table 7 classify the respondents on the basis of their mobile banking services they use. 27 % of the respondents use mobile banking to transfer money. 14 % of the respondents use mobile banking to get balance update. 10 % of the respondents use mobile banking to buy goods or service and 7 % use it for paying utility bills. 42 % of the respondents use all the above services of mobile banking.

H0: There is no significant association between gender and level of preference towards mobile banking application.

Chi-Square Tests				
	Value	df	Asymptotic Significance (2- sided)	Decision
Pearson Chi-Square	1.723	1	.189	Accept null hypothesis
Continuity Correction	1.089	1	.297	
Likelihood Ratio	1.720	1	.190	

The Person’s chi-square value obtained is 1.723 with a significance value of 0.189 at degree of freedom 1. Since the *p* value obtained is greater than level of significant, the null hypothesis is accepted. That means; there is no significant association between the gender of respondents and their level of preference towards mobile banking application.

H0: There is no significant difference between gender and level of satisfaction with the services provided by mobile banking application

Pearson Chi-square Test				
	Value	df	Asymptotic Significance	Decision
Pearson Chi-Square	.234	1	.629	Accept null hypothesis
Continuity Correction	.046	1	.829	
Likelihood Ratio	.234	1	.629	

[Source: SPSS output]

The result of the chi-square analysis is shown in table 4.38. While analyzing the result of the analysis the following inferences is drawn; The Person’s chi-square value is .234 with a significance value of 0.629 at the degree of freedom Since the *p* value obtained is greater than level of significant, the null hypothesis is accepted. That means; there is a no significant association between the gender of respondents and their level of satisfaction towards mobile banking application.

CONCLUSION

The survey looked at user satisfaction with mobile banking applications. According to the findings of this survey, the vast majority of respondents are pleased with their banks' mobile banking applications. Users choose to use the server services supplied by these apps. It can be said that mobile banking applications have changed the method we are transferring currently and changing into digital payment where each person's smart phone would be the primary device for all payment. We know that in recent years, there has been a tremendous increase in the usage of smart phones and internet penetration in rural areas. This means that mobile banking applications have a high potential for adoption among Indian clients. According to the findings of the study, gender has no meaningful relationship with customer satisfaction. We may deduce from the foregoing that mobile banking will progressively phase out cash payments and diminish the circulation of currency notes. This will result in a more transparent system and a cashless economy.

Reference:

1. **Impact of Covid-19 Outbreak in Digital Payments** – International Journal for Innovative Research in Multidisciplinary Field (IJIRMF) ISSN: 2455-0620 Volume- 6, Issue-8, Aug -2020 Publication
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3. <https://www.ijamtes.org/gallery/118-dec.pdf>

SHAPING THE FUTURE OF FINANCE: ROLE, IMPACT, AND CHALLENGES OF DIGITAL BANKING

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Abstract:

In recent years, there has been a notable development in the Indian banking sector. Digital banking has emerged as a result of a notable transformation in the Indian financial sector. In reality, the introduction of digital banking has fundamentally changed people's lives all around the world. Digital banking has undoubtedly benefited most societal sectors. As a result of technical improvements, the banking industry undergoes several changes. Following the outbreak, the government has promoted Digital India and people are increasingly aware of digital financial systems. The concept of digital banking is examined in this paper. Secondary data is the basis of the study. Research articles, government of India publications, RBI bulletins, and verified websites are only a few of the sources from which the data was taken. This study looks at the function, effects, advantages, disadvantages, risks, and difficulties of digital banking. Although there are challenges, there is also a great opportunity to digitize banking to better meet public needs.

Keywords: Digital banking, digital finance, digital innovation

Introduction:

Banks play an important role in our everyday lives and are not only a part of them. To improve the client experience, banks constantly look to implement the newest technologies. The financial sector will inevitably become digital; it is not an alternative. The creation of a cashless economy is currently the buzzword in India. Digital transactions were introduced by the government as a result of the successful demonetization process. Converting data into a digital format is known as digitalization. Adoption of technology is what is meant by digitalization. The Indian government's primary goal is to conduct 25 billion digital transactions using various platforms. Platforms like as the Unified Payment Interface (UPI), Aadhar Pay, Debit Cards, and Immediate Payment Service (IMPS) are necessary for the digitalization of banking.

All of the traditional banking operations and program services that were previously exclusively accessible to clients in person at a bank branch have been digitized (or moved online) as part of digital banking. This covers tasks including making deposits, withdrawals, and transfers of money, managing checking and savings accounts, applying for financial products, managing loans, paying bills, and providing account services.

Objectives of the Study:

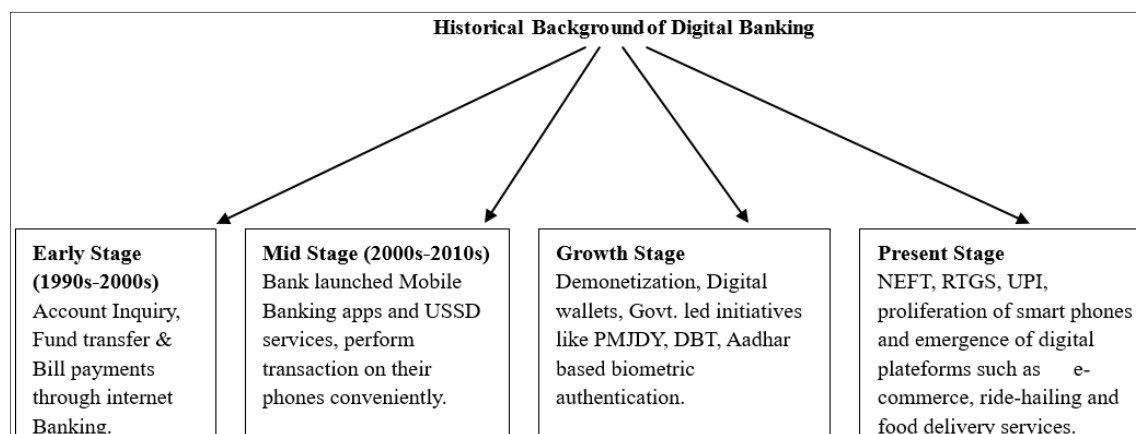
- To study the Indian banking sector's transition to digital banking.
- To understand the function and influence of the digital banking industry.
- To explore the benefits and drawbacks of digital banking in the Indian banking industry.
- To explore the new dangers and difficulties of digital banking in the Indian banking industry.

Research Methodology:

Based on secondary data, the current study is entirely descriptive in nature. The information is gathered from a number of sources, including research papers, publications, journals, newspapers, the internet, and reports about digital banking that are published in the banking industry.

Findings and Discussion:

Historical Background of Digital Banking:



(Source: <https://www.allfinancejournal.com>)

Demand for Digital Banking Services

The convenience, quickness, and accessibility that digital banking services provide have led to a sharp increase in demand in recent years. Consumers today would rather use online platforms and mobile applications to conduct financial transactions than go to actual bank locations. This desire has been further increased by government attempts to support a cashless economy, rising smartphone usage, and reasonably priced internet.

By offering round-the-clock access to services like fund transfers, bill payments, loan applications, and investment opportunities from any location, digital banking satisfies the demands of tech-savvy consumers. For smooth integration with digital wallets, UPI-based transactions, and e-commerce, both people and businesses depend on digital banking. This trend was accelerated by the COVID-19 epidemic, as individuals turned to remote and contactless banking services for security.

Overall, the drive toward digital transformation and expanding customer expectations for speedy, safe, and easy-to-use services are driving the need for digital banking solutions.

Role of Digitization in Indian Banking:

Area	Table 1: Online banking offers significant
Customer Service	Enables 24/7 access to banking services through the internet and mobile apps, reducing dependence on physical branches.
Payment Systems	Facilitates faster and safer transactions via UPI, NEFT, RTGS, IMPS, and mobile wallets.
Financial Inclusion	Digital platforms like Jan Dhan Yojana, Aadhaar-based authentication, and mobile banking help bring rural and unbanked populations into the financial system.
Operational Efficiency	Automation of processes, online document verification, and digital records lower costs and improve speed.
Security and Transparency	Adoption of biometric verification, OTP, and AI-driven fraud detection enhances trust and reduces risks.
Product & Service Innovation	Banks offer personalized digital loans, investment products, and wealth management services tailored to customer needs.
Integration with Other Sectors	Digital banking supports e-commerce, digital payments in retail, ride-hailing, food delivery, and other services.
Crisis Response	During COVID-19, digitization enabled contactless transactions and remote banking facilities.

Advantages of Digital Banking:

- **Anytime Access:** Clients are not limited to branch hours and can conduct transactions at any time of day.
- **Convenience:** You may quickly transfer money, pay bills, and check your balance while at home or on the road.

- **Cost Efficiency:** Lowers banking expenses by reducing paperwork, manual labor, and the requirement for physical infrastructure.
- **Speed:** When compared to more conventional means, transactions like UPI, NEFT, or RTGS are handled more rapidly.
- **Financial Inclusion:** Digital platforms facilitate access to formal banking for those living in rural and isolated places.

Disadvantages of Digital Banking:

- **Cybersecurity Risks:** Data breaches, phishing, and hacking are threats that can result in monetary and personal losses.
- **Technical Problems:** Inconvenience may arise from server outages, unsuccessful transactions, or software bugs.
- **Digital Divide:** Individuals without cellphones or internet connections, or those living in rural areas, may have challenges.
- **Decreased Personal Interaction:** Relationship-based banking and trust may suffer from a lack of in-person interactions.
- **Dependency on Technology:** When there are power outages, internet outages, or device problems, banking becomes challenging.
- **Learning Barriers:** Customers who are elderly or unfamiliar with technology may find it difficult to adjust.

Impact of digital banking on the traditional banking model:

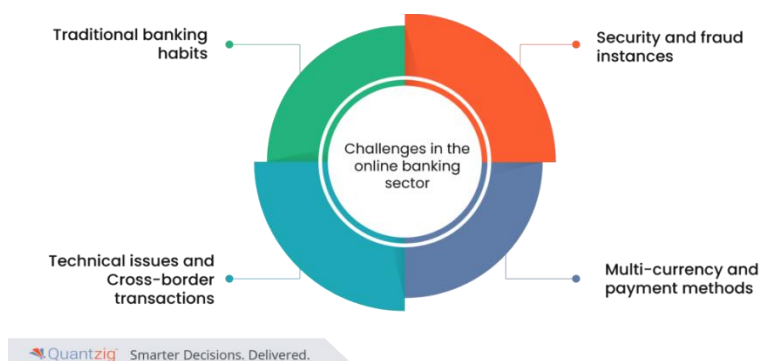
Digital banking's effects on the conventional banking model. The traditional banking paradigm has been greatly disrupted by the emergence of digital banking in several ways. In many respects, digital banking has enhanced banking by making it more convenient, efficient, and accessible. However, it has also resulted in several disadvantages that need to be considered.

Positive Changes	Negative Changes
Convenience: Customers can access banking services anytime and anywhere without visiting a branch.	Cybersecurity Risks: Increased chances of fraud, hacking, and phishing attacks.
Faster Transactions: Payments and fund transfers are completed within seconds using UPI, IMPS, etc.	Technical Glitches: Server downtime, failed transactions, and app errors can frustrate customers.
Cost Reduction: Automation reduces	Digital Divide: People without smartphones,

paperwork, manpower needs, and operational costs for banks.	internet, or digital literacy are left behind.
Financial Inclusion: Remote and rural populations gain access to formal banking through mobile platforms.	Reduced Personal Interaction: Lack of face-to-face communication may affect trust and customer relations.
Transparency: Digital records improve accountability and reduce corruption or hidden charges.	Over-reliance on Technology: Banking halts if there are power outages, connectivity issues, or system failures.
Innovation in Services: Personalized loans, investment tools, and instant approvals improve customer experience.	Learning Barriers: Elderly or less tech-savvy customers may find digital banking difficult to use.

Challenges and Risks in Digital Banking

- **Cybersecurity Risks:** Online platforms are susceptible to identity theft, malware, phishing, and hacking, all of which can jeopardize client information and money.
- **Technological faults:** Technical faults, server outages, or system crashes can interrupt services and leave customers unhappy.
- **Digital Illiteracy:** Many people lack the knowledge or self-assurance necessary to utilize digital banking efficiently, particularly those living in rural regions or among the elderly.
- **Connectivity Issues:** Access to digital services is hampered by low internet penetration and network issues in rural locations.
- **Fraud & Scams:** Security concerns are raised by the rise in instances of fraudulent apps, OTP scams, and illegal transactions.
- **Privacy Issues:** If sensitive financial data is not adequately protected during collection and storage, there is a greater chance that it may be misused.



(Source: Google image)

Conclusion:

Because it is more convenient, accessible, and less expensive than traditional banking practices, digital banking has completely changed the financial landscape. In the current digital era, digital banking has become essential for satisfying the changing demands and expectations of clients. It is a necessity for people, companies, and financial institutions alike since it provides accessibility, ease of use, efficiency, cost-effectiveness, innovation, security, and resilience. Banks must change to be competitive by putting money into digital infrastructure, strengthening cybersecurity, and emphasizing individualized customer service. Banks can remain relevant and satisfy changing client expectations in the digital era by embracing innovations like blockchain, AI-driven services, and mobile banking.

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DIGITAL FINANCIAL SERVICE OF WOMEN ENTREPRENEURS IN CHENGALPATTU DISTRICT

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CHAPTER - I INTRODUCTION

ABSTRACT

Women entrepreneurs means the women or a group of women who initiate, organize and operate a business enterprise. A woman entrepreneur is therefore a confident, creative and innovative woman. Financial literacy has been center of discussion world over. Financial literacy can be generally defined as a person's ability to understand, analyze, manage, and communicate personal finance matters. More specifically, it refers to the set of skills and knowledge that allows an individual to make informed and effective decisions through their understanding of finances. It is the ability to make informed judgments and take effective decision regarding the use and management of money.

INTRODUCTION

Now the trend is to change financial literacy. As it is old, people are moving towards digital financial literacy. The interesting side of digital financial literacy is more people are going of digital payments, the value of internet banking, debit card & credit card, mobile banking are going high. Indian Government is also promoting Digital India recently they have launched many schemes like a re Pradhan Mantri Jan Dhan Yojna, Jeevan Jyoti Bima Yojna, Suraksha Bima, MUDRA Bank Yojna, BHIM. The Vittiya Saksharta Abhiyan (VISAKA) also been launched by Ministry of Human Resource.

The prime objective of the research is to know the digital financial literacy among the women entrepreneurs the awareness about various digital platforms and their frequency of use is taken as digital financial literacy. The study further aims to diagnose the awareness of government schemes among the women entrepreneurs.

RESEARCH BACKGROUND

Financial literacy refers to the ability to understand and apply different financial skills effectively, including personal financial management, budgeting, and saving. Financial literacy makes individuals become self-sufficient, so that financial stability can be accomplished. Digital financial literacy is a combination of digital literacy, and financial

literacy. Digital financial literacy is measured by metrics of both financial literacy and digital literacy. Simply put, digital literacy indicates proficiency to use digital technologies for participation in economic and social.

Lack of digital financial literacy is a constraint for the rational and effective usage of digital financial services. Even a person who has a fair amount of financial literacy cannot use digital financial services effectively when he/she does not have digital literacy. So, both digital literacy and financial literacy are required to deal with digital financial services. Therefore, this study aims to analyze how the women entrepreneur are digitally financial literacy.

STATEMENT OF THE PROBLEM

After the pandemic, the usage of digital mode for all business transaction and household transaction has become new normal. Even the government is encouraging the people to go for cashless transaction and to use digital mode for all their payments and other financial transaction. Accordingly, the Government have announced “**MAHILA UDYAM NIDHI SCHEME**” to promote the women entrepreneurs and expand, modernize & upgrade in technological services. The present research work focuses on identifying the initiatives taken by the government to promote digital financial literacy towards the women upliftment.

NEED FOR THE STUDY

According to a recent report, there are currently about 13.5 to 15.7 million women owned enterprises in India. Although this number is huge, it only represents 20% of all enterprises. If the government and other organisations take rigorous actions to support women in business in the coming years, this number has the potential to **increase to 30 million**. Approximately **73%** of women in business report revenue of approximately **₹10 lakhs in a financial year**.

The review of literature studies revealed that there is limited research related to study of digital financial literacy of women entrepreneurs. Amidst many benefits and success stories of digital financial literacy, there is a need to explore the level of digital financial literacy among the women entrepreneurs in Chengalpattu district for the following reasons:

- To find whether the women entrepreneurs are getting aware of digital financial literacy and their current financial position.
- Whether they aware of government schemes and they get any benefits out of it.
- To find the level of Digital Financial Literacy and Digital Financial Service of women entrepreneurs.

OBJECTIVES OF THE STUDY

- To identify the role of SMEs &MSMEs in promoting digital financial literacy.
- To explore the determinants of digital financial literacy.
- To understand the benefits of “MAHILA UDYAM NIDHI SCHEME” government scheme for women entrepreneur.
- To analyse how the women entrepreneur are digitally financial literacy.

SCOPE OF THE STUDY

In the present time, a woman is breaking through the traditional perspective of binding to the four walls of the home and move forward from the limited business regions such as boutique, handcrafts, beauty parlor, paintings, and so on.

Over the last decade, they have shown a tremendous increase in the remarkable shift from the conventional style of business to the modern style of business based on technology. Here are some of the ventures under which Women Entrepreneurs can grow more and create some innovations with their potential.

REVIEW OF LITERATURE

Fitriya Fauzi , Darius Antoni , Emi Suwarni (2020) in Journal of Governance and Regulation. Title name: WOMEN ENTREPRENEUR IN THE DEVELOPING COUNTRY: THE EFFECTS OF FINANCIAL AND DIGITAL LITERACY ON SMEs GROWTH.

“This study investigated the effects of financial and digital literacy on growth of SMEs managed by women in Indonesia. Data was collected through questionnaires of women entrepreneurs and men entrepreneurs. Results showed that both had positive and significant effects on return on assets, but only digital literacy had positive and significant effects on growth. Digital literacy is important to understand and implement in the short term, but in the long run it impacts business growth.”

Smriti Pathak, Sameera A. Raees (2023) in Annual Research Journal of SCMS. **Title name: DIGITAL INNOVATION FOR FINANCIAL INCLUSION: WITH REFERENCE TO INDIAN WOMEN ENTREPRENEUR.**

“The study examines the digital innovations, schemes, and programs taken up by the government, financial institutions, and organizations in India to financially support women MSME entrepreneurs after the pandemic. The data was collected from government websites and the Financial Inclusion Index and GDP were used to understand the relationship between financial inclusion, GDP, and Digital innovations for women entrepreneurs registered in MSME. The paper is important for fintech firms to come up with more user-friendly programs to improve financial inclusion.”

RESEARCH METHODOLOGY

RESEARCH DESIGN

Research design is a **blueprint of a scientific study**. It includes research methodologies, tools, and techniques to conduct the research. It helps to identify and address the problem that may rise during the process of research and analysis.

DATA COLLECTION

Data refers to the study are informative, descriptive facts, non-numerical information, quantitative information. Data collection is any process of preparing and collecting data. The purpose of data collection is obtain the information to keep on record, to make decision about important issue or to pass about information. The data collection is two classification they are;

- Primary data.
- Secondary data.

SAMPLE SIZE & TARGET RESPONDENTS

A total of 100 samples were collected from different places in Chengalpattu district, out of which only 85 samples were relevant to the study. A well-structured questionnaire is used for collecting the information through google form, which is circulated among the women entrepreneurs.

SAMPLING TECHNIQUE

Sampling is a technique of selection individual members or a subset of the population to make statistical inference from them and estimate the characteristics of the whole population.

In this research project, **Stratified Random Sampling method is used to collect data.**

Stratified Random Sampling is a method of sampling that involves the division of a population into smaller subgroups known as strata. In stratified random sampling, or stratification, the strata are formed based on members shared attributes or characteristics, such as income or educational attainment.

STATISTICAL TOOLS USED

Statistical Analysis

Analysis tool for this research work is,

- Percentage Analysis.
- Anova Test.

Percentage Analysis

It is the process of inspecting, narrowing, transforming, and modelling data from a huge amount of information or data. The percentage is one of the essential components of data analysis, which helps find a value from a huge amount of data and information.

Anova test

Analysis of Variance (ANOVA) is a statistical formula used to compare variances across the means (or average) of different groups.

USE OF ANOVA TEST

Analysis of variance, or ANOVA, is a statistical method that separates observed variance data into different components to use for additional tests. A one-way ANOVA is used for three or more groups of data, to gain information about the relationship between the dependent and independent variables. Anova Significance Level is, 0.05 i.e., 5% is greater than the null hypothesis is accepted.

Percentage analysis for Household Financial situation

S.No	Household financial situation	N0.of Respondent	No.of Percentage
1.	Very substantially secure and stable	38	25
2.	Substantially secure and stable	51	34
3.	Moderately secure and stable	42	28
4.	Somewhat insecure and unstable	13	9
5.	Very insecure and unstable	6	4
	Total	150	100

Source: Primary data

Interpretation:

The data indicates that a majority of respondents perceive their household financial situation as secure, with 34% describing it as "substantially secure and stable" and 25% as "very substantially secure and stable." Meanwhile, 28% consider it "moderately secure and stable."

Anova test

Anova test is used to check whether the significance value is accepted or not.

Null Hypothesis H₀: There is no significant difference between the digital financial services used by the people.

Alternate Hypothesis H1: There is a significant difference between the digital financial services used by the people.

Level of Significance: 5% i.e., 0.05 More than 5% of significance is Accepted. Less than 5% of significance is Rejected.

ANOVA

	Sum Squares	df	Mean Square	F	Sig.
Use of internet banking	6.893	3	2.298		
Between Groups					
Within Groups	103.884	81	1.283	1.791	.155
Total	110.776	84			
Use of credit card	5.087	3	1.696		
Between Groups					
Within Groups	92.207	81	1.138	1.490	.224
Total	97.294	84			
Use of debit card	1.300	3	.433		
Between Groups					
Within Groups	73.406	81	.906	.478	.698
Total	74.706	84			
Use of UPI	12.188	3	4.063		
Between Groups					
Within Groups	93.059	81	1.149	3.536	.018
Total	105.247	84			
Use of E wallet	5.602	3	1.867		
Between Groups					
Within Groups	92.210	81	1.138	1.640	.187
Total	97.812	84			

Descriptive Statistics		
	N	Mean
Use of internet banking	85	3.3294
Use of credit card	85	3.7647
Use of debit card	85	2.9412
Use of UPI	85	2.0941
Use of E wallet	85	3.7529
Valid N (listwise)	85	

Interpretation:

Anova is used to analyze the usage of Digital financial services by the women entrepreneurs. The significant value for use of UPI is 0.18, which is below 5% of significant level. For better interpretation descriptive statistics is also used.

The above table revealed that most of the women entrepreneurs prefer to use UPI followed by debit card, internet banking, credit card, E wallet.

Anova test

Anova test is used to check whether the significance value is accepted or not.

Null Hypothesis H0: There is no significant difference between the digital financial services used by the people.

Alternate Hypothesis H1: There is a significant difference between the digital financial services used by the people.

Level of Significance: 5% i.e., 0.05 More than 5% of significance is Accepted. Less than 5% of significance is Rejected.

		of Sum Squares	df	Mean Square	F	Sig.
Digital financial level	Between Groups	35.804	2	17.902	3.945	.023
	Within Groups	372.149	82	4.538		
	Total	407.953	84			
E-banking/ Net banking/ Phone banking	Between Groups	16.284	2	8.142	1.743	.181
	Within Groups	382.963	82	4.670		
	Total	399.247	84			
Charges on debit card/ credit card	Between Groups	18.280	2	9.140	2.117	.127
	Within Groups	354.026	82	4.317		
	Total	372.306	84			
Use of E wallet	Between Groups	36.569	2	18.284	4.052	.021
	Within Groups	370.019	82	4.512		
	Total	406.588	84			
Use of UPI	Between Groups	21.664	2	10.832	2.850	.064
	Within Groups	311.630	82	3.800		
	Total	333.294	84			
Use of ATM	Between Groups	6.505	2	3.252	.817	.445
	Within Groups	326.390	82	3.980		
	Total	332.894	84			
QR scanning	Between Groups	32.530	2	16.265	4.358	.016
	Within Groups	306.058	82	3.732		
	Total	338.588	84			

	N	Mean
Digital financial level	85	5.0235
E-banking/ Net banking/ Phone banking	85	4.5059
Charges on debit	85	4.8588
Use of E wallet	85	5.4118
Use of UPI	85	2.7647
Use of ATM	85	3.0353
QR scanning	85	2.5882
Use of Gpay/ Phonepe/ Paytm Valid N (listwise)	85	3.1765

Interpretation

Anova is used to analyze the preference of Digital financial literacy by the women entrepreneurs. From this table we can't able to interpret the significant value.

For better interpretation descriptive statistics is also used.

The above table revealed that most of the women entrepreneurs prefer to use QR Scanning followed by UPI, ATM, Gpay/ Phone pe/ Paytm, E-banking/ Net banking/ phone banking, debit card/ credit card, digital financial level, use of E wallet.

Percentage for aware of government scheme offer to entrepreneur

S.No	Whether they aware	No. of respondent	No. of percentage
1.	Yes	94	63
2.	No	44	29
3.	Maybe	12	8
	Total	150	100

Source: Primary data

Interpretation:

The majority of respondents (62.7%) indicated that they are aware of the subject in question, while 29.3% are not aware. A smaller portion (8%) expressed uncertainty with a "maybe" response. This suggests a generally high level of awareness among participants, though there remains a significant portion who may benefit from increased information or outreach.

Percentage for Challenges do you face in digital financial tools

S.no	Challenges faces in financial tools	No. of respondent	No. of Percentage
1.	Fear of fraud or scam	11	13
2.	Poor Internet access	30	35
3.	Difficult to understand apps	29	34
4.	Language barriers	6	7
5.	Lack of technical support	4	5
6.	No challenges	5	6
	Total	150	100

Source: Primary data

Interpretation:

The data reveals that the most common challenges faced in using financial tools are poor internet access (35.3%) and difficulty understanding apps (34.1%). A smaller portion of respondents face issues like fear of fraud (12.9%), language barriers (7.1%), and lack of technical support (4.7%). Only 5.9% reported having no challenges, highlighting that a significant number of users encounter technical and usability barriers.

Percentage for learn to use digital financial services

S.no	Digital financial services	No. of respondent	No. of Percentage
1.	Self learned	21	25
2.	Family\friends helped	37	44
3.	Attended a workshop\training	18	21
4.	Still learning\need help	9	10
	Total	150	100

Source: Primary data

Interpretation:

The majority of respondents (43.5%) learned about digital financial services with the help of family or friends, indicating the importance of social networks in acquiring this knowledge. 24.7% self-learned, while 21.2% attended workshops or training programs. This suggests that informal learning through personal connections plays a crucial role in understanding digital financial tools.

FINDINGS, SUGGESTIONS AND CONCLUSION.

This chapter wraps up the overall outcomes of the analysed qualitative data, which underwent series of investigation and interpretation, thus resulting in conclusion on the answers in response to the general and specific problems and providing recommendations based on the salient findings of the study.

SUMMARY OF FINDINGS:

- 31.76% is the majority of the entrepreneur are substantially secure and stable household financial situation.
- 58% is the majority of the entrepreneurs are aware of the government schemes.
- 23% is the majority of the entrepreneurs are having awareness on Pradhan Mantri Rozgar Yojana.
- 19.40% majority of the entrepreneurs are having awareness on Mudra loan for Women.
- 16.1% majority of the entrepreneurs are having awareness on Mahila Udyam Nidhi Scheme.
- 38% is the majority of the entrepreneurs are receive benefit from the government schemes.
- 48.3% is the majority of the entrepreneurs are receiving the training facilities from the government schemes.
- 45% majority of the entrepreneurs are receiving the monetary benefit from the government schemes.

SUGGESTIONS

Based on the analysis and findings, the followings suggestions will be helpful to the Government, policy makers, bankers, women entrepreneurs.

To the Government, Bankers and policy makers

- ❖ Special branches can be started in rural areas to reach the women entrepreneurs.
- ❖ Periodical meetings can be arranged to create awareness about the Government schemes.
- ❖ Mobile apps related to government schemes, training facilities, financial assistance for the entrepreneurs can be developed.

To the women entrepreneurs

- ❖ Women entrepreneurs should be aware of make in India scheme, which promotes employment opportunities and develop rural area.

- ❖ Product development, expansion of business, implementation of innovative ideas in their business etc should be discussed in the training centres organized by the MSMEs and SMEs.
- ❖ Conferences, workshops, seminars and webinars can be organized for encouraging women.
- ❖ Entrepreneurs association or forums can be established in each districts for knowledge sharing and to discuss about the problems and solutions.
- ❖ The loan procedure by banks and subsidies grants by the governmental procedure needs to be simplified.

CONCLUSION

The empowerment of women by way of women entrepreneurship encompasses three main factors i.e. access to resources and market, majority ownership, and active control. Financial literacy is imperative for financial inclusion. And digital financial literacy is more profound in an era where technology evolves on a daily basis. Most of the women entrepreneurs continue to use conventional methods of banking and are reluctant to change. This hurdle can be overridden only through properly planned workshops and classes. Instead of expecting people to gradually take up technology the government and fin-tech groups can undertake measures to bring technology to the people Proper entrepreneurial education is key component which is critical in convincing target groups. widespread. Encouraging women to take part in the digital world and providing training regarding the different aspects can help bring women a step closer to technology, especially in rural India.

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TRANSFORMING DIGITAL TRADE AND E-COMMERCE IN INDIA: THE EXPANDING INFLUENCE OF ARTIFICIAL INTELLIGENCE

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1. Introduction

India stands at a pivotal moment in its digital transformation journey. With a rapidly expanding e-commerce market, growing internet user base, and strong government digital policy, India is emerging as a leading digital economy. One of the key technologies facilitating this change is artificial intelligence (AI), which enables machines to simulate human intelligence. AI's integration into digital trade and commerce makes it easier to automate, optimise, and data-driven decision-making all of which are critical for 21st century global competitiveness. This paper explores the growth, role, and implications of AI in India's digital trade ecosystem. It examines how AI is being adopted across various sectors such as retail, logistics, and finance; evaluates its economic impact, highlights practical uses and identifies both the enablers and barriers to its widespread use. It also considers the broader policy environment and outlines strategies to promote inclusive AI-driven growth in India's trade and e-commerce space.

2. Statement of the Problem

While Artificial Intelligence (AI) is rapidly transforming digital trade and e-commerce in India, its adoption and integration remain uneven and fragmented. Large corporations and global platforms are increasingly leveraging AI to enhance operational efficiency, customer experience, and data-driven decision-making. However, small and medium enterprises (SMEs), which form the backbone of India's digital economy, often lack access to the technological infrastructure, skilled workforce, and financial resources necessary for AI implementation. Additionally, the absence of a comprehensive regulatory framework raises concerns regarding data privacy, algorithmic bias, and ethical use of AI, potentially hindering trust and long-term sustainability. There is also a significant gap in AI literacy and awareness, both among business owners and consumers, limiting the ability to harness AI's full potential. These challenges create a digital divide that threatens to widen the gap between technology-rich and technology-poor enterprises, thereby undermining the inclusive and equitable growth of India's digital economy. It is therefore essential to understand the current state of AI adoption, its sector-wise impacts, the barriers to implementation, and the strategic

interventions needed to ensure that AI becomes a catalyst for inclusive growth rather than a source of inequality.

3. Research Objectives

- To analyze the current state and growth trajectory of AI adoption in digital trade and e-commerce in India.
- To examine the sector-wise impact of AI technologies on operational efficiency, customer experience, and business performance.
- To identify challenges and opportunities associated with AI integration in Indian digital trade ecosystems.
- To provide recommendations for policy and business strategies for sustainable AI-driven growth.

4. Research Methodology

4.1. Research Design

This study employs both **quantitative** and **qualitative** approaches to comprehensively understand the growth, adoption, and impact of Artificial Intelligence (AI) in India's digital trade and e-commerce sectors.

4.2. Data Sources

a. Primary Data

- **Structured surveys** administered to stakeholders, including e-commerce companies, AI technology providers, logistics firms, and policymakers.

b. Secondary Data

- **Industry reports** from organizations like NASSCOM, KPMG, McKinsey, and government bodies (e.g., Ministry of Commerce, Digital India).
- **Market research data** on AI adoption, e-commerce growth, and sector-wise technological investments.
- **Academic journals and conference papers**

4.3. Sampling

- **Target Population:** Firms engaged in digital trade and e-commerce in India, AI technology vendors, and policymakers.
- **Sampling Technique:** Stratified random sampling for survey respondents to ensure representation across sectors (retail, logistics, fintech).
- **Sample Size:** Approximately 150 survey responses

5. Review of Literature

- **NASSCOM (2024)** reported a significant rise in the adoption of Artificial Intelligence (AI) across various sectors in India. Approximately 87% of surveyed companies are either actively using or highly proficient in AI, indicating its growing strategic importance. In the retail and e-commerce sector, AI is being applied for customer personalization, supply chain management, and fraud detection, leading to improved efficiency and revenue growth.
- **Sharma & Gupta (2024)** examined AI in Indian Digital Trade. This paper presents a systematic review of AI applications in India's digital trade sector. The authors identify four critical areas where AI has made significant inroads: automated customer service, supply chain automation, fraud prevention, and AI-driven payment systems. They also underscore regulatory and ethical concerns that require urgent attention to ensure responsible AI deployment in e-commerce.

6. Current Market Size and Growth Rates

6.1 Overall AI Market in India (2022–2028/2030)

Over the last five years, India's AI market has expanded dramatically due to industrial demand, legislative support and advancements in computer infrastructure. According to market research by Grand View Research and IMARC Group:

- India's overall AI market was valued at **USD 1.7 billion in 2023**.
- It is anticipated to reach **USD 5 billion by 2027**, with a **CAGR of 31.5%**
- The larger AI services market may hit **USD 17 billion by 2027**, driven by demand across IT services, consulting, and analytic.

This growth reflects India's position as both a large consumer and exporter of AI-driven digital solutions, including those embedded in trade systems.

6.2 AI in Retail & E-Commerce Sector in India

India's e-commerce market is heavily influenced by AI. In 2022, the AI in retail and e-commerce sector was valued at **INR 3,305.97 million**, and it is projected to reach **INR 16,929.87 million by 2028**, with a CAGR of **28.78%**. AI powers recommendation engines, chatbots, fraud detection tools, and personalized advertising, helping platforms like Amazon India, Flipkart, and Meesho enhance customer experiences.

6.3 AI in Supply Chain & Logistics

The logistics and supply chain sector has embraced AI to manage complexity and reduce costs. AI is used in:

- Route optimization.
- Real-time tracking.
- Predictive maintenance.
- Smart warehousing.

The **Indian AI in supply chain market** was worth **USD 249.5 million in 2023**, and is forecast to reach **USD 3,277.4 million by 2030**, at a CAGR of **44.5%**.

6.4 AI in Fintech & Trade Finance

AI's role in fintech includes automated credit risk analysis, fraud detection, and KYC/AML processes. The **AI in Indian fintech market** was valued at **USD 575.3 million in 2024** and is expected to hit **USD 2,968.3 million by 2033**, growing at **20% CAGR**.

7. AI Adoption Rates and Business Penetration in India

India has seen increasing AI adoption across industries:

- **61% of enterprises in India** adopted AI by 2023.
- **73%** of businesses plan to expand their AI capabilities by 2025.
- Logistics and warehousing AI adoption grew from **20% in 2020 to 55% in 2023**.

Sector-specific trends:

- **Retail:** Widespread use of AI chatbots, virtual assistants, and consumer analytics.
- **Logistics:** Adoption of autonomous vehicles and demand forecasting tools.
- **Banking and Fintech:** Extensive use of AI in risk modelling and customer profiling.
- **Telecom:** AI is used for churn prediction, customer service, and network optimization.

SMEs face greater adoption challenges due to costs, talent gaps, and lack of awareness.

8. AI's Impact Metrics in Digital Trade

AI's integration into digital trade delivers measurable benefits:

- **Revenue Growth:** Personalized e-commerce platforms report 10–20% sales uplift through AI-driven recommendations.
- **Cost Savings:** AI in logistics can reduce shipping and inventory costs by **15–25%**.
- **Fraud Reduction:** AI in fintech reduces fraud-related losses by detecting anomalies in real-time.
- **Faster Processing:** Trade documentation using AI and NLP reduces processing time by 60–80%.
- **SME Inclusion:** AI allows SMEs to automate compliance and customer engagement, enabling entry into global marketplaces.

9. Projected Economic Contributions of AI

AI is projected to be a major driver of India's future economy:

- India's AI economy is forecast to contribute **\$500 billion to GDP by 2025**, accounting for 10% of GDP.
- AI could create **10–20 million new jobs** by the mid-2020s, including roles in AI development, operations, analytics, and governance.
- India's AI sector is expected to raise digital trade exports in services and software, strengthening its global position.

10. Case Examples with Quantitative Outcomes

10.1 Meesho

India's social commerce platform **Meesho** uses AI-powered voice bots to manage **60,000 customer calls daily** in English and Hindi. AI automates order tracking, returns, and customer feedback collection, improving retention.

10.2 Government e-Marketplace (GeM)

The **GeM platform** integrates AI/ML tools for public procurement analysis. As of 2025, it processed **₹13.6 lakh crore in GMV**, with AI helping detect fraud and optimize pricing.

10.3 Amazon India & Flipkart

These giants use AI in:

- Route optimization to cut delivery times by 30%.
- Image recognition for cataloging.
- Predictive demand planning.
- Fraud detection in payments.

10.4 Paytm & Fintech Startups

Paytm leverages AI to process micro-loans and assess creditworthiness in underbanked regions. AI models score applicants using digital footprints and behavioral data.

11. AI's Drivers and Barriers to Growth

11.1 Key Growth Drivers

- **India AI Mission:** ₹10,000 crore allocated in Union Budget 2023 to advance AI.
- **Digital Public Infrastructure (DPI):** Aadhaar, UPI, and ONDC enable scalable AI integration.
- **Startup Ecosystem:** India is home to over 1000 AI startups, many focusing on trade and commerce.
- **5G and Cloud Adoption:** Facilitates real-time AI computation and analytics.

11.2 Barriers to Growth

- **Data Fragmentation:** Lack of interoperable, high-quality datasets.
- **Regulatory Ambiguity:** No unified AI policy or data protection law until recently.
- **Talent Shortage:** AI skill gap remains a bottleneck in rural and Tier-2/3 cities.
- **Digital Divide:** SMEs in rural areas struggle to access AI tools and platforms.

12. Summary of Growth and Role Percentages of AI

Table No.1: Summary of Growth and Role Percentages of AI

Area	2023/24 Value	2028/30 Projection	CAGR/Impact
AI in Retail & E-Commerce	INR 3.3 billion	INR 16.9 billion	28.78% CAGR
AI in Supply Chain (India)	USD 249.5 million	USD 3.28 billion	44.5% CAGR
AI in Fintech	USD 575.3 million	USD 2.96 billion	20% CAGR
Overall AI Market (India)	USD 1.7 billion	USD 5.0–8.0 billion	31.5–40% CAGR
Business AI Adoption	61% (2023)	73% (2025 projected)	+12% increase in adoption
Jobs Created by AI (projected)	N/A	10–20 million	Economic + Employment Impact

Interpretation

The data reflects the rapid and transformative growth of Artificial Intelligence (AI) across key sectors in India between 2023 and the projected period of 2028–2030:

1. Retail & E-Commerce

The AI market in retail and e-commerce is expected to grow from INR 3.3 billion to INR 16.9 billion, showing a Compound Annual Growth Rate (CAGR) of 28.78%. This indicates increasing use of AI for personalized shopping, customer engagement, and automation.

2. Supply Chain

One of the fastest-growing segments, AI in the Indian supply chain sector is projected to rise from USD 249.5 million to USD 3.28 billion, with a CAGR of 44.5%. This

growth is driven by AI’s ability to optimize logistics, forecasting, and inventory management.

3. Fintech

AI in fintech is expected to grow from USD 575.3 million to USD 2.96 billion by 2028–30, with a CAGR of 20%. This growth highlights AI’s expanding role in areas like fraud detection, risk analysis, automation, and financial advisory.

4. Overall AI Market in India

The total AI market is forecasted to grow significantly from USD 1.7 billion to between USD 5.0 and 8.0 billion, with an estimated CAGR of 31.5% to 40%, indicating robust nationwide adoption and investment in AI technologies.

5. Business AI Adoption

In 2023, 61% of businesses in India had adopted AI. This is projected to reach 73% by 2025, representing a 12% increase. It signals a growing awareness of AI’s strategic value in improving efficiency, decision-making, and innovation.

6. Employment Impact

AI is projected to create 10–20 million jobs in India by 2028–30. This highlights AI’s potential to not only drive economic growth but also reshape the employment landscape, creating new roles in data science, machine learning, AI ethics, and automation-related fields.

Table No.2: Growth of AI Adoption in E-Commerce in India (2019–2024)

Year	Estimated AI Adoption Rate in Indian E-Commerce (%)	Key Drivers/Notes
2019	18%	Early-stage adoption focused on chatbots and basic personalization.
2020	30%	COVID-19 pandemic accelerated digital transformation and AI adoption for online shopping experiences.
2021	45%	Expansion of AI-powered recommendation systems and AI-driven logistics optimization.

2022	60%	Increased investment in AI startups and AI-enabled analytics for customer behavior and fraud detection.
2023	72%	Growing SME adoption supported by government initiatives and AI integration into payment systems.
2024*	78%	Mature AI ecosystems; advanced NLP, sentiment analysis, and hyper-personalization widely adopted.

*2024 data is an estimate based on recent market trends and reports.

Exhibit 1: Estimated AI Adoption Rate in Indian E-Commerce (%)

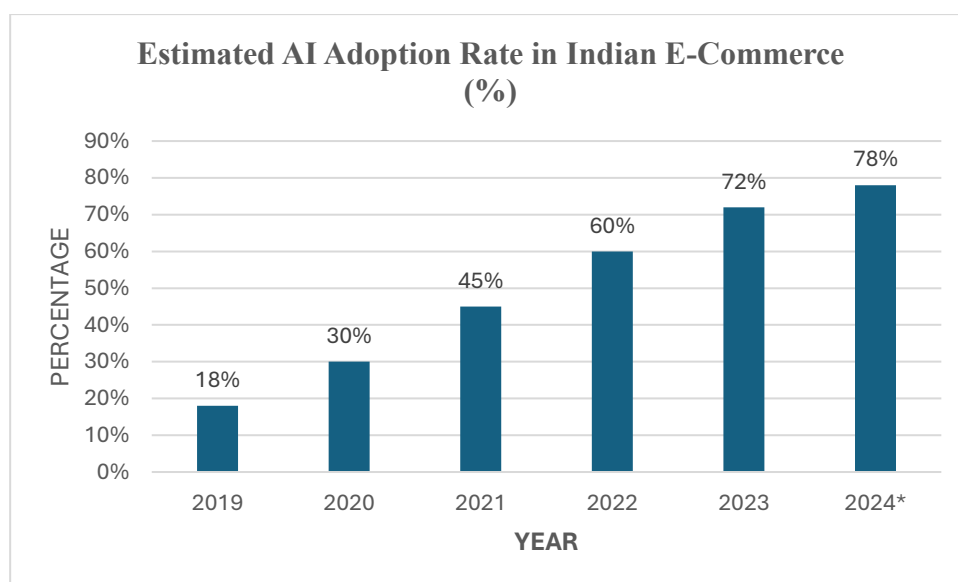


Table No.3: AI in India’s Digital Trade & E-Commerce (2019–2024)

Year	E-Commerce Context / AI Metric	Value	Notes
2019	AI adoption among Indian businesses	~23 %	Businesses with implemented AI
2020	AI adoption in logistics companies	~20 %	AI used for route optimization, robotics

2021	AI in retail & e-commerce market	INR 3,305.97 M	AI market size in retail & e-commerce (2022) but covers trend from previous years
2022	AI adoption (all enterprises)	~61 %	By 2023, 61 % adoption reported
2023	AI adoption plan by businesses	73 %	Plan to expand AI adoption in 2025
2023	AI in logistics companies adoption	55 %	Growth from ~20 % in 2020 to ~55 % by 2023
2024	AI in retail market revenue	USD 584.7 M	Market size for AI in retail
2024	GenAI-driven productivity boost (retail)	35-37 %	Expected over five years
2024	Increase in e-commerce sales via AI personalization	~20 %	AI-driven recommendation impact

Interpretation

- **AI adoption growth:** Business-level AI adoption rose from ~23% in 2019 to ~61% by 2023, with a projected expansion to 73% by 2025.
- **Sectoral uptake:** Logistics companies increased AI adoption from ~20% in 2020 to 55% in 2023—indicating rapid diffusion in operational tech.
- **Market value:** The AI retail & e-commerce segment reached ~USD 585 M in revenue by 2024 and is expected to surge with a high CAGR.
- **Productivity effects:** GenAI is poised to lift retail productivity by over one-third within five years, showing transformational impact.
- **Sales uplift:** Personalized AI features are linked to ~20% revenue growth in e-commerce platforms, highlighting direct benefits to consumer engagement.

Table No.3: Sector-wise AI Adoption and Impact in India's Digital Trade & E-Commerce (2019–2024)

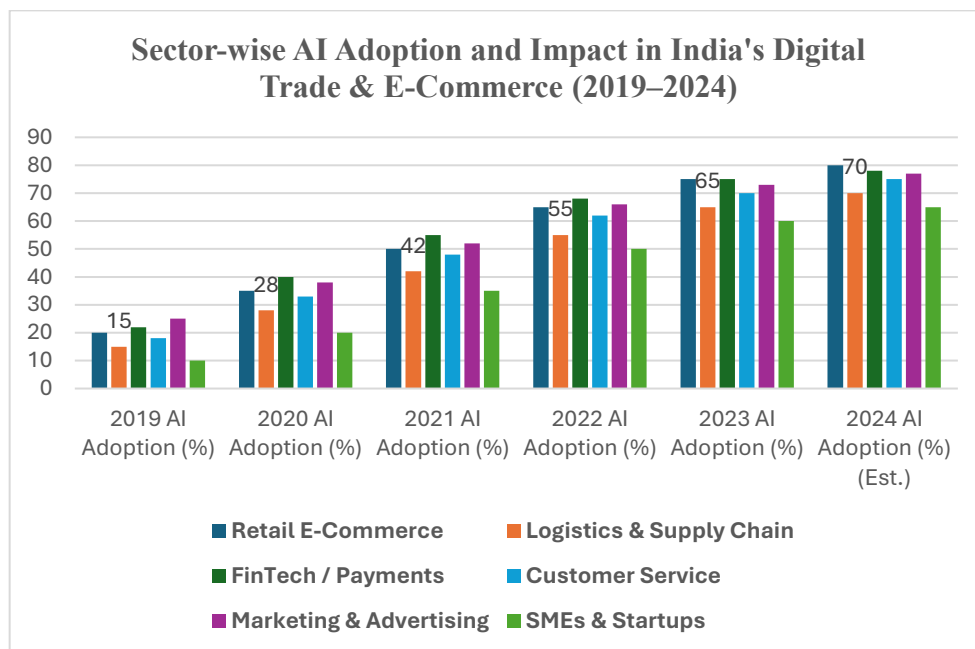
Sector	2019 AI Adoption (%)	2020 AI Adoption (%)	2021 AI Adoption (%)	2022 AI Adoption (%)	2023 AI Adoption (%)	2024 AI Adoption (%) (Est.)	Key Impacts
Retail E-Commerce	20	35	50	65	75	80	Improved personalization, 25-30% increase in customer retention; AI-driven chatbots enhancing service.
Logistics & Supply Chain	15	28	42	55	65	70	20-30% improved delivery accuracy; cost savings through predictive analytics and route optimization.
FinTech / Payments	22	40	55	68	75	78	Fraud detection reduced online transaction fraud by ~18%; AI-powered credit risk analysis increased.
Customer Service	18	33	48	62	70	75	AI chatbots cut query resolution times by up to 50%, improving customer satisfaction.
Marketing & Advertising	25	38	52	66	73	77	AI-powered targeted ads increased ROI by 20%; sentiment analysis improved campaign effectiveness.
SMEs & Startups	10	20	35	50	60	65	Growing access to AI tools, enabling competitive advantage despite resource constraints.

Interpretation

- **Overall Growth:** All sectors show a strong upward trend in AI adoption from 2019 to 2024, reflecting broadening awareness, increased investment, and maturing AI technologies within Indian digital trade and e-commerce ecosystems.

- **Retail E-Commerce:** Leading in AI adoption, retail has leveraged AI extensively for personalization and customer engagement. The rapid growth in AI tools such as recommendation engines and chatbots has significantly boosted retention and sales.
- **Logistics & Supply Chain:** While initially slower, logistics saw rapid AI integration driven by the need to optimize delivery times and reduce operational costs. Predictive analytics and route optimization contributed to measurable efficiency gains.
- **FinTech / Payments:** AI has been critical in fraud detection and credit risk assessment, enhancing trust and security in online transactions, which supports wider digital commerce adoption.
- **Customer Service:** Adoption of AI-driven customer service solutions, particularly chatbots and virtual assistants, has substantially reduced response times, increasing customer satisfaction and operational scalability.
- **Marketing & Advertising:** AI’s ability to analyze consumer behavior and optimize targeting has improved marketing ROI and campaign performance.
- **SMEs & Startups:** Though AI adoption started relatively low, it is growing steadily as more accessible AI tools empower smaller players to compete with larger firms, driving more inclusive growth in digital trade.

Exhibit: 2 Sector-wise AI Adoption and Impact in India's Digital Trade & E-Commerce (2019–2024)



13. Implications for Policy and Strategy

13.1 Policy Recommendations

- Implement AI-specific legislation ensuring ethical use, privacy, and fairness.
- Strengthen national AI and data ecosystems via funding and open data portals.
- Introduce AI innovation hubs and testbeds for startups and MSMEs.
- Provide financial support and capacity-building programs for SMEs.

13.2 Strategic Business Actions

- Invest in AI upskilling and reskilling across all levels.
- Develop explainable and transparent AI systems to build trust.
- Create cross-functional teams for AI project integration.

13.3 International Perspective

- India should align with OECD and UNESCO AI frameworks while developing local norms.
- Leverage India's G20 position to shape global digital trade

14. Conclusion and Future Outlook

Artificial Intelligence is no longer a peripheral innovation; it is now a foundational element of India's digital trade and e-commerce ecosystem. From powering customer personalization to optimizing cross-border logistics and revolutionizing trade finance, AI is driving measurable gains in efficiency, scalability, and inclusivity. The evidence presented in this paper including growth rates, adoption metrics, and real-world case studies underscores how AI is actively reshaping the contours of Indian trade both domestically and globally.

India's AI economy is projected to contribute significantly to national GDP, potentially adding over \$500 billion by 2025. Platforms like GeM, Flipkart, and Meesho offer tangible examples of how AI transforms procurement, customer engagement, and supply chains. At the same time, fintech players are expanding access to credit using AI-based risk analytics, especially for underbanked segments.

However, to fully realize AI's potential in digital trade, India must address several structural and regulatory challenges including fragmented data ecosystems, digital access inequalities, talent shortages, and the lack of robust AI governance frameworks. The development and deployment of AI must also be inclusive and ethical to prevent the reinforcement of social or economic inequalities.

Looking ahead, India's AI future will be shaped by five key imperatives:

1. **Policy acceleration** for ethical, open, and cross-border AI and data frameworks.
2. **Public-private collaboration** to support SMEs and foster innovation ecosystems.

3. **Investment in AI infrastructure and research**, particularly in Tier-2 and Tier-3 cities.
4. **Digital and AI literacy programs** to ensure an inclusive digital workforce.
5. **Global leadership in AI diplomacy**, including in G20, BRICS, and Indo-Pacific dialogues.

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ETHICAL AND STRATEGIC CHALLENGES OF AI IN SOCIAL MEDIA MARKETING

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Abstract

Artificial Intelligence (AI) has revolutionized social media marketing through hyper-personalization, predictive targeting, and enhanced engagement. Yet, these advances present ethical and strategic challenges, such as data privacy, algorithmic transparency, and system bias, which raise concerns about fairness and accountability. Social media algorithms prioritize engagement, sometimes amplifying misinformation and harmful content. Overreliance on automation may depersonalize relationships and erode trust. Strategically, marketers must strike a balance between efficiency and authenticity, manage reputational risks, and comply with relevant regulations. This chapter addresses these challenges using real-world examples and theory, proposing frameworks for the responsible use of AI. Emphasizing transparency, inclusivity, and sustainability enables businesses to effectively integrate AI into marketing while protecting consumer rights and maintaining brand integrity.

Keywords: Artificial Intelligence, Social Media Marketing, Data Privacy, Algorithmic Bias, Ethical Marketing, Digital Trust

1. Introduction to AI in Social Media Marketing

Artificial Intelligence (AI) has revolutionized social media marketing, enabling scalable, precise engagement through the use of recommendation engines, analytics, and automation. These tools create personalized experiences but also introduce complex challenges. A major concern is the power imbalance between platforms and users, as marketers utilize vast amounts of data to influence behavior, often without transparency or accountability. Surveillance capitalism intensifies profit-driven incentives over user welfare. While AI enhances efficiency, conversion, and loyalty, it also raises ethical concerns about

transparency and accountability. Black-box algorithms obscure the process of making marketing choices, underscoring the need for ethical review.

Furthermore, while AI drives innovation, it also introduces ethical dilemmas, including bias, misinformation, and privacy risks. Striking a balance between efficiency and ethical responsibility is now a critical focus. This dual nature positions AI as both a driver of growth and a potential source of social harm if misused. Responsible governance is crucial for mitigating risks. Marketers must, therefore, embrace AI with a cautious yet innovative mindset. Ethical considerations should not be afterthoughts, but rather integral to the design. Ultimately, AI in social media marketing should be leveraged to enhance, not erode, trust. Transparent practices build stronger connections with consumers. With this foundation in place, we now turn to the nuanced issue of data privacy and consent, which forms a cornerstone of ethical AI implementation in marketing.

2. Data Privacy and Consent in AI Marketing

Data privacy is a primary ethical concern in AI-powered social media marketing. Platforms rely on user data—from browsing history to demographics—often gathering insights without explicit user consent. AI uses this data for precision targeting, but users' autonomy can be compromised if information is exploited without transparency. Trust erodes when personal boundaries are crossed, such as when sharing details within an online community leads to unrelated ad targeting without the user's knowledge. Concerns about surveillance intensify when consumers become aware of the extensive tracking of their digital footprints. Micro-targeted campaigns may reveal sensitive traits. Ethical marketing requires clear, accessible consent policies. Companies should explain data usage plainly, not through complex terms. Anonymization and secure storage are vital. Data breaches expose consumers to identity theft and brands to reputational risk.

Consumer rights must remain at the forefront of AI-driven campaigns. Beyond legal compliance, businesses should view privacy as a moral responsibility. Respecting personal data fosters loyalty, while violations provoke backlash that is amplified online. Ethical use of data supports both regulatory compliance and long-term sustainability in AI marketing. Having established the centrality of data privacy, we next explore the pervasive challenge of algorithmic bias and discrimination, further examining how AI can perpetuate or mitigate societal inequities.

3. Algorithmic Bias and Discrimination

AI in social media marketing inherits biases from its training data. Skewed datasets lead to discriminatory outcomes, such as unfairly targeted or excluded ads. Research shows

that algorithms sometimes reinforce inequalities, such as job ads reaching men more often than women. Bias is evident across various groups, including those based on race, age, and socioeconomic status. Users have reported feeling singled out or marginalized by targeted ads or excluded from housing opportunities due to biased systems. Marketing may unintentionally neglect marginalized populations, perpetuating inequities. Addressing algorithmic bias requires proactive measures. Fairness audits and diverse training datasets are essential for equitable outcomes. Human oversight detects hidden biases that automation misses. Fairness should be seen as a strategic advantage, enhancing inclusion and brand reputation. Preventing discrimination secures both ethical responsibility and sustainable success. With this understanding of the risks and remedies associated with bias, we now consider how AI's capacity for content amplification can contribute to the spread of misinformation within social media marketing.

4. Misinformation and Content Amplification

Social media algorithms often prioritize engagement over accuracy, amplifying sensational or misleading content. This phenomenon extends to AI marketing tools, which may inadvertently promote misinformation. For example, a campaign optimized for clicks could inadvertently reinforce harmful stereotypes or disseminate false claims. Such amplification not only damages public trust but also undermines the brand's integrity. Research has shown that brands that actively correct misinformation and adhere to truth-based strategies can experience higher long-term loyalty from consumers. For instance, a prominent retail company successfully recovered from a misinformation crisis by promptly rectifying erroneous claims about their product, resulting in strengthened customer loyalty and trust over the long term. The central takeaway is that ethical content curation, transparency regarding AI-generated content, and collaboration across disciplines are crucial in mitigating the spread of misinformation. Brands that prioritize these practices foster greater trust and differentiate themselves in the market. Responsible AI use is an important ethical and business imperative. As we proceed, the next section examines how businesses can strike a balance between automation and human connection to foster genuine customer engagement in the era of AI.

5. Human–Machine Balance in Customer Engagement

AI chatbots, recommendation engines, and automated responses provide speed and scalability in customer engagement. Yet, over-reliance risks alienating consumers who value authenticity and empathy. While AI excels at handling repetitive queries, it struggles with understanding context, emotions, and cultural nuances. A key instance of this is in service

recovery, where human empathy outshines AI's capabilities. For example, while AI chatbots might efficiently triage initial inquiries, resolving conflicts or addressing emotional complaints often requires a human touch. Customers may perceive fully automated interactions as impersonal or dismissive, particularly when dealing with sensitive issues that demand understanding over efficiency. A hybrid approach offers the necessary balance. AI can filter, categorize, and respond to common issues, while human managers handle sensitive or complex situations, thereby preserving efficiency while ensuring that empathy and judgment remain central to brand interactions. For example, AI may recommend products, but humans provide reassurance in complaint resolution. Maintaining this balance strengthens long-term customer trust. It signals that while technology supports engagement, people remain at the heart of the decision-making process. Brands must also train their staff to collaborate effectively with AI tools, leveraging machine insights without compromising the human touch. In effect, the goal is augmentation rather than replacement. AI enhances human expertise rather than undermining it. This balanced model fosters both productivity and authentic connections in social media marketing.

6. Regulatory and Compliance Issues

AI in marketing exists within an increasingly regulated environment. Laws such as the General Data Protection Regulation (GDPR) in Europe and India's Digital Personal Data Protection (DPDP) Act mandate strict rules on data usage. These regulations emphasize consumer rights, consent, and accountability. For marketers, compliance is both an ethical duty and a practical necessity. Non-compliance carries risks of fines, lawsuits, and reputational damage. Evolving laws underscore the importance for marketers to remain informed and adaptable. Ignorance of regulations is not a defense against penalties. Beyond legal compliance, ethical responsibility requires proactive action. Brands should build transparency and accountability into their AI systems even where regulations are not explicit. One proactive approach is implementing 'Privacy by Design,' which integrates privacy considerations from the outset rather than treating them as additions. For instance, data minimization can be achieved by collecting only the essential data necessary for a specific function, while default encryption ensures that data is protected by default. By embedding these practices into AI systems, companies make privacy an essential component of their strategy, rather than an afterthought. This not only increases consumer trust but also aligns with global trends toward ethical marketing. Compliance also fosters competitive advantage. Companies that adopt strong governance frameworks are more resilient to regulatory shifts. As global standards continue to evolve, ethical AI marketing requires anticipating—not

merely reacting to—regulatory developments. This ensures both legal safety and alignment with consumer expectations.

7. Strategic Risks and Brand Reputation

AI offers powerful opportunities but also exposes brands to new strategic risks. Mishandling data, allowing algorithmic bias, or producing insensitive AI-generated content can quickly harm reputation. Social media amplifies these risks. Negative publicity spreads rapidly, often causing lasting damage to a brand. Once trust is lost, rebuilding it is difficult. Risk management must therefore be an integral part of AI marketing strategies. Brands should anticipate potential failures and plan responses in advance of crises to mitigate their impact. For instance, a single data breach can result in significant revenue losses, legal fees, and a decline in stock prices, with some studies suggesting that companies can lose around 5-10% of their market value following a major incident. Additionally, scenario planning helps prepare for diverse challenges, such as data breaches or algorithmic errors, by providing a framework for anticipating and mitigating potential risks. Crisis communication frameworks ensure timely and transparent responses to emergencies. Stakeholder engagement is equally important. Involving customers, employees, and regulators builds trust and resilience. Ethical lapses are not just technical failures but governance failures. Companies must embed ethics at every stage of AI integration. By aligning AI practices with long-term values, brands can mitigate risks and enhance their reputation. In short, the strategic management of AI risks is vital for sustainable growth in social media marketing.

8. Toward Responsible and Sustainable AI Marketing

The future of AI in social media marketing lies in responsibility and sustainability. Companies must go beyond short-term efficiency to consider long-term impacts on society and trust. Embedding ethics in AI design is a key step. Transparent algorithms, fairness audits, and inclusivity checks should be standard practice. Sustainability also requires attention to social equity. Marketing campaigns should empower diverse groups rather than perpetuate exclusion. Transparency must extend to consumers. Brands should disclose their involvement with AI in marketing decisions and clarify how personal data is utilized. Regular auditing of AI systems ensures that campaigns remain aligned with evolving ethical standards and societal expectations. Responsible AI is not merely about compliance—it is about building lasting trust. In an era of digital scrutiny, consumers prefer brands that demonstrate ethical behavior. Long-term brand resilience depends on this ethical foundation. Companies that adopt responsible AI will sustain a competitive advantage while avoiding reputational

pitfalls. Ultimately, ethical AI marketing aligns with both business goals and the broader pursuit of sustainable, inclusive digital societies.

9. Conclusion

Artificial Intelligence has undoubtedly reshaped social media marketing by enabling hyper-personalized campaigns, predictive targeting, and scalable engagement. Yet, its power comes with profound ethical and strategic challenges. Issues such as data privacy violations, algorithmic bias, and misinformation highlight the need for transparency and accountability in digital marketing practices. Over-reliance on automation may improve efficiency, but risks eroding human trust and authentic brand connections. Regulations like GDPR and DPDP provide necessary boundaries, but ethical responsibility must go beyond compliance to foster consumer confidence. Organizations must adopt a hybrid human–AI approach, ensuring empathy and contextual judgment remain at the core of decision-making. Proactive risk management, algorithm audits, and inclusivity strategies can help safeguard a brand's reputation and strengthen its long-term sustainability. Ultimately, the future of AI in social media marketing hinges on striking a balance between innovation and responsibility. By embedding ethics into strategy, businesses can leverage AI as a tool not only for growth but also for building trust and promoting social good in an increasingly digital marketplace.

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SUSTAINABILITY IN THE SCROLL: SOCIAL MEDIA MARKETING AND RESPONSIBLE CONSUMERISM

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Abstract

Social media marketing (SMM) has emerged as a dominant force in shaping consumer decision-making and brand engagement in the digital economy. Platforms such as Instagram, Facebook, TikTok, LinkedIn, and YouTube have evolved into interactive ecosystems where businesses communicate directly with their audiences. At the same time, consumers are increasingly aware of sustainability and demand ethical responsibility from the brands they support. This chapter explores how SMM can encourage responsible consumerism by promoting eco-friendly practices, transparent messaging, and sustainable lifestyle choices. It also highlights the opportunities for companies to leverage influencers, storytelling, and AI-driven targeting to strengthen sustainability communication. However, risks such as greenwashing, information overload, and ethical dilemmas in digital marketing remain significant challenges. By critically examining the ethical, regulatory, and technological perspectives of SMM, this chapter underscores its transformative role in achieving Sustainable Development Goals (SDG 12: Responsible Consumption and Production, and SDG 13: Climate Action). Ultimately, the chapter argues that social media is not merely a promotional tool but a driver of social change, capable of aligning business success with sustainable development.

Keywords: Social media marketing, sustainability, responsible consumerism, digital platforms, green washing, ethical marketing

1. Introduction

Social media has grown into a powerful marketing ecosystem, reshaping how brands interact with global consumers. Unlike traditional advertising, SMM offers two-way communication that creates stronger consumer relationships and rapid brand visibility. Over

the past decade, digital platforms have become primary spaces where opinions are formed, lifestyles are showcased, and consumption habits are influenced. This creates both opportunities and responsibilities for marketers to align campaigns with social values. The rise of sustainability awareness among digital consumers has fueled demand for eco-friendly products and transparent practices. Audiences now expect businesses to address environmental concerns and integrate social responsibility into their branding. This shift has made sustainability not just an ethical choice but a competitive advantage in global markets. The primary purpose of this chapter is to examine how SMM can promote responsible consumerism aligned with sustainability goals. By integrating storytelling, influencer credibility, and transparent data-driven strategies, social media becomes a platform for driving sustainable choices. Finally, this research is relevant to global agendas such as SDG 12 and SDG 13. Social media platforms serve as both educational and promotional tools that shape consumer behavior in ways that can contribute to climate action and sustainable consumption patterns.

2. The Evolution of Social Media Marketing

In its early stages, SMM was largely about establishing a digital presence and connecting with audiences on platforms like Facebook and Twitter. Over time, the practice evolved into highly targeted advertising that uses analytics to reach specific consumer segments. This marked the beginning of marketing campaigns designed with precision rather than mass appeal. Algorithms soon became the backbone of digital marketing. They personalize content feeds, ensuring users see advertisements that align with their interests and behaviors. While this improves efficiency, it also raises ethical questions about consumer manipulation and privacy. The focus has shifted from transactional advertising to relationship marketing. Instead of simply promoting products, brands aim to create meaningful interactions with their audiences. This has led to long-term consumer loyalty and increased trust in sustainable branding efforts. A major development in SMM has been the rise of influencer marketing. Influencers act as brand ambassadors, often perceived as authentic and relatable voices. Their integration into campaigns allows sustainability messages to reach wider audiences through credible storytelling, increasing the impact of marketing efforts.

3. Sustainability and Consumer Behavior in the Digital Age

Eco-conscious consumer segments have expanded rapidly as environmental awareness has grown. These consumers actively seek products that align with their values, often paying a premium for ethical sourcing and eco-friendly production. Social media plays a critical role in amplifying these preferences. Digital consumer psychology emphasizes trust,

authenticity, and value alignment. Brands that fail to communicate honestly risk losing credibility. On the other hand, those that integrate sustainability authentically gain loyalty and positive word-of-mouth. Online communities such as sustainability groups, eco-living forums, and zero-waste movements foster lifestyle changes. These communities amplify sustainable habits, encourage peer influence, and create a ripple effect across digital networks. Several brands have successfully integrated sustainability into their social media strategies. Examples include Patagonia's campaigns on environmental activism and IKEA's focus on circular economy practices. Such cases illustrate how digital narratives shape consumer choices and inspire broader responsibility.

4. Social Media Marketing as a Tool for Responsible Consumerism

SMM serves as a powerful educational tool by spreading awareness about sustainability issues. Through storytelling, brands can communicate the impact of consumer choices on society and the environment. This fosters informed decision-making among audiences. AI-driven insights allow businesses to identify sustainability-focused segments and personalize messages effectively. Targeting eco-conscious consumers ensures that marketing efforts resonate with the right audience and reduce advertising waste. Influencers play a vital role in bridging the gap between businesses and consumers. Their credibility and relatability make them effective in promoting ethical consumption, especially when they genuinely practice sustainable lifestyles. Platforms such as Instagram, TikTok, LinkedIn, and YouTube each contribute uniquely to responsible consumerism. Instagram and TikTok emphasize visual storytelling, LinkedIn focuses on corporate sustainability, while YouTube provides long-form educational content. Collectively, they foster sustainable brand-consumer relationships.

5. Challenges in Promoting Sustainability via Social Media

Greenwashing remains one of the biggest risks in SMM. When brands exaggerate or falsify their sustainability claims, they lose credibility and erode consumer trust. Social media amplifies these risks due to rapid information spread. Balancing profit-driven campaigns with ethical communication presents another challenge. While companies aim for growth, sustainability messaging requires transparency, which sometimes conflicts with business goals. Information overload on social media leads to short attention spans. Marketers struggle to communicate complex sustainability issues in brief formats such as reels and posts. This limits the depth of consumer understanding. Finally, platform limitations such as algorithm bias reduce the visibility of smaller sustainable brands. Paid promotions often overshadow

authentic sustainability content, making it harder for genuine initiatives to reach broad audiences.

6. Ethical and Regulatory Perspectives

Corporate Social Responsibility (CSR) in digital marketing emphasizes integrating sustainability into every business operation. Social media campaigns must reflect not just branding but also ethical practices. Regulatory frameworks for sustainability claims are increasingly enforced. Governments and consumer protection bodies monitor online advertising to prevent misleading eco-labeling and false claims. Ethical communication strategies involve transparency, honesty, and accountability. Brands that openly share their supply chain details, carbon footprint, and community initiatives establish stronger trust with consumers.

7. Future Directions in Sustainable Social Media Marketing

Artificial intelligence, big data, and blockchain will shape the future of transparent and ethical marketing. AI will enable hyper-personalized campaigns, while blockchain ensures verifiable supply chain claims. Immersive technologies like AR and VR will allow consumers to experience sustainability virtually, such as exploring eco-friendly product lifecycles or participating in digital climate campaigns. Digital activism will increasingly drive brand responsibility. Hashtag movements like ForFuture demonstrate how consumers can hold businesses accountable and demand greater sustainability. Ultimately, the future of SMM points towards “conscious capitalism,” where businesses pursue profit while simultaneously addressing social and environmental needs.

8. Conclusion

Social media marketing has the potential to drive responsible consumerism by aligning brand messages with sustainability goals. It serves as both a communication and education tool that empowers eco-conscious decision-making. The success of these efforts relies on authenticity, transparency, and ethical responsibility. Brands must avoid greenwashing and embrace genuine sustainability practices to earn consumer trust. In conclusion, social media is more than a promotional tool; it is a platform for fostering sustainable lifestyles, shaping consumer values, and contributing to the achievement of global sustainability goals.

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DRIVING INNOVATION THROUGH CROSS-CULTURAL COLLABORATION IN GLOBAL TEAMS

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ABSTRACT

This chapter demonstrates that cultural diversity is critical to driving innovation in global business. It argues that organizations benefit creatively and operationally from a variety of cultural viewpoints, which lead to more novel and effective solutions. The chapter's key arguments are as follows: multicultural collaboration, when reinforced by inclusivity and open communication, is a primary driver of innovation; inclusive leadership empowers teams to leverage diverse skills toward shared goals; evidence from multinational firms suggests that cross-cultural teamwork yields breakthrough products and improved business performance. The chapter also outlines approaches for overcoming communication barriers and resolving misunderstandings that block effective team cooperation. Ultimately, it concludes that organizations that embrace cultural diversity gain a creative advantage, thereby enhancing adaptability and global competitiveness. Fostering mutual respect and continuous learning is presented as a crucial element in unlocking team potential, positioning diversity as vital to sustainable innovation.

Keywords: Cultural Diversity, Innovation, Multicultural Collaboration, Inclusive Leadership, Global Teams

1. INTRODUCTION

International organizations use cross-cultural teams to innovate and address market challenges. As organizations expand globally, diversity brings a range of varied perspectives and experiences. Managing this diversity well fosters creativity and new ideas, unlike homogeneous groups. Trends such as globalization and digital transformation increase the need for diverse teamwork. Studies find that culturally diverse organizations generate more

innovative ideas and better serve global markets. Without compassionate leadership and clear teamwork strategies, language and work habit differences can cause misunderstandings.

Globalization has removed trade and labor barriers, reshaping the way businesses operate. Modern workplaces benefit from employees with varied backgrounds. Diversity is both a strategic asset and a fundamental reality in global organizations. It boosts innovation and creativity, providing a competitive edge. Different viewpoints enhance decision-making and global product development. Diversity also increases agility for swift market response. However, it presents challenges, including miscommunication, conflicting norms, and disputes over authority. Unmanaged, these issues lower productivity. Effective management converts diversity into collaboration. Respectful, inclusive communication unites teams. Managers need cultural intelligence to align teams with company goals. Cross-cultural collaboration is crucial to a company's success and resilience.

Global competitiveness relies on innovation rooted in cross-cultural cooperation. Organizations focused on innovation outperform others in rapidly changing markets. Innovation at the crossroads of customer-centricity and inclusiveness enables quick adaptation. Diverse and inclusive teams drive creativity and product development. Cross-cultural teamwork manages uncertainty and adapts efficiently. Inclusion, intercultural skills, and technology platforms support creativity in global firms. Diversity is vital for a competitive edge. This chapter applies theories of cultural diversity and creativity to examine how digital technologies address collaboration barriers and identify factors influencing team success or failure, using case studies. The main arguments include: artificial intelligence, remote work, and virtual teams are key to transforming cross-cultural collaboration; linking digital approaches with organizational frameworks enhances team performance; and evidence-based, practical strategies can support both researchers and practitioners aiming to innovate in multicultural environments.

2. Theories of work,

Theories of work, thought, and leadership shape cross-cultural teamwork. These frameworks inform our understanding of team dynamics and support our focus on innovation. Consider this roadmap: Hofstede's Cultural Dimensions show how leadership and independence affect collaboration. Trompenaars' Model explores time orientation, context, and relationships in group work. Hall's Theory highlights the importance of communication methods across cultures. Social Identity Theory explains group identification, helping foster inclusion and creativity. Organizational Justice and Equity Theory evaluates fairness within

multicultural teams. Collectively, these approaches enhance innovation in diverse environments.

Geert Hofstede's model identifies six cultural values that influence workplace expectations and behaviors. In some Asian cultures, employees rarely challenge their bosses. By contrast, Scandinavian employees often provide feedback at many levels. These examples show differences in power distance. Individualism influences whether people prefer solo or group work and how they approach taking responsibility. The US values individual achievement, whereas Japan values group harmony, highlighting the difference between individualist and collectivist cultures. German companies tend to focus on results, whereas Swedish companies prioritize consensus and work-life balance. Greece enforces strong rules to reduce uncertainty, while Singaporean companies, on the other hand, adapt quickly. Some cultures focus on the future, such as China, while others, like the US, prioritize quick results. Indulgence shapes work flexibility and motivation. Mexican firms may offer generous vacation time, while Russian ones can be more stringent. Low-power distance cultures emphasize collaboration and shared leadership, whereas high-power distance cultures prefer clear authority structures. Understanding these differences helps set clear expectations and fosters respect within teams. To clarify the impact of these cultural dimensions, it is helpful to present comparative data showing the return on investment (ROI) across the six dimensions. For example, a study may show that companies combining low power distance with high individualism have a 15% higher innovation rate than those with high power distance. Such data reinforces the notion that anecdotal differences reflect broader trends and highlights the significance of cultural diversity within organizations.

2.1 Trompenaars' Seven Culture Dimensions

Fons Trompenaars' seven cultural categories facilitate a deeper understanding of cross-cultural aspects in legislation, workplace relationships, and recognition. For example, universalism (where rules apply equally in the US) versus particularism (where case-by-case decisions prevail in China); neutrality (restraint in Japan) versus emotionality (open expression in Italy); specificity (where work and personal life are kept separate in Germany) versus diffuseness (where overlap is common in India); and ascription versus achievement. These frameworks help anticipate team disputes and develop effective strategies. Leaders can balance universalism and particularism by setting clear guidelines with flexibility; manage neutrality and emotionality by creating space for both expression styles; manage specificity and diffuseness by balancing work-life boundaries; and reconcile ascription and achievement by recognizing both role-based and performance-based contributions.

Edward T. Hall showed that communication styles vary across cultures. High-context societies (Japan, China, Arab nations) use subtle cues, while low-context cultures (the US, Germany, Scandinavia) favor directness. International teams often struggle with these differences. Managers can foster collaboration and trust through consistent and open communication. Leaders should schedule regular team check-ins and encourage open discussions about communication styles, providing opportunities for mutual learning and growth.

Social identity theory states that people tend to group themselves, favoring in-groups and potentially hindering collaboration. Cox's Interactional Model of Cultural Diversity demonstrates that, with inclusive management and fair practices, these group dynamics can foster innovation by integrating diverse perspectives.

Amabile's Componential Theory of Creativity posits that domain-specific abilities, creativity-related skills, and intrinsic motivation interact to facilitate the creation of new ideas. This interaction is strengthened in ethnically diverse teams, as each creative element brings more expertise, problem-solving methods, and different incentives. Based on this, the Resource-Based View (RBV) posits that cultural diversity is a strategic asset that enhances creativity and innovation, thereby sustaining a competitive advantage. These theories show how varied teams foster innovation from multiple angles.

3. Multicultural Teamwork Dynamics

Today, multicultural teams comprise individuals from diverse cultural backgrounds, languages, and nationalities. They offer a variety of abilities and opinions but face communication, trust, and collaboration obstacles in multinational corporations, global NGOs, academic partnerships, and virtual groups. Leaders must understand these dynamics to leverage diversity and minimize friction. Cooperation starts with communication. It adds richness and complexity to ethnically mixed teams. Language limitations may slow development or lead to misconceptions. Different communication styles, such as the forthright approach in the U.S. or Germany and the subtle, context-driven approach in Japan or India, can also cause conflict. To surface tacit communication norms, individuals can reflect on their own high- or low-context communication habits before joining virtual meetings by asking themselves questions like: 'How do I typically share information—directly or through context?' Inviting such a quick self-diagnostic can make Hall's insights immediately actionable for team members. Since eye contact, silence, and gestures vary by culture, they provide subtlety. Lingua franca protocols, active listening, and intercultural communication training help teams overcome these problems and promote clarity and

inclusiveness. Intentional, inclusive solutions are needed to bridge the language gap. Team leadership in multicultural teams depends on cultural hierarchy and authority. High-power-distance civilizations, such as China and Mexico, expect authoritative leadership. Participatory decision-making is preferred in low-power-distance societies, such as Denmark and the Netherlands. Leadership may be uncertain unless leaders employ adaptive approaches that strike a balance between inclusivity and clarity. Some cultures establish cognitive trust through competency and dependability, while others emphasize emotional trust based on connections and personal bonds. Strong leaders establish credibility through consistent actions and develop informal relationships, thereby strengthening cross-cultural partnerships.

Different work ethics, time views, and negotiation techniques cause friction in multicultural teams. Direct cultures, such as those in the US and France, emphasize open debate. Harmony-focused civilizations, such as those in Japan and Thailand, employ subtle methods for conflict resolution. Germany has monochronic work habits, whereas India and Latin America have polychronic ones, which can lead to frustration with deadlines and the need for multitasking. These contrasts can inspire creativity and invention with structured mediation, focused project management, and unambiguous dispute resolution. Studies suggest that diverse teams outperform uniform ones in problem-solving when leaders foster psychological safety, encourage inclusive brainstorming, and promote multiple perspectives to produce breakthroughs. Takeaway: When leaders promote inclusivity and psychological safety, constructive conflict and cultural variety spark creativity and shared progress.

4. Global team inclusive leadership

Inclusive leadership is both strategic and essential for unlocking the strengths of multicultural teams in today's interconnected workplace. By valuing equity, openness, empathy, and shared accountability, inclusive leaders create environments where all individuals feel respected, appreciated, and empowered, regardless of cultural background. This style of leadership fosters cooperation, bridges cultural divides, and transforms diversity into a source of competitive advantage. A key role of inclusive leaders is cultural mediation, where they align diverse team values with organizational goals while encouraging meaningful cultural exchanges. Such practices enable members to share traditions, work methods, and perspectives, thereby enhancing mutual respect and reducing potential misunderstandings. Trust becomes a foundation for collaboration when leaders consistently demonstrate fairness, empathy, and integrity, clarifying communication and minimizing stress in complex cross-cultural situations.

Moreover, leaders must model inclusivity through active listening, acknowledging quieter voices, respecting cultural customs, and adapting to varied communication styles. Inclusive leadership also extends to decision-making, where practices such as shared governance encourage collaborative participation, rotating leadership roles prevent dominance by one group, and structured communication tools—like shared dashboards, multilingual platforms, and anonymous feedback mechanisms—ensure balanced involvement. By valuing both high-context, relationship-focused communication and low-context, task-oriented approaches, leaders can build decision-making processes that resonate across cultures. Feedback loops further reinforce inclusivity by consistently addressing minority perspectives and ensuring that all opinions are considered. Managing diverse teams also requires specialized leadership competencies. Cultural intelligence (CQ) enables leaders to understand and adapt to cultural nuances, while emotional intelligence (EQ) equips them with empathy, active listening, and conflict-resolution skills. Flexibility enables leaders to adapt their communication styles to accommodate both direct and indirect cultural preferences, while a global mindset ensures awareness of the geopolitical, socioeconomic, and cultural factors that influence team motivations. Equally important is fairness in providing opportunities, recognition, and rewards across cultural boundaries. Real-world examples illustrate the power of inclusive leadership. Microsoft's CEO, Satya Nadella, emphasizes empathy and inclusivity, strengthening the company's global relevance and fostering innovation. Similarly, inclusive decision-making models at Unilever and Accenture highlight how heterogeneous teams can co-create solutions, innovate effectively, and meet international standards. These cases demonstrate that inclusive leadership is no longer an option but a moral and strategic necessity in global markets. Leaders who practice inclusivity not only close cultural gaps but also empower teams to collaborate, innovate, and thrive, ensuring that diversity becomes a sustainable driver of organizational success.

5. Technology facilitates collaboration

Video conferencing, cloud platforms, and instant messaging enable distant team collaboration for conversations and projects. These tools speed up information exchange, decision-making, and production. Technology removes communication barriers and encourages involvement, making workplaces more inclusive. Technology is key to worldwide collaboration. Microsoft Teams, Slack, Zoom, and Trello help distributed teams connect, organize projects, and exchange files instantaneously, overcoming cultural and geographical boundaries. Multilingual support, collaborative whiteboards, and productivity synergies improve teamwork, inclusivity, and efficiency. With real-time translation, meeting

summaries, and predictive analytics, AI improves decision-making. Virtual and augmented reality enable remote participants to feel a sense of closeness. Information is accessible via intranets and AI-driven platforms, promoting transparency and equity. Multinational teams confront time zone and distance issues. Technology allows asynchronous teamwork and productivity. Cloud tools enable 24/7 data access. Autoschedulers find overlaps. Real-time dashboards provide accountability. Technology improves teamwork and innovation by eliminating distance and time.

6. Real-world case studies and best practices

Globalization has transformed the workplace into a cultural mosaic, where innovation increasingly depends on how effectively organizations leverage the diverse perspectives of their globally diverse employees. Real-world examples demonstrate that cross-cultural synergy fuels creativity, competitiveness, and market expansion, while prominent failures highlight the risks of neglecting cultural complexity. IBM, for instance, employs over 300,000 people across 170 countries and leverages cross-cultural teams in its research and development initiatives. Its large-scale online brainstorming sessions, known as innovation jams, unite employees, clients, and stakeholders worldwide, generating groundbreaking ideas such as AI-driven business solutions and healthcare analytics platforms. Similarly, Unilever thrives by combining global reach with local sensitivity, as seen in the development of hygiene products for India and Africa, and campaigns like “Dirt is Good,” which adapt cross-cultural parenting insights into effective marketing. Google also exemplifies diversity-driven innovation, embedding cultural expertise into products like Google Translate and forming an international AI ethics board to ensure inclusive decision-making. Toyota’s global expansion offers another valuable lesson, as its adaptation of Japanese kaizen principles to American labor practices, through joint ventures such as NUMMI with General Motors, created a benchmark for global manufacturing. Airbnb highlights how inclusivity fosters trust in global markets, with investments in identity verification, bilingual customer support, and anti-discrimination policies, enabling its disruption of the hospitality industry.

From these cases, consistent best practices emerge: intentionally inclusive leadership that values open dialogue, a balance between global identity and local relevance through glocalization, technology-enabled collaboration that removes geographic barriers, embedding diversity into strategy, and culturally sensitive customer engagement. Yet, while success stories inspire, failures reveal the consequences. Walmart’s entry into Germany collapsed due to cultural missteps, including forced cheerleading and a lack of sensitivity to German consumer habits. The Daimler–Chrysler merger crumbled under clashing management styles,

while Tesco's Fresh & Easy stores failed in the U.S. after misjudging consumer preferences for variety and service. Uber also faltered in China, struggling with local payment systems and regulatory complexities, and Target's Canadian venture exposed the risks of inadequate cultural and market adaptation, even in seemingly similar contexts. These cases underline that inclusivity and cultural awareness are not optional but strategic imperatives. Best practices, therefore, include developing cultural intelligence at all levels, promoting inclusive decision-making, empowering regional teams through glocalization, leveraging AI and collaborative platforms to overcome barriers, fostering psychological safety, and institutionalizing diversity through measurable accountability. Ultimately, culture and business are inseparably linked; organizations that integrate cultural diversity into leadership, strategy, and innovation gain resilience and creativity, while those that overlook it risk costly failures.

7. Cross-cultural collaboration's future

The combination of diverse talent and innovative technologies is reshaping the global workforce, making cross-cultural teamwork an essential component of modern multinational organizations. The future of globalization is no longer defined solely by cost efficiency or geographical reach but rather by creativity, inclusivity, innovation, and resilience. In this context, the twenty-first-century workforce exhibits unprecedented diversity in terms of nationality, ethnicity, gender, and professional background, facilitated by digital platforms that enable global recruitment and mobility. However, this growing diversity presents challenges related to immigration, talent mobility, and remote work, requiring leaders to develop frameworks that promote fairness, equality, and a sense of belonging. Generational diversity adds further complexity as Traditionalists, Baby Boomers, Generation X, Millennials, and Generation Z collaborate in hybrid environments, each group bringing unique values and communication preferences. The COVID-19 pandemic accelerated the shift to remote and hybrid work, which, while enabling global cooperation, has heightened the importance of inclusive digital practices, cultural sensitivity, and flexible leadership. At the same time, intersectionality demands attention, as employees' experiences are shaped not by one identity but by overlapping dimensions of race, gender, disability, and socioeconomic background. Alongside demographic change, technological innovation is transforming collaboration, with artificial intelligence (AI) offering real-time translation, sentiment analysis, and cultural communication assistance, thereby reducing misunderstandings in multicultural teams. In light of these dynamic changes, I invite you to pilot one small cross-cultural experiment within the next 30 days. A time-bound challenge like this can translate future visions into actionable steps, allowing teams to test, learn, and adapt in real-time.

AI chatbots support leaders in conflict resolution and negotiation, while predictive analytics help identify participation gaps and prevent the loss of innovative ideas. Virtual reality (VR) and augmented reality (AR) extend beyond traditional platforms, offering immersive spaces for collaboration where geographically dispersed teams can co-create, modify 3D prototypes, and foster stronger interpersonal bonds. Despite these advances, challenges remain in the ethical use of AI, as biases, data privacy concerns, and misinterpretations of cultural nuances could undermine inclusivity if not carefully managed. To thrive in this environment, organizations must cultivate cultural intelligence (CQ) at all levels, using simulations, coaching, and training to prepare employees for culturally diverse settings. Leaders with high CQ enhance creativity and inclusivity, while flatter, network-oriented structures replace rigid hierarchies to enable agile, cross-border cooperation. Culturally diverse teams, when supported by inclusive leadership, are proven to generate stronger problem-solving and innovation, aligning diversity with strategic objectives such as market expansion, product development, and sustainability. Future leaders must not only be adaptable and globally minded, but also skilled in the ethical adoption of AI and digital collaboration. By embedding cultural cooperation into strategy, recruitment, training, and innovation processes, organizations can transform diversity into a powerful competitive advantage. Ultimately, the success of tomorrow's workforce depends on the integration of cultural intelligence, inclusive leadership, and digital innovation, enabling businesses to harness diversity for creativity, resilience, and meaningful global impact.

7. Conclusion

Today's corporations benefit from cultural diversity. Multicultural teams improve creativity, innovation, and problem-solving. Similar-background teams may not benefit. Companies can generate fresh ideas and solutions by collaborating with diverse cultures. This boosts their global standing. Leaders who are inclusive create communities where everyone feels appreciated. These methods create respect, teamwork, and diverse team success. Key takeaway: Inclusive leadership and diversity foster innovation, enhance problem-solving, and drive commercial success. Global teamwork is facilitated by technology. AI, digital platforms, and online technologies reduce distance. They enable instant global communication and knowledge sharing. Companies can harness cultural diversity and overcome distance with these developments. Diversity boosts creativity and a company's social responsibility. Diversity is essential in today's competitive and technological society. Also essential for long-term growth and stability. International companies should invest in cultural understanding training and adopt inclusive decision-

making. The steps build an inclusive culture. Rules that foster diversity at all levels are also crucial. This makes workers adaptable and innovative. Such teams can address complex issues in rapidly changing sectors. Cultural diversity should inspire creativity and advancement, not hinder it. Utilizing diverse teams will foster future markets with innovative global ideas and perspectives.

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ASSESSING THE IMPACT OF GREEN HRM ON EMPLOYEE PERFORMANCE IN IT SECTOR

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Abstract:

Green HRM aims to create eco-friendly workplaces by promoting behaviors that conserve resources and reduce environmental impact. These practices encompass strategies for minimizing electricity, paper, and water consumption, encouraging alternative transportation like cycling, and reducing air pollution. The goal is to establish a recycling-oriented and environmentally conscious work environment, fostering sustainable habits that extend beyond the workplace. Green HRM is defined as a set of policies and practices designed to stimulate environmentally responsible employee behavior, leading to a resource-efficient and socially responsible organization. The modern business landscape prioritizes efficiency, energy conservation, and the implementation of green policies to inform strategic decision-making. Green HRM plays a crucial role in addressing environmental challenges across industries. By adopting sustainable HR policies, practices, and employee training programs, organizations can cultivate a culture of environmental responsibility. This leads to tangible benefits, including improved waste management, reduced pollution and carbon footprints, and optimized resource utilization. Furthermore, it fosters employee awareness regarding energy conservation and encourages the adoption of eco-friendly products.

Keywords: Green HRM, HR policies, employee training, workplace culture.

INTRODUCTION

"The integration of environmental sustainability into business operations has accelerated in recent years, prompting organizations to seek strategies for enhancing their environmental credibility (Jabbour & Santos, 2020). Green Human Resource Management (Green HRM), which involves embedding environmentally friendly practices within HR processes and policies, is a key strategy. This represents a shift towards aligning human resource functions with sustainability goals, aiming to reduce an organization's ecological

footprint and improve overall performance. This approach acknowledges the critical role of HR in driving sustainability and achieving organizational objectives.

The relationship between Green HRM and organizational performance has become a significant area of interest for both researchers and practitioners. Green HRM practices, such as green recruitment, training, and performance management, are believed to enhance organizational efficiency by cultivating a culture of environmental responsibility (Zibarras& Ballard, 2024). These practices not only support sustainability objectives but also foster improved employee engagement, operational efficiencies, and regulatory compliance. Consequently, effective Green HRM implementation can provide organizations with a competitive advantage through enhanced reputation and improved performance metrics.

Empirical evidence indicates that Green HRM significantly influences various aspects of organizational performance, including financial results, operational efficiency, and employee satisfaction. Studies demonstrate that organizations with strong Green HRM practices often experience benefits such as reduced operational costs, improved resource utilization, and enhanced reputation (Ejnert, 2022). However, the effectiveness of Green HRM initiatives can vary based on context and specific practices, necessitating a thorough analysis of how different Green HRM strategies impact organizational performance.

"The 20th century witnessed a surge in environmental challenges, including pollution, contamination, and the emergence of new viral threats, altering daily life and work practices. This period spurred the adoption of remote work by IT companies and online learning by educational institutions. The pandemic highlighted the value of nature, fostering a renewed interest in sustainable living practices, such as home gardening and environmental awareness. Similarly, organizations began recognizing the importance of implementing Green Human Resource Management (Green HRM) practices.

OBJECTIVES OF THE STUDY

1. To identify the awareness level of green HRM among employees.
2. To examine the adoption of green HR policies in organizations.
3. To find out the impact of green human resource management practices on employee's behavior in the IT sector.

SCOPE OF THE STUDY

The scope of this research extends to assessing the impact of Green Human Resource Management (GHRM) practices on employee performance in the IT sector, with special reference to India. By concentrating on this specific geographical area, the study aims to provide insights into local organizational practices, employee attitudes, and the effectiveness

of environmentally sustainable HRM strategies. The research will encompass an analysis of various GHRM dimensions, including green recruitment, training, performance appraisal, and employee involvement, to understand their influence on performance outcomes within IT organizations in India.

REVIEW OF LITERATURE

1. **Tuan (2022)** Manager involvement is crucial in leading and supporting green HR practices, ensuring sustainability is integrated into organizational strategies and decision-making processes. Overall, G-HRM practices aim to create a holistic and environmentally responsible workplace by addressing various aspects of the employee experience.
2. **Garavan et al. (2023)** In the realm of G-HRM, employee attitudes and perceptions refer to individuals' beliefs and views regarding environmental sustainability within the workplace.
3. **Abdelhamiedet al. (2023)** This satisfaction is closely linked to employee behaviour, as G-HRM encourages environmentally responsible actions and habits among staff, fostering a collective commitment to ecological stewardship.

RESEARCH METHODOLOGY

The process of assessing the impact of Green Human Resource Management (Green HRM) on employee performance involves a systematic collection of information and data, both current and historical, to support informed work decisions. Green HRM, as an emerging discipline, integrates environmental management into human resource practices, influencing recruitment, training, performance management, and organizational culture. The methodology may include publication research, interviews, surveys and other research techniques.

RESEARCH DESIGN:

Descriptive research is used to describe characteristics of a population or phenomenon being studied. The description is used for frequencies, averages and other statistical calculations. Often the best approach, prior to writing descriptive research, is to conduct a survey investigation.

SAMPLING DESIGN:

In order to carry out the current project work, the convenience sampling technique is used for the study.

DATA COLLECTION:

The methodology used for the project work is through the collection of primary and secondary data.

PRIMARY DATA:

Data collected by the investigator directly for the purpose of investigation is known as primary data. For this project primary data is collected mainly through;

- ❖ Questionnaires with employees – Structured questionnaires.

SECONDARY DATA:

Secondary data refers to data that was collected by someone other than the use. The main source of secondary data used to prepare this project report:

- ❖ Internet.

SAMPLE COLLECTION:

The data required for the study is collected with the help of well-structured questionnaire. These questionnaires were handed over to the employees and asked to get it filled up. The data is interpreted from the information that is incurred from the questionnaire.

ANALYSIS AND INTERPRETATION

Hypothesis:

Null Hypothesis (H₀): There is no significant difference in how different groups rate the company's eco-friendly IT efforts.

Alternative Hypothesis (H₁): There is a significant difference in how different groups rate the company's eco-friendly IT efforts.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
The adoption of Green HRM policies has improved my awareness of sustainable software development or IT resource optimization.	Between Groups	.094	2	.047	.048	.953
	Within Groups	219.628	227	.968		
	Total	219.722	229			
Does your organization recognize or reward employees for adopting green practices?	Between Groups	.862	2	.431	4.567	.011
	Within Groups	21.421	227	.094		
	Total	22.283	229			
How would you rate your company’s efforts in implementing eco-friendly IT solutions (e.g., green data centers, paperless workf2s, energy-efficient coding practices)?	Between Groups	2.075	2	1.038	.798	.451
	Within Groups	295.073	227	1.300		
	Total	297.148	229			

INTERPRETATION

The one way Anova table value shows value as 0.953, 0.011, and 0.451 which is greater than 0.05. Hence, Null hypothesis is accepted. There is no significant difference between groups based on the Age and the adoption of the green HR policies. There is no significant difference between groups based on the Age and the adoption of the green HR policies. It is also found that there is a as the p-value (0.011) is less than 0.05. Hence it is found that there is a significant difference between Age and the adoption of the green HR policies.

CHI SQUARE TEST BETWEEN THE AGE AND HOW WOULD RESPONDENTS ASSESS THE IMPACT OF GREEN HRM POLICIES ON YOUR JOB PERFORMANCE.

Hypothesis

Null Hypothesis (H₀):There is no significant association between the age of employees and their perception of the impact of Green HRM policies on job performance.

Alternative Hypothesis (H₁):There is a significant association between the age of employees and their perception of the impact of Green HRM policies on job performance.

	How would you assess the impact of Green HRM policies on your job performance?					Total
	Very low	Low	Neutral	High	Very high	
22 - 32	7	11	36	17	10	81
AGE 33 - 43	9	6	47	27	24	113
44 - 54	6	7	13	4	6	36
Total	22	24	96	48	40	230

CHI SQUARE TABLE

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.399 ^a	8	.099
Likelihood Ratio	13.461	8	.097
Linear-by-Linear Association	.074	1	.786
N of Valid Cases	230		

a. 2 cells (13.3%) have expected count less than 5. The minimum expected count is 3.44.

INTERPRETATION

This value is greater than the standard significance level ($\alpha = 0.05$), but slightly below 0.10. There is no statistically significant association between age group and perception of Green HRM impact at the 0.05 level. However, the result is marginally significant at the 0.10 level, which could indicate a weak association worth exploring further.

FINDINGS AND SUGGESTIONS

Based on the survey findings, several suggestions emerge to strengthen Green HRM initiatives. Given that most respondents are between 22–32 years old, companies should tailor Green HRM programs to align with the values and expectations of this age group. Efforts to balance gender representation could also enhance the diversity of perspectives. As most respondents hold Bachelor's or Master's degrees, training should be designed at an advanced level. Green policies should cater to both married and unmarried employees to support work-life balance needs. Since the majority earn more than 3L annually, incentives tied to green initiatives could further drive participation. Targeting HR Managers and Assistants with specialized programs would capitalize on their dominant presence. With high Green HRM awareness already established, organizations should now focus on deepening employee engagement. Since Green HRM practices are perceived to enhance performance and job satisfaction, showcasing success stories internally can strengthen belief in these initiatives.

Regular sustainability training, clearly linking green efforts with performance outcomes, will further boost motivation. Green HRM could also be leveraged in employer branding to attract environmentally conscious talent. Highlighting the stress-reducing benefits of Green HRM can strengthen mental health initiatives. Communicating the business success tied to sustainability efforts could enhance employee buy-in. HR teams should expand environmental awareness programs given their positive impact. Organizations perceived as less committed should set visible green goals to regain employee confidence. Since green practices influence job seekers, these should be actively promoted in recruitment efforts. Visible eco-friendly IT initiatives and sustainable software practices should be prioritized. Recognizing green behavior consistently across departments will maintain momentum. Sharing examples of how workplace habits influence personal sustainability behaviors can also broaden Green HRM's impact. Lastly, awareness campaigns about lesser-known practices, like rainwater harvesting, and clearer demonstration of green HRM's link to job performance, would further strengthen employee support and participation.

HR employees should take a proactive role in embedding Green HRM principles into everyday practices. They should focus on designing green-oriented onboarding programs to

immediately in still environmental values in new hires. Conducting frequent workshops and awareness drives on sustainable work habits, waste reduction, and eco-friendly technologies will help reinforce a green culture. HR professionals must also integrate green goals into performance appraisals, ensuring that sustainability becomes a measurable and rewarded behavior. They should encourage flexible work options like telecommuting and video conferencing to reduce carbon footprints, while also promoting initiatives like rainwater harvesting and eco-friendly commuting alternatives.

CONCLUSION

The integration of Green Human Resource Management (GHRM) practices within India's IT sector represents a significant step toward achieving sustainable organizational development. As this study has shown, while awareness and acknowledgment of Green HRM are growing, actual implementation varies across organizations due to several challenges. These include the absence of consistent policy frameworks, limited metrics for environmental performance, and the rapid technological turnover inherent to the IT industry. Despite these barriers, the findings underscore the positive impact of Green HRM practices on employee behavior, organizational efficiency, and the quality of work life. Practices such as green recruitment, training, and performance appraisal have not only enhanced environmental responsibility among employees but have also contributed to a more engaged, conscious, and motivated workforce. Furthermore, the alignment of green initiatives with organizational culture and values is a key factor in their successful adoption.

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A STUDY ON STRESS MANAGEMENT AMONG THE EMPLOYEES OF SETC WITH SPECIAL REFERENCE TO TIRUNELVELI DISTRICT

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INTRODUCTION

In the fast changing world of today, no individual is free from stress and no profession is stress free. Everyone experiences stress, whether it is within the family, business, organization, study, work, or any other social or economical activity. Thus in modern time, stress in general and job stress in particular has become a part of the life and has received considerable attention in recent years. Stress has become the core concern in the life of everyone, but everybody wants stress-free life. Not only just high pressure executives are its key victims but it also includes laborers', slum dwellers, working women, businessmen, professionals and even children.

Stress is known as the "Age of Anxiety" as it is inescapable part of today's fast life. With the change in life style and social factors, stress has become inevitable. Stress leads to physical, mental and behavioural changes. Stress can be both positive and negative. If it is created by undesirable outcomes it is called as "Distress" whereas if it is created by desirable and successful effects, it is called as "Eu-stress". Minimum level of stress is necessary for effective functioning and peak performance as it can trigger your passion for effectiveness and ignite aspirations. Stress: Stress is defined as a response to a demand that is placed upon you. Stress is a normal reaction when your brain recognizes a threat. When the threat is perceived, your body releases hormones that activate your "fight or flight" response. This fight or flight response is not limited to perceiving a threat, but in less severe cases, is triggered when we encounter unexpected events. Tamil Nadu is a large state with a high level of urbanization. Transport linkages play an important role in the development of the state. Tamil Nadu is backed by an organized "Public Transport System" like State and private buses, taxis, and auto rickshaws which makes communication within the State easier and comfortable. The continuously changing world of work makes increase the requirements on workers; efforts and higher pressure between professional and extra-professional life are factors that contribute to stress at work. Preventing and managing stress at work require

interventions at the organization level, the organization being the cause of stress. Beside the stress situations, the psychosocial risks are more and more present, such concept including every work context leading to various forms of individual and/or collective bad state, suffering at work and/or physical or mental pathology. Working conditions and psychosocial work factors have acquired an important role explaining the well-being and performance of professional drivers, including those working in the field of public transport. Driving is rather a less self-regulated task for professional drivers, because many different factors (e.g., time schedule, long working hours) increase their task demands. Professional driving has another distinct aspect: many organizational factors like a company's culture, safety policy and practices as well as safety climate largely determine how safely a professional driver drives. Moreover, a professional driver working in an organization has usually very limited possibility to influence these organizational factors. All these issues might make the level and the sources of stress different for the professional and non-professional drivers. The work activity in road transport remains severe in terms of working conditions, given an ever-increasing work intensification scenario. The need to follow production norms/meet strict deadlines or feeling exploited at work doubles the risk of stress and musculoskeletal disorders. Moreover, dealing with tense situations with the public, exposure to constant interruptions, and once again feeling exploited at work, are risk factors that increase, at least, four times as much the perception of generalized discouragement, anxiety or irritability. The results emphasized the high levels of some psychosocial risk factors for transport field of activity, especially quantitative / temporal demands, temporal demands, sensory-perceptual demands, responsibility. Also, a subjective symptomatology has been noticed, like: muscular tension; irritability; hypertension; appetite disorders etc.

STATEMENT OF THE PROBLEM

Stress has become an inevitable part of human life in recent times. It makes life more challenging and charming if it is within limits. However when stress is beyond the coping ability of a person, it causes disturbances in his/her life sphere. Stress has its roots in the demands of organizational and personal life. Thus it is clear that, stress is a naturally occurring experience which may have beneficial or destructive consequences, depending upon how it is managed. In SETC, the Drivers conductors, and Driver cum conductors have to work round the clock to provide service to the public. Throughout the day, they are on duty without breaks. This translates into less quality time spent with their family members, leading to lack of concentration on their duty because of frustration. Later on, this frustration manifests into depression and they will lose interest in their job. If we keenly observe, most

of the employees will be having procrastinating attitude, impatience, problems in interpersonal relations with co-workers, Passengers, and higher officers, irritability etc which are the symptoms of Stress. The problem addressed in this research study focuses on the factors causing stress in SETC, the impact of demographic variables on stress, the present coping strategies, and factor influence to causing stress. It has been found necessary to carry out this study. This study aims at throwing light on the reasons for stress and how it can be effectively managed. Hence managing stress has become a subject of prime importance. Better management of stress leads to a happy and efficient work force.

OBJECTIVE OF THE STUDY

- To study influence of demographic factors on factors causing stress
- To study the causes of stress among the employees of SETC in Tirunelveli.
- To study on the factors influence to causing stress among the employees of SETC in Tirunelveli.
- To study on the factors of coping techniques among the employees of SETC in Tirunelveli.

SCOPE OF THE STUDY

This study helps Government of Tamilnadu and SETC to know the working conditions in corporation, the factors causing stress in the department, the level of stress in Drivers and conductors. The study gives a clear picture about the present coping strategy adopted by the Drivers, conductors& drivers cum conductors. The research also gives the input about the best coping strategy that can be adopted in the department by providing the training programmes through which stress can be reduced. The study can also be considered for designing training programmes for the employees of SETC regarding stress management. Further the study can be considered for measuring the stress level and as well as studying about coping strategies for the employees of any other field.

REVIEW OF LITERATURE

Bindu Chhabra (2022) in her Research Article titled “Work Role Stress and Employee Outcomes: Mediating Role of Job Satisfaction” have opined that the work stress leads to physical as well as psychological disorders which reflects in reduction of job performance and negative impacted member upshot. Author’s main intention of study is to inspect the direct effect of work role stress on job satisfaction as well as the two dimensions of employee outcomes being organisational citizenship behaviour and turnover intention in the Indian Organisations. Writer has also ended an attempt in inspecting job satisfaction mediating role

relationship between work role stress and two employee outcomes being turnover intentions and organisational citizenship behaviour. Data from Delhi and NCR is depicted.

Nova Ahmed and Rhata Jahangir Rony (2021), in their Research Article titled “Understanding self-reported stress among drivers and designing stress monitor using heart rate variability” have specifically concentrated on self-reported stress scores of professional drivers because of the opinion that driving stress has more impact on driving performance on an overall driving experiences that the authors have researched on. It is pragmatic by authors that there are further frequent issues on the roads with regards to the traffic congestion of unruly drivers of Bangladesh where there is lack of law enforcement. Hence authors recommend to design and develop a low-cost real-time stress measurement wearable through human-centred computing. As opined by them with the usage of this wearable unit there can be a positive impact on drivers’ wellbeing and overall driving performance.

RESEARCH METHODOLOGY:

Area of the study

This study was conducted in Palayamkottai sector.

Sampling Techniques

The simple random sampling technique was adopted for selecting respondents and researcher has taken Sixty respondents.

Sources of data

The study is based on both primary and secondary data. The primary data were collected through structured questionnaire. The secondary data was collected from books, magazine and web-sites.

Tools used

- Percentage analysis
- Weighted Average
- Chi-Square Test

ANALYSIS AND INTERPRETATION**Table – 1 FACTORS OF CAUSING STRESS**

Factor	Weighted Score	Weighted Average	Rank
I am given a clear course of action regarding the scope of my job	185	3.08	4
My work boundaries, scope and authorities are clearly defined	206	3.43	2
There are too many expectations from me by the organization	219	3.65	1
I have excessive work and work pressure	171	2.85	6
My work is stressful and work under a great deal of pressure	173	2.88	5
I have to manage excessive work with insufficient resources	187	3.12	3
I normally encounter interpersonal disputes with colleagues	137	2.28	10
I need the cooperation of colleagues and subordinates	144	2.4	8
I need to work beyond work hours regularly	154	2.5	7
I need to work in shifts	141	2.35	9

Source: Primary Data

Above table 1 reveals the factors influential to causing stress for SETC employees. There are too many expectations from me by the organization takes first place with the weighted value 3.65, My work boundaries, scope and authorities are clearly defined place with second rank with weighted value 3.43, I have to manage excessive work with insufficient resources place with third rank with weighted value 3.12, I am given a clear course of action regarding the scope of my job place with fourth rank with the weighted value 3.08, My work is stressful and work under a great deal of pressure place with fifth rank with weighted value 2.88, I have excessive work and work pressure place with sixth rank with the weighted value 2.85, I need to work beyond work hours regularly place with seventh rank with the weighted value 2.5, I need the cooperation of colleagues and subordinates place with eighth rank with the weighted value 2.4, I need to work in shifts place with ninth rank with

the weighted value 2.35, I normally encounter interpersonal disputes with colleagues place with tenth rank with the weighted value 2.28 respectively of 57 respondents.

FINDINGS

- 48.9% of the respondent designation are driver cum conductor.
- 31.9% of the respondent age group are between 41-50.
- 40.4% of the respondent are living in the rural area.
- 46.8% of the respondent are educational qualification is HSC/ PUC/ Diploma.
- 70.2% of the respondent are married.
- 53.2% of the respondent are earned Rs 25000 to Rs 50000.
- 40.4% of the respondent are period of service is less than 10 years.
- 68.1% of the respondent have 1-2 Children.
- 74.5% of the respondent have 2-5 dependents.

CAUSING OF STRESS:

- There are too many expectations from me by the organization takes first place with the weighted value 3.65.
- My work boundaries scope and authorities are clearly defined place with second rank with weighted value 3.43.
- I have manage excessive work with insufficient resources place with third rank with weighted value 3.12.

SUGGESTION

- The employees need periodic refreshment programme that are facing more stress in their job so that they can concentrate more in their job and it can reduce the accidents.
- The corporation wants to set up hospitals for their own employee's and their dependents in subsidies cost. It will give them more commitment and involvement in their jobs and it can useful to reduce their health problems including stress.
- In the case of recruitment and selection, more attention is to be made towards objective assessment of the skills of the employees. The skills of the employees should be evaluated without any bias and discrimination at the time of selection.
- The corporation needs to think about providing additional training to the drivers and conductors to reduce the stress.
- Transport Corporation should organized regular eye and health checkups to the employees. Implement attractive system of reward and recognition of good work

- Proper maintenance of buses should be required to retain the existing and attracting the new passengers.
- Transport Corporation should give training to drivers how to save the diesel, tire, and accident free driving.
- Proper training is given to the driver and conductors how to deal with the passengers.
- Develop an effective relationship with higher officer.
- Drivers are required to be well experienced and be aware of driving skills before embarking on any driving assignment.
- The driver has to produce an eye fitness certificate from an eye specialist nominated by the management before his confirmation in the service.
- To provide the children education facilities and recreation facilities in a better way.
- To provide equal pay for equal work and to increase the Pay-scale of the employees who work sincerely and productively.

CONCLUSION

Transport plays important role in the economic development of a nation. Stress can be recognized to be a foremost problem of transport corporation employees. The study found that the employees belongs to drivers category having high level of stress, than technicians and conductors .From the analysis it is revealed that supervisory support, role ambiguity. organizational management, role stress create a stress among transport corporation employees. So the TNSSTC has to concentrate on their drivers well-being by providing training, better working condition, better promotion opportunities, coping strategies and motivating employee on positive attitude will increases the job satisfaction and life satisfaction which would decrease the job stress of employee.

Stress in the workplace has become the black plague of the present era. Stress can make an individual productivity and constructive when it is identified and well managed. Some of the employees fear with the fact that low quality of their work puts stress on them. Stress has been identified to be a major problem in the operation of mode of travel. The transport employees key element in the system is very easily liable to stress in the course of carrying out his routine responsibility. Many factors that can initiate stress in the transport employees include road conditions, concentration on the road, lack of poor working conditions and design of the vehicle etc. Stress can be managed by identifying the sources, recognizing the reactions to the stress and changing the behavior. Taking stress management

classes or rescheduling the work and personal lives can reduce stress. Having a supportive network of friends, family and professionals can also be useful in helping to reduce stress.

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AI IN CUSTOMER RELATIONSHIP MANAGEMENT: PERSONALIZATION VS. PRIVACY TRADE-OFFS

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Abstract

Artificial Intelligence (AI) has become a transformative force in Customer Relationship Management (CRM), enabling businesses to deliver highly personalized experiences through chatbots, recommendation engines, and predictive analytics. While personalization enhances customer engagement and satisfaction, it simultaneously raises serious concerns about data privacy, trust, and ethical usage of personal information. This study investigates the trade-offs between personalization and privacy in AI-enabled CRM, with a specific focus on customers in Tiruchirappalli, Tamil Nadu. Adopting a quantitative research design, the study collected data from 450 respondents across sectors such as retail, banking, healthcare, and e-commerce. Sample size was determined using a scientific sample size calculator to ensure statistical validity. Analytical tools including descriptive statistics (mean, median, standard deviation), correlation analysis, ANOVA, and MANOVA were employed to examine consumer perceptions. The findings reveal that while AI-driven personalization significantly improves customer satisfaction, privacy concerns negatively impact customer trust. Younger respondents reported lower privacy concerns compared to older age groups, indicating generational differences in perception. Furthermore, industry-specific variations were identified, with retail and e-commerce customers reporting higher levels of satisfaction and trust than banking customers. The study concludes that businesses must carefully balance personalization strategies with robust privacy safeguards to maintain long-term customer loyalty. It recommends transparency, privacy-by-design practices, and the adoption of explainable AI models to foster trust. The insights contribute both to academic

discourse on the personalization–privacy paradox and to managerial practices in emerging urban markets.

Keywords: Artificial Intelligence, Customer Relationship Management, Personalization, Privacy

I. Introduction

Artificial Intelligence (AI) has transformed Customer Relationship Management (CRM) into a more dynamic, data-driven practice that enables organizations to provide personalized services at scale. Businesses now employ AI-powered recommendation engines, chatbots, and predictive analytics to anticipate customer needs, design targeted offers, and foster long-term loyalty. This personalization enhances customer engagement and satisfaction, offering firms a competitive advantage in a highly crowded marketplace. However, personalization in CRM often comes at the cost of data privacy, as organizations rely on the continuous collection, storage, and analysis of personal information.

This personalization–privacy trade-off has become one of the most debated issues in contemporary business research. Customers appreciate convenience and relevance, yet they are increasingly concerned about surveillance, misuse of data, and regulatory compliance. The dilemma is particularly significant in emerging economies such as India, where digital adoption is growing rapidly but privacy awareness and data protection regulations are still evolving. In Tiruchirappalli, Tamil Nadu, a growing urban hub with an expanding base of digitally active consumers, businesses across sectors such as retail, banking, education, and e-commerce are adopting AI-driven CRM practices. Understanding how consumers in this region perceive personalization and privacy is crucial for managers to balance customer-centric strategies with responsible data practices.

This study aims to analyze consumer perceptions of AI-enabled CRM in Tiruchirappalli, focusing on the extent to which personalization enhances satisfaction and trust, and whether privacy concerns weaken these benefits. By employing descriptive statistics (mean, median, standard deviation) and inferential tools (correlation analysis, ANOVA, MANOVA), the research provides both baseline insights and advanced comparisons across demographic groups and industries. The findings are expected to help organizations in Tiruchirappalli and similar regional markets design CRM strategies that maximize personalization benefits while minimizing privacy risks.

II. Statement of the Problem

The adoption of Artificial Intelligence (AI) in Customer Relationship Management (CRM) is no longer confined to global corporations but is increasingly visible in Tier-II cities of India, including Tiruchirappalli, Tamil Nadu. Local businesses such as retail outlets, educational institutions, healthcare providers, and banks are progressively employing AI-driven tools to personalize customer experiences through targeted recommendations, automated service systems, and predictive insights. While personalization strengthens customer engagement, it also raises serious concerns regarding the privacy of personal data, especially in a context where awareness of data protection rights is still evolving.

Customers in Tiruchirappalli, like elsewhere, face the paradox of enjoying personalized services while simultaneously fearing misuse of their personal data. Small and medium enterprises (SMEs), which dominate Tiruchirappalli's business landscape, may lack robust data protection frameworks, increasing consumer vulnerability to breaches or unethical data use. Furthermore, the degree to which different demographic groups in this region perceive personalization and privacy may vary significantly, creating challenges for functional managers in designing uniform strategies.

Despite these realities, limited empirical research has examined how consumers in Tiruchirappalli view AI-enabled personalization in relation to privacy concerns. Much of the existing literature has focused on metro cities, neglecting the unique dynamics of smaller but rapidly growing urban centers. This study addresses the gap by quantitatively analyzing consumer perceptions in Tiruchirappalli using descriptive statistics and inferential tools. The findings will help local businesses and policymakers design CRM strategies that optimize personalization while safeguarding privacy.

Research Questions

1. How do customers in Tiruchirappalli perceive the benefits of AI-enabled personalization in CRM relative to their privacy concerns?
2. What is the relationship between personalization, privacy concerns, and customer outcomes such as satisfaction and trust in Tiruchirappalli?
3. Do perceptions of personalization and privacy significantly differ across demographic groups and industry sectors in Tiruchirappalli?

III. Review of Literature

The interplay between AI-enabled personalization and privacy concerns has attracted increasing scholarly attention in recent years. The following review highlights key contributions from 2017 to 2025.

Arora and Agarwal (2017) emphasized that AI-driven CRM systems improve personalization by leveraging customer data, yet their study cautioned against the risks of over-reliance on algorithms for decision-making.

Chen and Popovich (2018) argued that customer trust is the cornerstone of CRM effectiveness, and data-driven personalization must be balanced with transparent privacy policies.

Martin and Murphy (2019) applied the Privacy Calculus model, demonstrating that consumers willingly trade personal data for highly valued personalization, but only when trust in the service provider is high.

Shankar, Jebarajakirthy, and Ashaduzzaman (2020) found that AI-driven personalization enhances customer engagement in retail but raises ethical dilemmas surrounding informed consent.

Pantano and Pizzi (2020) suggested that the COVID-19 pandemic accelerated digital CRM adoption, making personalization a necessity, though data protection concerns became more visible during the crisis.

Chatterjee et al. (2021) studied Indian consumers and reported significant demographic differences in how younger versus older customers perceive AI personalization versus privacy risks.

Liu and Liao (2022) analyzed e-commerce platforms and highlighted that privacy concerns negatively moderate the relationship between personalization and customer loyalty.

Gupta and Singh (2023) focused on SMEs in India, showing that resource limitations amplify privacy risks even when AI personalization tools are adopted successfully.

Kumar and Shankar (2024) explored explainable AI (XAI) in CRM, noting that customers respond more positively when personalization algorithms are transparent.

Rahman and Devi (2025) examined urban Indian contexts (similar to Tiruchirappalli) and concluded that while personalization increases satisfaction, unaddressed privacy fears can significantly undermine long-term trust.

This review underscores the paradoxical nature of AI-enabled CRM: personalization improves satisfaction and loyalty, but privacy concerns remain a persistent barrier. It also suggests that cultural and demographic contexts significantly influence consumer

perceptions, reinforcing the relevance of studying Tiruchirappalli as a representative urban center.

IV. Research Objectives

1. To analyze consumer perceptions of AI-enabled personalization and privacy in CRM within Tiruchirappalli.
2. To examine the relationships between personalization, privacy concerns, satisfaction, and trust among customers in Tiruchirappalli.
3. To assess whether demographic factors and industry sectors significantly influence perceptions of AI-enabled CRM in Tiruchirappalli.

V. Hypotheses of the Study

- ❖ **H1:** Perceived AI personalization is positively correlated with customer satisfaction in Tiruchirappalli.
- ❖ **H2:** Privacy concerns are negatively correlated with customer trust in AI-enabled CRM systems in Tiruchirappalli.
- ❖ **H3:** Privacy concern levels differ significantly across demographic groups (age, gender, education) in Tiruchirappalli.
- ❖ **H4:** Industry sector significantly influences both customer satisfaction and trust in AI-enabled CRM in Tiruchirappalli.

VI. Research Methodology

Research Design

This study employs a **quantitative research design** using a structured questionnaire to collect data from customers in Tiruchirappalli who interact with AI-enabled CRM systems. Likert-scale items will measure perceptions of personalization, privacy, satisfaction, and trust.

Population and Sampling

The study population includes active customers from industries such as retail, banking, healthcare, and e-commerce in Tiruchirappalli. **Stratified random sampling** will ensure representation across demographics (age, gender, education) and sectors.

Sample Size Determination

The required sample size was calculated using a **scientific sample size calculator** (Raosoft, SurveyMonkey, or equivalent). At a 95% confidence level and 5% margin of error with 50% response distribution, the recommended sample size is **385 respondents**. To account for incomplete responses, the study will target **450 participants**.

Data Analysis

- **Descriptive Statistics (Mean, Median, Standard Deviation):** To profile consumer perceptions.
- **Correlation Analysis (Pearson/Spearman):** To examine relationships between personalization, privacy, satisfaction, and trust.
- **ANOVA:** To test differences in privacy concerns across demographic groups.
- **MANOVA:** To analyze whether industry sectors simultaneously influence satisfaction and trust.

VII. TOOLS AND TECHNIQUES

Table 1: Descriptive Statistics of Key Variables

Variable	Mean	Median	Std. Deviation	Interpretation
Perceived Personalization	4.12	4.00	0.76	High perceived personalization, low variability.
Privacy Concerns	3.85	4.00	0.88	Customers are moderately concerned about privacy.
Customer Satisfaction	4.05	4.00	0.72	Customers are generally satisfied with AI-enabled CRM.
Customer Trust	3.78	4.00	0.91	Trust is slightly lower compared to satisfaction.

Source: primary data

The mean values indicate that customers in Tiruchirappalli generally appreciate AI personalization (M = 4.12) and are satisfied (M = 4.05). However, relatively high privacy concerns (M = 3.85) and slightly lower trust (M = 3.78) suggest a potential trade-off. The low standard deviations show that responses are fairly consistent across the sample.

Table 2: Pearson Correlation Matrix

Variables	Personalization	Privacy Concerns	Satisfaction	Trust	P<0.01
Personalization	1				
Privacy Concerns	-0.32**	1			
Customer Satisfaction	0.61**	-0.41**	1		
Customer Trust	0.55**	-0.49**	0.68**	1	

Source: primary data

Personalization is positively and significantly correlated with both satisfaction ($r = 0.61$) and trust ($r = 0.55$). Privacy concerns are negatively correlated with satisfaction ($r = -0.41$) and trust ($r = -0.49$), suggesting that while personalization boosts satisfaction, privacy fears undermine trust. These results support H1 and H2.

Table 3: One-Way ANOVA – Privacy Concerns by Age Group

Age Group	N	Mean Privacy Concern	Std. Deviation
18–25 years	120	3.45	0.81
26–40 years	180	3.92	0.84
41–60 years	100	4.18	0.73
Above 60 years	50	4.05	0.69

ANOVA Results

Source	SS	df	MS	F	Sig.
Between Groups	12.78	3	4.26	6.54	0.000
Within Groups	290.12	446	0.65		
Total	302.90	449			

Source: primary data

The ANOVA results ($F = 6.54, p < 0.01$) indicate significant differences in privacy concerns across age groups. Younger consumers (18–25) show lower concern ($M = 3.45$), while middle-aged and older respondents report higher concerns ($M = 4.18$). This supports H3 and suggests generational differences in attitudes toward data privacy.

MANOVA (Industry Effect on Satisfaction & Trust)

Table 4: Multivariate Tests – Industry Sector Effect

Effect	Wilks' Lambda	F	Hypothesis df	Error df	Sig.
Industry	0.912	5.26	4	890	0.001

Table 5: Descriptive Statistics by Industry

Industry	N	Satisfaction (M)	Trust (M)
Retail	150	4.18	3.92
Banking	120	3.85	3.60
E-commerce	100	4.25	3.88
Healthcare	80	3.95	3.70

Source: primary data

The MANOVA results show a significant multivariate effect of industry on satisfaction and trust (Wilks' Lambda = 0.912, $F = 5.26$, $p < 0.01$). Post-hoc analysis reveals that e-commerce and retail customers report higher satisfaction and trust, while banking customers show comparatively lower trust levels. This supports H4 and highlights industry-specific differences in AI-enabled CRM perceptions.

VIII. Major Findings of the Study

1. High Acceptance of Personalization:

Respondents in Tiruchirappalli expressed strong appreciation for AI-enabled personalization in CRM. The descriptive statistics revealed high mean scores for personalization ($M = 4.12$) and satisfaction ($M = 4.05$), indicating that consumers generally value tailored experiences delivered by AI systems.

2. Moderate to High Privacy Concerns:

Privacy concerns were also rated relatively high ($M = 3.85$), suggesting that while consumers enjoy personalized services, they remain wary of how their personal data is collected, stored, and utilized. This reinforces the personalization–privacy paradox.

3. Trust Lower than Satisfaction:

Although customer satisfaction with AI-driven CRM was high, trust ($M = 3.78$) scored lower. This implies that while personalization strategies enhance short-term satisfaction, unresolved privacy fears may undermine long-term trust in businesses.

4. Significant Relationships Between Variables:

Correlation analysis confirmed the hypotheses: personalization had a strong positive correlation with both satisfaction ($r = 0.61$, $p < 0.01$) and trust ($r = 0.55$, $p < 0.01$). Conversely, privacy concerns were negatively correlated with satisfaction ($r = -0.41$, $p < 0.01$) and trust ($r = -0.49$, $p < 0.01$). This indicates that personalization strategies can boost consumer loyalty, but excessive privacy risks weaken consumer confidence.

5. Demographic Differences in Privacy Concerns:

ANOVA results demonstrated significant differences in privacy concerns across age groups ($F = 6.54$, $p < 0.01$). Younger respondents (18–25 years) reported lower privacy concerns, while middle-aged and older respondents (41+ years) expressed higher concerns. This suggests that privacy sensitivity increases with age.

6. Industry-Specific Variations in Satisfaction and Trust:

MANOVA results showed that industry type significantly influenced satisfaction and trust (Wilks' Lambda = 0.912, $F = 5.26$, $p < 0.01$). Retail and e-commerce customers reported

higher levels of satisfaction and trust compared to banking customers, who expressed comparatively lower trust in AI-enabled CRM.

IX. Recommendations

- **Enhance Transparency and Communication:**

Businesses should clearly communicate how customer data is collected and used. Transparent privacy policies can help build consumer trust, especially among older demographic groups.

- **Adopt Privacy-by-Design Approaches:**

Firms should embed data protection measures directly into AI-driven CRM systems. This includes limiting unnecessary data collection, encrypting sensitive data, and enabling customers to opt in or out of personalization features.

- **Segmented Personalization Strategies:**

Since privacy concerns vary by age, companies should adopt differentiated strategies. For younger consumers, more advanced personalization may be effective, while for older customers, conservative personalization with stronger privacy assurances may work better.

- **Industry-Specific CRM Practices:**

Retail and e-commerce firms should continue leveraging personalization but must maintain high privacy standards to retain customer trust. Banking institutions should prioritize building trust by emphasizing data security and compliance with regulations.

- **Invest in Explainable AI (XAI):**

Businesses should adopt AI models that are interpretable and explainable to customers. When consumers understand how recommendations are generated, their trust in personalization systems increases.

- **Policy and Regulatory Support:**

Local businesses should align their practices with national and international data protection laws such as the Digital Personal Data Protection Act (DPDP Act, 2023) in India. Compliance will not only minimize legal risks but also strengthen customer trust.

X. Conclusion

This study set out to analyze the paradox of personalization and privacy in Artificial Intelligence (AI)-enabled Customer Relationship Management (CRM) in Tiruchirappalli, Tamil Nadu. The results reveal that while customers highly value personalized services, they remain concerned about how their data is collected, stored, and used. Descriptive statistics

showed that satisfaction and personalization scored high, yet trust levels were comparatively lower due to privacy concerns.

Correlation analysis confirmed that personalization positively influences satisfaction and trust, whereas privacy concerns weaken these relationships. ANOVA highlighted demographic differences, with younger customers being more tolerant of AI-driven personalization and older consumers more sensitive to privacy risks. MANOVA results further established that perceptions vary across industries, with retail and e-commerce generating more positive responses compared to banking, where trust in AI-enabled CRM remains relatively low.

Overall, the findings underscore the delicate balance that businesses in Tiruchirappalli must maintain between delivering personalized customer experiences and safeguarding privacy. The results affirm the theoretical lens of the Privacy Calculus, which suggests that customers weigh perceived benefits against potential risks when sharing personal information.

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HUMAN RESOURCE MANAGEMENT IN THE AGE OF ARTIFICIAL INTELLIGENCE: OPPORTUNITIES AND CHALLENGES

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Abstract

To illustrate the transformative impact of Artificial Intelligence (AI) on Human Resource Management (HRM), consider the example of a multinational company struggling with lengthy hiring processes that spanned months. By integrating AI-driven recruitment tools, they slashed this time by 60%, not only filling vacancies faster but also improving employee retention rates. This marks a transformative era for HRM, where AI-driven tools reshape practices through efficiency, accuracy, and personalization across recruitment and performance evaluation. Predictive analytics, chatbots, and learning platforms enable data-driven decision-making while also improving employee engagement and retention. Yet, adopting AI in HRM introduces ethical and legal concerns such as bias, transparency, and privacy. Organizations must address these challenges to ensure AI strengthens workplace fairness. AI complements rather than replaces human skills, allowing professionals to focus on empathy, culture, and strategy. This chapter explores both the opportunities and challenges, emphasizing the need to strike a balance between technology and human values. Responsible AI adoption can make HRM more inclusive, innovative, and sustainable for organizations and employees.

Keywords: Human Resource Management; Artificial Intelligence; Recruitment; Employee Engagement; Ethics; Workforce Transformation

1. Introduction: HRM in the AI Era

To understand the implications of AI for HRM, it is helpful to consider the field's evolution. Human Resource Management (HRM) has undergone significant changes driven by successive technological advancements. Previously, tasks like payroll, record-keeping, and recruitment were manual and time-consuming. The rise of HR software and analytics added efficiency, but Artificial Intelligence (AI) represents a new phase. AI technologies such as natural language processing, predictive analytics, and machine learning are changing how

organizations attract, manage, and develop talent. Unlike earlier tools, AI systems go beyond automating administration; they add decision-making intelligence and personalization. Notably, global spending on AI in HRM grew 40% last year, highlighting the rapid pace of change and the urgency for organizations to adapt. However, this evolution raises ethical and accountability questions, as well as the challenge of striking a balance between efficiency and empathy. The AI era presents both growth opportunities and challenges that necessitate the thoughtful integration of technology and human values. In summary, integrating AI in HRM requires striking a balance between efficiency, ethics, and empathy.

2. AI in Recruitment and Talent Acquisition

Recruitment has been one of the most resource-intensive areas of HR. AI automates resume screening, identifies suitable candidates, and utilizes chatbots to respond to applicant queries in real-time. Predictive analytics assesses cultural fit, future potential, and long-term retention likelihood, reducing time-to-hire and ensuring consistent selection. For example, multinational companies use AI to scan thousands of applications in seconds. However, if algorithms are trained on biased data, they may perpetuate workplace biases. Ongoing monitoring, bias detection, and transparency are essential for maintaining fairness and inclusivity in AI-powered recruitment.

3. Training and Development Through AI

Just as AI is transforming recruitment, these technologies are also redefining training and development strategies within organizations. Employee learning and development are critical in a rapidly changing workplace. AI is making training programs more dynamic and personalized than ever before. By analyzing employee performance data, AI can identify specific skill gaps and recommend customized learning paths. Adaptive learning platforms adjust the pace and complexity of training content to individual needs, ensuring maximum retention and engagement. Virtual reality (VR) and AI-based simulations enable employees to practice complex scenarios in a safe and controlled environment, such as customer service interactions or emergency responses. Furthermore, AI-driven systems provide continuous feedback, enabling employees to track progress and adjust learning approaches. This personalization not only enhances workforce capability but also cultivates a culture of continuous learning, enabling organizations to remain competitive in a rapidly evolving digital economy. To sum up, AI-driven training makes development more relevant and adaptable to individual needs.

4. Performance Management and Predictive Analytics

Building on the tailored development opportunities enabled by AI, performance management is another area seeing significant innovation. Traditional performance management relied heavily on annual reviews, which often failed to capture real-time employee progress or challenges. With AI, organizations can adopt continuous performance monitoring that is both data-driven and forward-looking. This system enables predictive analytics that can identify potential high performers early, detect employees at risk of burnout, and design targeted interventions to support their well-being. For instance, AI platforms can analyze communication patterns, productivity data, and workload distribution to forecast employee outcomes. By linking these forecasts to strategic business metrics such as revenue growth or customer satisfaction, organizations can better align employee performance with broader business goals. This approach not only helps in recognizing top contributors but also ensures that support is provided for employees who are struggling. However, organizations must strike a balance between surveillance and support to maintain employee trust and confidence. When used responsibly, AI-powered performance management shifts the focus from evaluation to development, aligning individual growth with organizational goals. The key takeaway is that AI can make performance management proactive, but trust must be preserved.

5. Enhancing Employee Engagement and Retention

Effective performance management lays the groundwork for stronger employee engagement and retention, which AI can further support. Employee engagement is a cornerstone of long-term organizational success. AI tools support engagement by analyzing sentiment through employee surveys, communication platforms, and feedback loops. For example, sentiment analysis powered by AI can detect early signs of dissatisfaction by analyzing language patterns in emails or internal forums. Predictive models also help HR anticipate turnover risks, allowing interventions such as career development opportunities, flexible work arrangements, or wellness programs. By identifying disengagement early, organizations can create a more positive work environment and reduce attrition. Importantly, AI should complement, not replace, direct human interaction. While algorithms can flag potential issues, empathetic conversations and genuine support from HR professionals remain critical to strengthening employee loyalty and satisfaction. In short, AI helps flag issues, but human touch is essential for true engagement.

6. Diversity, Equity, and Inclusion (DEI) with AI

Diversity, equity, and inclusion have become intertwined with employee engagement and retention, areas where AI can make significant contributions. One critical aspect AI

addresses is minimizing human biases in recruitment, promotions, and career development, as algorithms can shift decision-making from subjective judgments to data-driven processes. For instance, anonymizing resumes through AI has minimized unconscious bias in candidate selection, as shared by Jessica Lin, an HR manager, who recounts how a diverse candidate was offered a position after their skills were evaluated independently of personal identifiers. However, the inherent risk lies in biased training data; if historical datasets are tainted by discriminatory practices, AI systems can inadvertently propagate these biases. This underscores the importance of regular ethical auditing of AI systems, transparent algorithm design, and ongoing bias testing. Organizations are encouraged to commit to a biannual external audit schedule, demonstrating ongoing vigilance to ensure alignment with DEI goals. The oversight responsibility should reside with the Chief Diversity Officer and an independent external auditor. Thoughtfully implemented, AI can be an effective tool for fostering diverse, equitable, and inclusive workplaces, but lacking oversight, it may reinforce the barriers it aims to dismantle. The key takeaway is that while AI can bolster DEI initiatives, ongoing oversight is crucial to prevent bias.

7. Ethical and Legal Concerns of AI in HRM

While AI supports DEI goals, its widespread adoption in HRM also introduces pressing ethical and legal considerations. The growing role of AI in HRM raises significant ethical and legal questions. Issues such as privacy, transparency, accountability, and fairness are at the forefront. AI systems frequently process vast amounts of employee data, including personal and behavioral information, which raises concerns about data security and potential misuse. Surveillance tools that monitor productivity or communication may also erode trust if implemented without transparency. Additionally, legal frameworks regulating AI are still evolving, leaving organizations in a gray area of compliance. The European Union's AI Act and similar regulations aim to establish clearer guidelines, but organizations must already ensure responsible practices by adopting principles of explainability, accountability, and informed consent. Without these safeguards, AI integration risks damaging employee trust and exposing organizations to legal liabilities. To operationalize compliance with emerging regulations like the EU AI Act, organizations can implement a short checklist: 1) Document the purpose and intended use of AI applications to ensure alignment with business objectives and regulatory requirements. 2) Log data flows to maintain transparency and accountability, making it easier to track how data is used and shared. 3) Enable explanation mechanisms within AI systems to ensure clarity and understanding for all stakeholders. By taking these steps, organizations can align their AI practices with regulatory demands, fostering both legal

compliance and trust. In summary, careful attention to ethics and legality is crucial in AI-driven HRM.

8. Challenges of AI Integration

Ethical and legal complexities add to the practical challenges organizations face when implementing AI in HRM. Despite its potential, integrating AI into HRM presents practical challenges. High implementation costs deter smaller organizations, while a lack of technical expertise hinders their ability to effectively manage and maintain AI systems. Employee resistance is another major barrier, as workers may fear job displacement or loss of autonomy. Moreover, AI systems rely heavily on high-quality, unbiased data; without it, outputs may be inaccurate or unfair. Organizations must therefore invest in training HR professionals, fostering a culture of digital adaptability, and ensuring transparency in AI adoption. A phased approach—starting with pilot projects and gradually expanding—can reduce resistance and allow organizations to learn from early experiences. By carefully managing these challenges, businesses can harness AI's benefits while minimizing risks. As organizations evolve, their ability to proactively address these challenges will ultimately determine the success and sustainability of AI-driven HRM. In brief, achieving success with AI in HRM requires managed change, training, and a gradual rollout of the technology.

9. The Role of HR Professionals in the AI Landscape

AI will not replace HR professionals; instead, it will redefine their roles and responsibilities. The future of HR lies in a hybrid model where humans and AI work collaboratively. HR leaders must evolve into "human-AI integrators," combining technological insights with human empathy, cultural understanding, and ethical judgment. For instance, while AI can identify employees at risk of disengagement, it is the HR professional who must engage in meaningful dialogue and provide tailored support to them. This synergy enhances organizational outcomes while preserving the human element in people management. HR professionals must also acquire new skills in data literacy, AI ethics, and change management to remain relevant and effective in their roles. To facilitate this transition, a competency matrix can be invaluable for HR professionals. This matrix might include technical competencies such as data analysis and AI tool management, ethical competencies around privacy and bias mitigation, and relational competencies like communication and empathy. Mapping these skills to specific HR roles motivates professionals to target their upskilling efforts effectively. Embracing AI as a partner rather than a competitor enables HR professionals to enhance their strategic role within organizations, ensuring they remain indispensable in this evolving landscape.

10. Conclusion: Balancing Opportunity with Responsibility

AI offers transformative opportunities for HRM, including increased efficiency, enhanced personalization, predictive insights, and greater inclusivity. However, it also raises challenges around ethics, privacy, bias, and employee trust. The future of HR depends on striking a balance between technological advancement and human values. Organizations must integrate AI responsibly, ensuring fairness, transparency, and inclusivity, while HR professionals must continue to provide empathy, leadership, and cultural stewardship. Ultimately, the most successful HR systems will be those that use AI not as a replacement but as a complement to human judgment. This balance ensures that while technology drives efficiency, humanity drives meaning, creating workplaces that are not only smarter but also more ethical and humane.

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SUSTAINABILITY AND ETHICS: REIMAGINING HUMANITY'S RESPONSIBILITY TO THE EARTH

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Abstract

Sustainability stands at the forefront of today's most pressing challenges, representing both an environmental necessity and a moral imperative. When considering issues such as climate change, biodiversity loss, pollution, and resource depletion, urgent collective action is required. Beyond science and policy, sustainability becomes a moral responsibility, emphasizing fairness, justice, and stewardship. In this chapter, philosophical foundations are explored through a contrast between anthropocentric and ecocentric perspectives. Practical challenges—overconsumption, deforestation, and environmental injustice—are examined. Various ethical frameworks, including utilitarianism, deontology, virtue ethics, and deep ecology, are applied to debates on sustainability. Highlighting our obligation to conserve resources, the principle of intergenerational equity takes center stage for the benefit of future generations. Through case studies, the shaping of governance, corporate responsibility, and community initiatives by ethical reasoning is revealed. Additionally, the chapter shows how education and awareness can transform sustainability in everyday life. Ultimately, the text calls for reimagining humanity's role: as trustees of Earth, we must ensure justice, equity, and ecological resilience.

Keywords: Sustainability, Environmental Ethics, Climate Change, Environmental Justice, Intergenerational Equity, Ecocentrism

1. Introduction

Sustainability has emerged as a defining challenge of the 21st century, driven by climate change, biodiversity loss, resource depletion, and rising social inequalities. While science and policy play central roles, the ethical aspect is equally vital, shaping how societies prioritize responsibility, justice, and fairness. This section introduces sustainability as both an environmental necessity and a moral responsibility, framing it as humanity's duty to protect

the planet for the benefit of current and future generations. For example, in Bangladesh, rising sea levels and increased flooding, exacerbated by climate change, have displaced millions and jeopardized livelihoods, underscoring the urgent need for a moral reorientation towards sustainable practices to prevent further injustices. In stark contrast, nations with higher carbon footprints, such as the United States, often experience fewer immediate existential threats yet significantly contribute to global emissions. Despite these disparities, the stakes are shared across borders, as climate change is a global crisis with potential repercussions everywhere. Delayed cooperation could result in severe, widespread impacts, while a unified ethical response promises mutual benefits in mitigating risks. This shared responsibility highlights the ethical imperative for global cooperation in sustainability efforts. Sustainability has emerged as both an environmental necessity and an ethical imperative in the 21st century. Climate change, biodiversity loss, pollution, and resource depletion highlight the urgent need for collective action. Beyond science and policy, sustainability is deeply rooted in moral responsibility, emphasizing fairness, justice, and stewardship.

This chapter explores philosophical foundations, contrasting anthropocentric and ecocentric perspectives, while examining practical challenges such as overconsumption, deforestation, and environmental injustice. Ethical frameworks, including utilitarianism, deontology, virtue ethics, and deep ecology, are applied to debates on sustainability. The principle of intergenerational equity emphasizes the obligation to conserve resources for future generations. To bring this moral urgency into focus, consider the real-world obligation of reducing meat consumption. With the meat industry contributing significantly to greenhouse gas emissions, deforestation, and water usage, shifting towards plant-based diets can be a compelling responsibility for individuals and communities in the present day. A prime example of education and awareness in action is found in local community gardens. In one urban neighborhood, a community garden initiative serves as an educational hub where residents of all ages learn sustainable farming practices. Participants engage in hands-on experiences, from composting to planting seasonal crops, nurturing a deeper connection to the environment and fostering sustainable habits. This place-based learning exemplifies how experiential education can cultivate ecological mindfulness and lifelong commitment to sustainability.

Case studies illustrate how ethical reasoning influences governance, corporate responsibility, and community initiatives. Education and awareness are highlighted as transformative tools for embedding sustainability into everyday life. Ultimately, the chapter calls for reimagining humanity's role as trustees of the Earth, ensuring justice, equity, and

ecological resilience. In addressing sustainability, it is crucial to identify and implement systems leverage points where theoretical principles can translate into practical, high-impact interventions. One notable example of such leverage is the elimination of harmful subsidies, which often perpetuate environmental degradation and undermine sustainability goals. By redirecting these funds towards renewable energy initiatives or conservation efforts, substantial progress can be made in aligning economic incentives with ethical imperatives. This approach demonstrates how structural change can amplify ethical intent and create far-reaching positive impacts.

2. Philosophical Foundations of Sustainability

Sustainability arises from the interplay between anthropocentrism (human-centered) and ecocentrism (nature-centered) perspectives. Anthropocentrism often prioritizes human progress over environmental health, whereas ecocentrism emphasizes the intrinsic value of ecosystems. Imagine a lush forest where sunlight dances through the canopy, sustaining a vibrant community of flora and fauna, thriving independently of human intervention, asserting its intrinsic worth. This balance forms the ethical backbone of sustainability. For example, consider a coastal town once reliant on logging and fisheries, primarily driven by anthropocentric goals focused on immediate economic growth. Over time, the community faced depleting resources and environmental damage. Yet, through grassroots movements and policy shifts, they began restoring mangroves and supporting sustainable aquaculture. This transition highlights the tension between anthropocentrism and ecocentrism, illustrating how reframing priorities toward ecological restoration can revitalize both the ecosystem and the community itself. The section also examines the 'triple bottom line' - people, planet, and profit - as a guiding framework within which societal goals are balanced. To further elucidate this, the doughnut framework can be introduced, which visualizes how these goals fit within the planet's ecological boundaries. By comparing these models, the triple bottom line can be seen as operating within the safe ecological ceilings proposed by the doughnut framework, instantly illustrating the policy relevance of maintaining these balances for sustainable development.

3. Overconsumption and Consumerism

Modern consumer culture is a significant contributor to environmental degradation. Overconsumption leads to wasteful practices, resource depletion, and increased carbon emissions, all of which contribute to climate change. This section highlights how consumerism reflects not only economic habits but also ethical choices, questioning whether materialism should take precedence over ecological responsibility. For example, choosing

locally grown food can transform a simple grocery purchase into a ripple of positive impacts, from enhancing soil vitality and reducing carbon footprints to strengthening community bonds and promoting resilience. The analysis emphasizes that mindful consumption, sustainable lifestyles, and conscious purchasing are moral imperatives for reducing environmental harm.

To guide readers toward more mindful consumption, consider conducting a personal consumption audit. Here's a simple checklist to uncover your consumption hotspots:

- ❖ Are the majority of your groceries locally sourced or imported?
- ❖ Do you often buy more food than you can consume, leading to waste?
- ❖ Are your purchases driven more by necessity or impulse?
- ❖ How frequently do you opt for sustainable packaging options?

The results from this self-assessment can offer a valuable reflection on your habits and identify areas where sustainable choices can be made, transforming abstract ethics into concrete, practical action.

Reframing our identity from consumers to co-participants in Earth's community invites us to recognize the intrinsic value of nature, beyond its utility to us. By acknowledging our role within the ecosystem, we can embrace transformative lifestyle shifts that prioritize ecological balance and long-term sustainability. Imagine starting your day by tending to a small garden, nurturing plants as valuable community members instead of mere resources. This perspective encourages a deeper connection to the planet, fostering a responsibility that extends beyond economic considerations to include the well-being of the natural world. Just as a personal garden symbolizes our shift in thinking, community-scale food policies such as urban agriculture ordinances play an essential role in facilitating broader structural change. These policies can transform vacant urban spaces into productive green areas, promoting local food production and community resilience, thus connecting individual actions to systemic transformations.

4. Deforestation and Habitat Loss

Deforestation, driven by agriculture, logging, and urban expansion, destroys ecosystems and threatens biodiversity. From the Amazon to Southeast Asia, large-scale loss exemplifies short-term economic gain over long-term stability. One tangible example of the impact is the loss of forest canopy, which plays a crucial role in regulating regional rainfall and maintaining local climate stability. Without these forests, areas may face altered rainfall patterns, which can have cascading effects on agriculture and water resources, directly impacting human and ecological well-being. Ethically, it raises questions about humanity's

right to exploit nature for immediate benefit while threatening the survival of species. This section advocates reforestation, conservation, and ecosystem priority policies as moral obligations.

5. Pollution and Climate Change

Pollution in all forms and climate change are major sustainability concerns. They disrupt ecosystems and disproportionately affect vulnerable populations. Ethically, this principle embodies the 'polluter pays' principle, emphasizing accountability and responsibility. This section examines the injustice of climate burdens falling disproportionately on those least responsible and advocates for a moral reorientation in global climate governance. To frame this injustice with measurable urgency, we can quantify pollution impacts in terms of their proximity to exceeding specific planetary boundaries. For instance, recent data suggests that we have only about 420 gigatons of CO₂ left in our carbon budget to limit global warming to 1.5 degrees Celsius. At the current rate of emissions, this budget may be exhausted within a decade, highlighting the criticality of immediate action. Connecting this figure to near-term policy levers, such as implementing stringent carbon pricing mechanisms, maintains momentum and aids in preventing breaching these essential thresholds. Understanding these limits helps illustrate the imminent risk of ecological tipping points, urging immediate and decisive actions in climate governance.

6. Environmental Injustice and Inequality

Environmental challenges do not affect everyone equally; marginalized groups often face the greatest consequences due to limited adaptive capacity. Problems like poor urban air quality, unsafe rural water, and displacement highlight systemic inequality. In some communities, residents have shared heart-wrenching stories of daily struggles. For instance, a resident of a low-income neighborhood might express, "Our children suffer from asthma, and every day we worry about the air they breathe." One resident recounted how her community organized to demand cleaner air in their neighborhood. "We formed a coalition, contacted officials, and even held public meetings," she said. Despite the health challenges, their efforts resulted in a local air quality monitoring initiative, showing that even in vulnerability, there is resilience and agency. Such testimonies vividly illustrate the all-too-real impacts of these environmental issues while highlighting pathways to justice. To emphasize this disparity, consider that studies have shown asthma rates in certain low-income areas are 50% higher than the national average. Ethically, sustainability requires environmental justice. This section underscores the responsibility of governments and corporations to protect disadvantaged communities and ensure equitable access to resources.

7. Ethical Theories in Sustainability

Ethical reasoning uses several perspectives to evaluate sustainability:

- **Utilitarianism** in sustainability advocates for policies and actions that maximize the overall well-being of humans and the environment. This perspective considers both environmental health and human benefit, advocating for solutions that deliver the greatest net benefit, such as implementing carbon pricing to reduce emissions.
- **Deontology** applies to sustainability by emphasizing duties and moral rules, such as the obligation not to cause harm to nature, regardless of potential economic benefits. This framework focuses on following ethical principles, rather than just the outcomes.
- **Virtue Ethics** relates to sustainability by encouraging individuals and organizations to cultivate traits like responsibility, humility, and stewardship. This approach emphasizes developing good character to guide ethical decisions related to the environment, illustrated by companies integrating sustainability into their corporate culture.
- **Deep Ecology** calls for recognizing the inherent worth of all species. This section analyzes how these ethical frameworks guide sustainable choices in governance, business, and individual behavior.

8. Intergenerational Equity

Sustainability means thinking beyond the present; future generations have a right to a healthy planet. Intergenerational equity emphasizes fairness between today's actions and tomorrow's consequences, necessitating long-term decision-making in climate policy, resource management, and biodiversity conservation. Current societies must act as trustees of Earth's resources for the future, assuming fiduciary duties akin to legal and ethical responsibilities. This trustee framework strengthens accountability by recognizing current generations as caretakers committed to safeguarding the planet's resources, ensuring that future people inherit a world capable of sustaining them.

9. Case Studies in Ethical Sustainability

Practical examples illustrate how ethical principles are applied in real-world sustainability efforts. International agreements such as the Paris Climate Accord, grassroots movements like Chipko in India, and corporate sustainability practices provide models of ethical responsibility. By analyzing successes and failures, this section illustrates how ethical reasoning can enhance governance, foster innovation, and promote accountability at both local and global levels. To bring abstract ethics into actionable frameworks, certain successful case studies have integrated clear governance design principles.

- Clear boundaries for resource use
- Establish the limitations of sustainable practice, ensuring resources are consumed responsibly and sustainably;
- Graduated sanctions for violations*
- Ensure compliance by escalating consequences proportionate to the infraction, creating a structured deterrent against unethical behavior.

These principles, combined with stakeholder engagement strategies, which emphasize inclusive decision-making and transparency, succinctly capture empirical patterns, translating moral concepts into effective and sustainable institutional practices.

Ethical sustainability requires systemic change in governance, law, and policy. Governments must enforce stricter environmental regulations, corporations must integrate sustainability into business models, and global institutions must coordinate climate action. Rather than solely focusing on GDP growth, decision-makers should incorporate regenerative metrics such as well-being indices and ecological footprints to assess progress. Some critics argue that moving away from traditional GDP metrics could impede economic growth. However, countries like New Zealand and Bhutan have successfully integrated well-being metrics alongside traditional economic indicators, demonstrating that these approaches can coexist and even enhance quality of life. Acknowledging common policy objections, such as perceived economic trade-offs, can make this approach more practical by illustrating how economic growth might intersect with ecological preservation. To persuade skeptics, it is crucial to discuss transition strategies that include job retraining and fiscal incentives, which can ease the shift to sustainability without undermining the broader vision. Emphasizing transparency, accountability, and inclusiveness as key ethical pillars of governance, policies should aim to balance these metrics to foster a sustainable and equitable future.

11. Role of Education and Awareness

Transforming sustainability into a lived reality requires education and awareness throughout society. Ethical education fosters responsible citizenship, sustainable habits, and stewardship. This section argues that universities, schools, media, and civil society must instill values of care, responsibility, and justice to shape a culture of sustainability. Imagine a group of students embarking on a campus carbon audit. Initially, the task seemed daunting, raising questions on just how much impact their university lifestyle had on the environment. However, as they delved into energy audits and waste assessments, a sense of discovery took hold. By uncovering hidden inefficiencies and proposing actionable changes, students not only learned about their carbon footprint but also embraced practical habits to reduce it. This

anecdote illustrates the transformative power of education, turning a challenge into a habit of stewardship and reinforcing their roles as stewards of the Earth.

12. Conclusion

Sustainability is not just an environmental or scientific issue; it is fundamentally an ethical problem, demanding a moral reorientation of society. By addressing overconsumption, injustice, and ecological harm through ethical means, humanity can forge a sustainable and equitable future. The conclusion reiterates the importance of collective responsibility, intergenerational fairness, and ethical governance for the survival and flourishing of both people and the natural world. Imagine a world where cities are vibrant green hubs of innovation, communities thrive in harmony with nature, and future generations inherit a planet that sustains and nurtures all its inhabitants. Let us work together to bring this vision to life, transforming our shared values into collective actions for a just and thriving future.

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E-COMMERCE GROWTH THROUGH MARKETING AND CONVERSION OPTIMIZATION

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Abstract

This chapter explores the critical role of e-commerce marketing and conversion rate optimization (CRO) in driving online sales growth. It examines essential digital marketing strategies such as SEO, PPC, email, social media, and influencer marketing. The discussion highlights CRO techniques including A/B testing, user experience design, and mobile optimization that enhance customer conversion. Emerging trends like AI, AR/VR, and voice search are also covered. Finally, challenges such as data privacy and platform dependency are considered. Together, these insights provide a comprehensive guide for businesses aiming to maximize e-commerce success.

Keywords: E-commerce marketing, Conversion rate optimization, Digital marketing strategies, A/B testing, User experience, Personalization, Emerging trends

1. INTRODUCTION

The rapid growth of e-commerce over the past decade has transformed the retail landscape worldwide. From small businesses to multinational corporations, online shopping has become a primary channel for consumer purchasing behavior. According to Statista, global e-commerce sales surpassed \$5 trillion in 2023, and this figure is projected to continue rising rapidly (Statista, 2024).

However, attracting visitors to an e-commerce platform is only the first step. To maximize revenue, businesses must convert visitors into paying customers. This is where **Conversion Rate Optimization (CRO)** becomes crucial. CRO involves the process of enhancing the website and user experience to increase the percentage of visitors who complete desired actions, such as purchases or sign-ups.

This chapter explores the fundamental strategies behind e-commerce marketing and CRO, offering insights into how businesses can effectively attract, engage, and convert online shoppers. The chapter also discusses challenges and emerging trends, supported by relevant case studies.

2. E-COMMERCE MARKETING STRATEGIES

E-commerce marketing encompasses a wide range of tactics designed to attract and engage consumers, encouraging them to visit online stores and complete purchases.

Search Engine Optimization (SEO)

SEO is foundational for organic traffic generation. E-commerce SEO involves optimizing product pages, category listings, and overall site architecture to improve visibility in search engines like Google. This includes keyword research, meta tags, image optimization, and internal linking strategies. A well-optimized site can capture high-intent search queries, such as “best wireless headphones,” which directly impact purchase decisions (Fishkin & Høgenhaven, 2013).

Pay-Per-Click Advertising (PPC)

PPC advertising allows businesses to bid for ad placements on platforms such as Google Ads and social media channels. Unlike organic SEO, PPC provides immediate visibility and can be highly targeted based on demographics, interests, or past behaviors. This strategy is particularly useful for new product launches or time-sensitive promotions (Chaffey & Ellis-Chadwick, 2019).

Email Marketing

Email marketing remains one of the most effective ways to nurture leads and retain customers. Through personalized and segmented campaigns, businesses can offer exclusive discounts, product recommendations, and cart abandonment reminders, driving higher engagement and repeat purchases (Ellis-Chadwick & Doherty, 2012).

Social Media Marketing

Platforms like Instagram, TikTok, and Facebook provide fertile ground for brand awareness and customer engagement. Through organic content and paid ads, brands showcase products, share user-generated content, and interact with followers. The rise of social commerce, where purchases happen directly on social media, further blurs the lines between content and sales (Tuten & Solomon, 2017).

Influencer Marketing

Partnering with influencers allows brands to leverage trusted voices within niche communities. Influencers create authentic content that resonates with followers, often resulting in higher trust and conversion rates than traditional advertising (Freberg, Graham, McGaughey, & Freberg, 2011).

Affiliate Marketing

Affiliate marketing is a performance-based strategy where partners promote products for a commission on sales. This expands brand reach with minimal upfront costs, as affiliates often have loyal audiences that businesses can tap into (Evans, 2016).

3. UNDERSTANDING CONVERSION RATE OPTIMIZATION (CRO)

CRO is a systematic approach to increasing the percentage of website visitors who take desired actions. By analyzing user behavior and testing different elements, businesses optimize the user journey to boost sales, sign-ups, or any conversion goals.

Definition and Importance

Simply driving traffic is insufficient; converting that traffic is essential for profitability. CRO helps identify bottlenecks in the purchase funnel and implements solutions to enhance user experience and encourage conversions. Small improvements in conversion rates can lead to significant revenue increases without necessarily increasing traffic (Saleh & Shukairy, 2010).

Key Performance Indicators (KPIs)

Key metrics include:

- **Conversion Rate:** Percentage of visitors completing a purchase.
- **Bounce Rate:** Percentage leaving after viewing only one page.
- **Cart Abandonment Rate:** Visitors who add items to the cart but do not complete the purchase.
- **Average Order Value (AOV):** Average revenue per transaction.
- **Customer Lifetime Value (CLV):** Projected revenue from a customer over time (Ash, Ginty, & Page, 2012).

Conversion Funnel Analysis

The funnel represents stages from awareness to purchase:

- **Awareness:** Visitors discover the brand.
- **Consideration:** Visitors browse and evaluate products.
- **Conversion:** Visitors complete purchase.
- **Retention:** Post-purchase engagement for repeat business.

Optimizing each stage reduces drop-offs and improves overall conversion efficiency (Croxen-John & van Tonder, 2020).

4. TECHNIQUES FOR EFFECTIVE CRO

A/B Testing

A/B testing compares two versions of a webpage or element (such as headlines, buttons, or layouts) to determine which performs better. This data-driven approach removes guesswork and helps optimize conversion rates scientifically (Kohavi, Longbotham, Sommerfield, & Henne, 2009).

User Experience (UX) Design

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Personalized product recommendations, tailored content, and dynamic pricing based on user behavior increase engagement and conversions. AI-driven tools analyze browsing history and preferences to deliver customized experiences (Davenport, Guha, Grewal, & Bressgott, 2020).

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With the rise of smart speakers, optimizing for voice queries is essential. Voice search tends to be more conversational, so content must be adapted to match natural language patterns (Kumar, 2020).

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Subscription-based e-commerce offers convenience and predictable revenue. Brands are increasingly adopting these models to enhance customer lifetime value and retention (Grewal, Roggeveen, & Nordfält, 2017).

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Eco-conscious consumers prefer brands with sustainable practices. Highlighting green products and ethical supply chains can differentiate brands and foster loyalty (Niinimäki, 2020).

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Data Privacy and Regulations

Regulations such as GDPR and CCPA restrict how businesses collect and use customer data. Compliance is essential but can limit personalization and targeting capabilities (Wang, 2023).

Platform Dependency

Heavy reliance on marketplaces like Amazon can limit brand control and margins. Diversification of sales channels is advisable (Evans, 2016).

Customer Retention

Acquiring new customers is expensive compared to retaining existing ones. Continuous engagement through loyalty programs and quality service is critical (Reichheld & Sasser, 1990).

Technological Integration

Implementing new CRO tools and marketing technologies can be complex, requiring investment in infrastructure and training (Chaffey & Ellis-Chadwick, 2019).

9. CONCLUSION

E-commerce marketing and CRO are interdependent strategies essential for maximizing online sales and customer satisfaction. Businesses must implement diverse marketing tactics while continually optimizing their platforms to improve conversion rates. The future of e-commerce will be shaped by emerging technologies like AI, AR, and voice

search, alongside increasing consumer demand for personalization and sustainability. Success will depend on adaptability, customer focus, and data-driven decision-making.

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E-COMMERCE GROWTH THROUGH MARKETING AND CONVERSION OPTIMIZATION

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Abstract

This chapter explores the critical role of e-commerce marketing and conversion rate optimization (CRO) in driving online sales growth. It examines essential digital marketing strategies such as SEO, PPC, email, social media, and influencer marketing. The discussion highlights CRO techniques including A/B testing, user experience design, and mobile optimization that enhance customer conversion. Emerging trends like AI, AR/VR, and voice search are also covered. Finally, challenges such as data privacy and platform dependency are considered. Together, these insights provide a comprehensive guide for businesses aiming to maximize e-commerce success.

Keywords: E-commerce marketing, Conversion rate optimization, Digital marketing strategies, A/B testing, User experience, Personalization, Emerging trends

1. INTRODUCTION

The rapid growth of e-commerce over the past decade has transformed the retail landscape worldwide. From small businesses to multinational corporations, online shopping has become a primary channel for consumer purchasing behavior. According to Statista, global e-commerce sales surpassed \$5 trillion in 2023, and this figure is projected to continue rising rapidly (Statista, 2024).

However, attracting visitors to an e-commerce platform is only the first step. To maximize revenue, businesses must convert visitors into paying customers. This is where **Conversion Rate Optimization (CRO)** becomes crucial. CRO involves the process of enhancing the website and user experience to increase the percentage of visitors who complete desired actions, such as purchases or sign-ups.

This chapter explores the fundamental strategies behind e-commerce marketing and CRO, offering insights into how businesses can effectively attract, engage, and convert online shoppers. The chapter also discusses challenges and emerging trends, supported by relevant case studies.

2. E-COMMERCE MARKETING STRATEGIES

E-commerce marketing encompasses a wide range of tactics designed to attract and engage consumers, encouraging them to visit online stores and complete purchases.

Search Engine Optimization (SEO)

SEO is foundational for organic traffic generation. E-commerce SEO involves optimizing product pages, category listings, and overall site architecture to improve visibility in search engines like Google. This includes keyword research, meta tags, image optimization, and internal linking strategies. A well-optimized site can capture high-intent search queries, such as “best wireless headphones,” which directly impact purchase decisions (Fishkin & Høgenhaven, 2013).

Pay-Per-Click Advertising (PPC)

PPC advertising allows businesses to bid for ad placements on platforms such as Google Ads and social media channels. Unlike organic SEO, PPC provides immediate visibility and can be highly targeted based on demographics, interests, or past behaviors. This strategy is particularly useful for new product launches or time-sensitive promotions (Chaffey & Ellis-Chadwick, 2019).

Email Marketing

Email marketing remains one of the most effective ways to nurture leads and retain customers. Through personalized and segmented campaigns, businesses can offer exclusive discounts, product recommendations, and cart abandonment reminders, driving higher engagement and repeat purchases (Ellis-Chadwick & Doherty, 2012).

Social Media Marketing

Platforms like Instagram, TikTok, and Facebook provide fertile ground for brand awareness and customer engagement. Through organic content and paid ads, brands showcase products, share user-generated content, and interact with followers. The rise of social commerce, where purchases happen directly on social media, further blurs the lines between content and sales (Tuten & Solomon, 2017).

Influencer Marketing

Partnering with influencers allows brands to leverage trusted voices within niche communities. Influencers create authentic content that resonates with followers, often resulting in higher trust and conversion rates than traditional advertising (Freberg, Graham, McGaughey, & Freberg, 2011).

Affiliate Marketing

Affiliate marketing is a performance-based strategy where partners promote products for a commission on sales. This expands brand reach with minimal upfront costs, as affiliates often have loyal audiences that businesses can tap into (Evans, 2016).

3. UNDERSTANDING CONVERSION RATE OPTIMIZATION (CRO)

CRO is a systematic approach to increasing the percentage of website visitors who take desired actions. By analyzing user behavior and testing different elements, businesses optimize the user journey to boost sales, sign-ups, or any conversion goals.

Definition and Importance

Simply driving traffic is insufficient; converting that traffic is essential for profitability. CRO helps identify bottlenecks in the purchase funnel and implements solutions to enhance user experience and encourage conversions. Small improvements in conversion rates can lead to significant revenue increases without necessarily increasing traffic (Saleh & Shukairy, 2010).

Key Performance Indicators (KPIs)

Key metrics include:

- **Conversion Rate:** Percentage of visitors completing a purchase.
- **Bounce Rate:** Percentage leaving after viewing only one page.
- **Cart Abandonment Rate:** Visitors who add items to the cart but do not complete the purchase.
- **Average Order Value (AOV):** Average revenue per transaction.
- **Customer Lifetime Value (CLV):** Projected revenue from a customer over time (Ash, Ginty, & Page, 2012).

Conversion Funnel Analysis

The funnel represents stages from awareness to purchase:

- **Awareness:** Visitors discover the brand.
- **Consideration:** Visitors browse and evaluate products.
- **Conversion:** Visitors complete purchase.
- **Retention:** Post-purchase engagement for repeat business.

Optimizing each stage reduces drop-offs and improves overall conversion efficiency (Croxe-John & van Tonder, 2020).

4. TECHNIQUES FOR EFFECTIVE CRO

A/B Testing

A/B testing compares two versions of a webpage or element (such as headlines, buttons, or layouts) to determine which performs better. This data-driven approach removes guesswork and helps optimize conversion rates scientifically (Kohavi, Longbotham, Sommerfield, & Henne, 2009).

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BLOCK CHAIN TECHNOLOGY AND ITS CONTRIBUTION IN THE BUSINESS ENVIRONMENT

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ABSTRACT

It is a technology with great promise in business and in the next few decades. It can change the economy radically and completely alter how we go about business operations. Many applications, most of which are unrelated to digital currency, are being explored and utilized to provide backing for blockchain technology. Block chains offer an open, traceable, immutable, and secure method for transactions to be carried out in a distributed system. It is thus ideal to be applied in use cases that are difficult to implement with conventional infrastructure. The blockchain remains decentralized and distributed as a ledger, for it cannot be forged or modified, thus seeking to guarantee the integrity of data, or security, and transparency.

This paper was undertaken in an attempt to understand the latest research done on block chain. The paper discussed how block chain technology can be applied in areas and sectors other than the ones it was created for. The first notion that the article will dispel is that blockchain technology is one and the same as cryptocurrency. The authors will explore block chain, its history, its advantages and disadvantages, and its applications in various infrastructures, including government, finance, banking, accounting, and business process management. So, many published articles were thoroughly examined and reviewed according to how much they contributed to the body of knowledge regarding block chain. Thus, this research attempts to examine the prospects and issues associated with applying Block Chain Technology in new or innovative applications.

Keywords: *Blockchain Technology, Crypto-currency, Digital Currency.*

I. INTRODUCTION

Many businesses and industries are currently looking into and using blockchain technology. Blockchain is decentralized, distributed, and trustless, which means it can help businesses in new ways by making them more efficient, lowering costs, increasing integrity and

transparency, improving security, and making it easier to trace things. Blockchain was most useful in banking and finance, but now it has been noticed and used in many other fields through experimentation and proposed uses. This paper discusses what blockchain technology is. An outstanding, unique system that captures all the important design elements, traits, and benefits of the blockchain. It also gives a summary of the taxonomy of blockchain systems and the most popular consensus mechanisms. The usage of blockchain across a number of industries, such as banking, insurance, supply chain management, energy, media and advertising, real estate, and healthcare, is also covered in the paper. It aims to investigate the most important problems, blockchain fixes, and uses in the area. Three common concerns about blockchain technology are covered in the white paper: scalability, security, and regulation. It also shows how such problems are preventing people from adopting and using blockchain.

Blockchain technology is a new method by which computers can communicate with one another on a network or between two or more computers or nodes. It provides digital recording, storage, and verification of information. "Ledger" is also one of the most significant components of Blockchain. A relational database is comparable to this. A chain of blocks containing encrypted digital documents or transactions is called a blockchain. A cryptographic signature is used to link one block to the others in a linear fashion across time. The block includes a record of the most recent transactions since the previous block was added. Therefore, in order to validate or verify the transactions and remove intermediaries, the shared block or ledger is connected to every computer on the network. Blockchain's influence on businesses is growing quite quickly. Because the technology is decentralized and people trust each other, it has the potential to upend every company in the modern world. At first, the blockchain was only being used by financial service providers, but now, all sectors are eager to test it out. Projects in the fields of supply chain management, healthcare, social networks, entertainment, energy, robotics, analytics, marketing, real estate, retail and e-commerce, education, charitable work, law, the arts, and social networks already exist. Maintaining an immutable shared ledger between two organizations that updates itself after each transaction is the best feature of a distributed ledger.

II. BLOCK CHAIN HISTORY

- This is where Block Chain history begins in 1991 and continues to the present day.

- In 1991, Stuart Haber and W. Scott Shorten created the first block chain that was hack-proof.
- In 1998, Nick Szabo, a computer scientist, invented "bit gold," a currency made of bits that does not rely on a central authority.
- In 2000, Stefan Kunst conceived of cryptographic secure chains and how they were to be utilized.
- Satoshi Nakamoto, using a pseudonym, composed a white paper in 2008 that became the benchmark for blockchains.
- Nakamoto initiates Bitcoin, the first public record, in 2009.
- In 2014, blockchain was divorced from money and explored for use in other financial and inter-organizational transactions. Blockchain 2.0 has arrived, and it can do more than hold money.

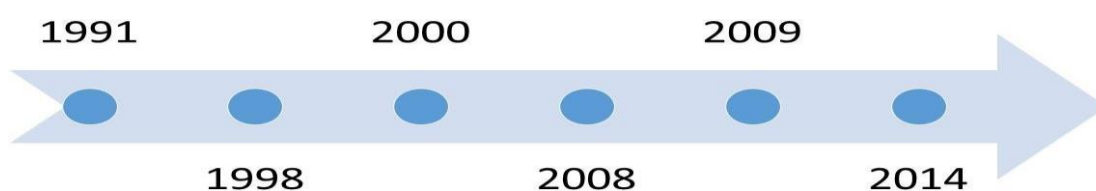


Fig.1: Time line of Block Chain

III. TYPES OF BLOCK CHAIN

Depending on a number of technology options, block chain technology branches may be grouped together. The Various types are public block chain, private block chain, and consortium, as shown below. As shown below, block chain can also be offered in a hybrid form.

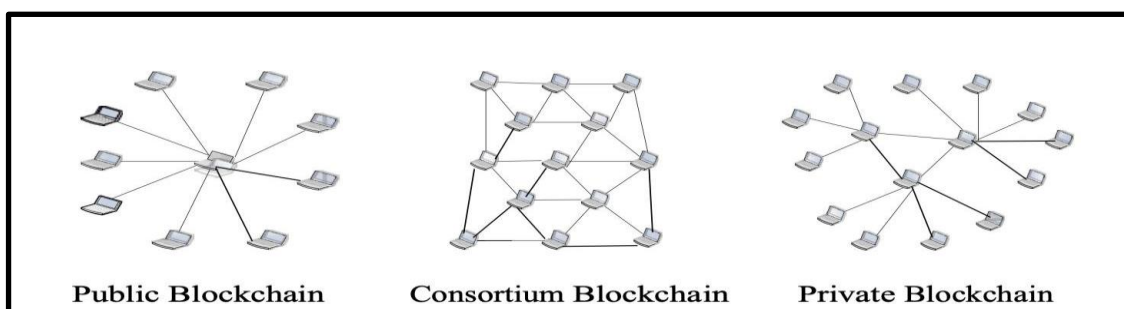


Figure 2: Public Blockchain, Consortium Blockchain, and Private Blockchain

Because these contracts have the ability to be partly or completely self-executing and self-coercing gates, they are referred to as "Smart" contracts. gates that operate independently and make themselves function.

Public blockchain

Anyone with internet access can use a public blockchain, so users can join as certified nodes without asking for permission. Bitcoin, Litecoin, and Ethereum are some examples. This decentralized evidence-based platform lets users mine, view records, and verify transactions. Open access makes data more vulnerable to tampering, but public blockchains use rewards and punishments to encourage honest behavior and high-quality participation.

1. A private blockchain

This blockchain lets networks that aren't decentralized have closed circuits. An individual who belongs to a closed network. The public blockchain's antithesis, in which a business or individual owns property. You decide how to read and access information and make decisions about mining. Blockchain developers decide which nodes will have the right to make transactions.

2. Blockchain for a consortium

Different groups of organizations run this. It is a mix of public and private blockchain networks. An agreement gives someone the power to decide whether or not to accept a transaction. A group, not individuals, controls this semi-distributed blockchain.

3. A Hybrid Block Chain

It combines both private and public blockchains. In the block chain, users may control who can see what data. Both permissioned and permissionless architectures are supported by the hybrid blockchain known as Aergo.

IV. BLOCKCHAIN PRONS & CONS

Blockchain technologies have many potential benefits and uses in a variety of industries, including government, banking, accounting, business process management, and many more. However, the literature also highlights a number of issues and problems that need to be resolved. The main benefits and drawbacks of blockchain technology are outlined here.

Benefits of Blockchain Technology

1. Accessible to all: The fact that blockchain technology is open to everyone is its most amazing feature. Blockchain technology is open to all contributors, and anybody may join the distributed network without authorization.

2. Stability: Data on the blockchain is very difficult to eliminate or modify once posted. Blockchain is an excellent method of maintaining financial records and other data that must be audited since it monitors all modifications and retains them in a public ledger anyone may access.

3. Data immutability & integrity: Every block or transaction added to the chain cannot be changed thanks to the architecture of blockchain technology. This renders the system highly secure. Since blockchain technology is decentralized, data can't be hacked. Any alterations will be mirrored across all nodes, and so fraud becomes impossible. Therefore, it can be said that transactions can't be altered.

Users can cut down on fraud while making sure they follow the rules. You can't delete a record from the general ledger until you get permission.

4. Durability and Security: It is like the internet, but it can grow on its own. The technology's long life is actually due to its general design. Also, it makes sure that there is no control point and no single point of failure by spreading data blocks throughout the network. So, the system will last a long time. Also, the blocks can't be changed by anyone, so it's a safe and secure platform. Besides that, it does a good job of stopping hackers from getting in.

Using a cryptographic hash code, all transactions will be time-stamped in a digital format. Each transaction will have its own unique 64-digit alphanumeric signature.

5. High Quality Data: Blockchain Technology data would be precise, timely, and comprehensive due to its decentralized networks.

6. Sustainability: Blockchain technology is used to store data in a decentralized way that allows anybody to verify its accuracy using zero-knowledge proof, which allows one person to verify the accuracy of data without disclosing any information about it.

7. Reliability: Blockchain technology is free from one point of failure or control hub.

8. Disintermediation: Blockchain makes data extremely resilient to errors and secure against cyber-attacks by storing it on hundreds of networked devices. There isn't a single point of failure because each node has a copy of the database. As a peer-to-peer, decentralized system, blockchain enables direct transactions between two parties without the need for middlemen, resulting in minimal transaction fees and overhead.

Drawbacks of Blockchain Technology

1. High cost of implementation: Unfortunately, although the technology is affordable for clients, it comes with high implementation costs for firms, hence not leading to extensive usage and adoption.

2. Inefficiency: It is inefficient for several network members to verify the same action as only one would get the reward obtained via the mining process. This method consumes a lot of power and is not green technology, particularly if you think about how many individuals are performing the same task.

3. They are exclusive to you: Everyone who has cryptographic values is at a disadvantage because, as has been shown multiple times, private keys are nearly impossible to recover once they are lost.

4. Storage: As the user base grows more operations must be incorporated into the blocks for storage, consuming more computer space and eventually filling the hard discs.

5. Unemployment: After Blockchain technology is embraced and put into practice, all of these payment and process verification intermediation industries will be forced to close, leaving no space for middlemen.

6. Data Deformability Issues: One potential issue with blockchain integration is data transformability. Ownership is not guaranteed by the signature. Transaction verification issues may arise if an attacker modifies a transaction and submits it again.

7. Scalability: Among the main disadvantages of blockchain technology is its inability to scale, as the block size used to store data is fixed. Only a few transactions can be handled on a single block due to its 1 MB size.

IV. HOW BLOCKCHAIN TECHNOLOGY WORKS?

A distributed electronic ledger known as a blockchain allows multiple users to add data, but not remove or alter it. Once entered, data is irrevocable and cannot be altered. Only after the majority of participants have verified its authenticity through "mining" can more data be obtained. With the aid of a consensus algorithm, data is gathered in blocks and verified throughout the network. After verification, a new block is created and added to the current blockchain.

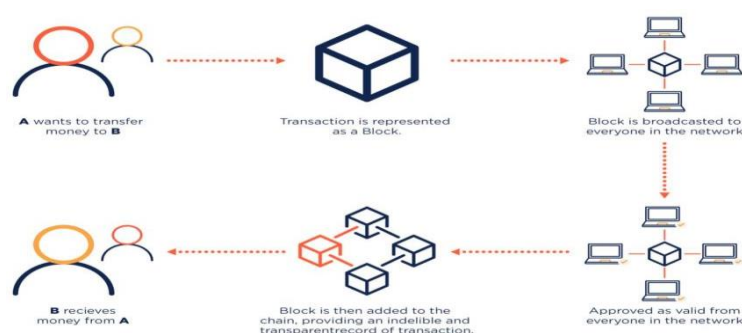


Fig.3 –How Atran Saction works

There is no central point for data in a dispersed network. The node obtains a copy of the updated ledger state after verifying the transaction for every new modification or transaction.. Every node in a blockchain is connected to every other node, and they are always exchanging the most recent blockchain data with each other and with other nodes on

the internet. They own, preserve, and disseminate the blockchain data. Therefore, in principle, the blockchain is on the node.

V. BUSINESS APPLICATIONS FOR BLOCKCHAIN TECHNOLOGY

We highlight six distinct domains where blockchain application areas have been identified based on our literature. H. Applications for supply management, e-government, and cryptocurrencies.

- **Cryptocurrency Use:** Blockchain provides cryptocurrencies as settlement systems and rewards in collaborative projects through smart contracts. OpenBazaar-like platforms provide decentralized, fee-less e-commerce with safe Bitcoin transactions. In the Internet of Things, sensor readings can invoke smart contracts for digital payments automatically.
- **E-Government:** Blockchain facilitates open, secure digital government through asset digitization and decentralized exchange. It provides equitable, tamper-resistant voting and enhances trust in the electoral process.
- **Supply Chain Management:** Blockchain heightens transparency, efficiency, and trust by securely recording shipments and deliveries in real time. It saves costs through intermediary removal and facilitates evaluation of product quality in transit, particularly important for sensitive products such as refrigerated goods.

Conclusion:

Blockchain is a robust technology that has earned popularity for its decentralized, peer-to-peer nature and capacity to simplify tedious processes such as transaction verification and conflict resolution. With attributes such as anonymity, immutability, and transparency, it removes middlemen through agreement algorithms such as PoW, PoS, PBFT, and DPoS. Blockchain frameworks can be public, private, or consortium-based, based on requirements such as privacy and investment. Apart from cryptocurrency, blockchain is currently utilized in industries such as healthcare, real estate, media, and energy. Albeit its advantages, challenges such as scalability, security, and regulation need to be tackled in order to maintain its long-term efficiency and usage.

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TOP-3 CRITICAL SUCCESS FACTORS OF SOFTWARE PROJECTS: 10 YEARS OF RESEARCH FINDINGS

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Abstract:

This specific research note/article presents the Top-3 Critical Success Factors of Software Projects based on my 4 different research studies conducted between 2012 and 2022. These studies include both Secondary Research and Primary/Empirical Research Studies. The Top-3 CSFs Commonly found in all 4 different research works Contributing to Software Project Success include Having Clear Project Goal and Objectives, Having Proper Project Planning and Having Effective Communication.

Keywords: Project Success, Critical Success Factors, CSFs, Critical Failure Factors, CFFs, Secondary Research, Empirical Research, Longitudinal Study

Research Notes:

This specific research note presents the consolidated findings of research on Critical Success Factors of Software Projects based on my 4 different research works conducted since 2012 till 2022. Basically, Project Success is studied over a period of time in different dimensions since 1970s. “Critical Success Factors” phrase has been used in Management Literature for more than 40 to 50 years. This CSF was used in different functions and branches of Management such as Marketing, Operations, Projects, Production, Entrepreneurship, etc. Mainly the CSF is the factor contributing or helping in making a Project Successful. That means, if we do that specific CSF with focus in project implementation, we may reach a successful project outcome.

Project Success as a Concept has been studied in several dimensions over a Period of time. Project Success means benefits realization to end users or consumers. Project Success means achieving learning and skill improvement for team members. Project Success means completing project on time, within budget and acceptable quality to Customer. These different meanings are related to Project Success. Other dimensions of Project Success include Project Success Criteria, Project Success Factors (CSFs), Project Success Measures, and Project Success Evaluation and Review. Also, Project Success was studied in relation to Project Manager Skill Set and Competencies, Project Type, Organization Structure, Leadership Style, Team Skills, Project Team Stages.

Similarly Other area of research going on in the community is the Critical Failure Factors (CFFs) of Software Projects. This area is also gaining attention across the community because, practitioners now-a-days would like to learn from others experiences; and would like to avoid project failure, avoid schedule overruns and cost overruns. That is the reason, CFFs also become on the areas of interest to some members of research community. CFF is the one, if we won't pay attention to it, Project leads to Failure. Majority of CFF is a negation of CSF.

This specific research note presents 4 different research works I conducted between 2012 and 2022 on Critical Success Factors of Software Projects and Critical Failure Factors of Software Projects. These studies include Studying 1) CSFs of Software Projects based on Secondary Research (Sudhakar, 2012); 2) CSFs of Software Projects based on Primary/Empirical Research (Sudhakar, 2020); 3) Critical Failure Factors (CFFs) of Software Projects based on Secondary Research (Sudhakar, 2016); 4) CFFs of Software Projects based on Primary/Empirical Research (Sudhakar, 2022). Table-5 Presents the Consolidated findings 4 different research studies; Table-6 presents the common findings of this longitudinal research specifying the Top-3 Critical Success Factors of Software Projects (common factors found in all 4 different research works).

1) CSFs of Software Projects based on Secondary Research:

This specific research Sudhakar (2012) was published in 2012 in an Emerald Journal on CSFs of Software Projects. It is basically a secondary/literature review-based study which considered, the literature of 61 already published conceptual/empirical/perspective based/case studies. According to this specific secondary research, top-10 CSFs contributing to Software Project Success are presented in Table-1:

Table-1: Top-10 CSFs of Software Projects based on Secondary Research

SL.No.	Top-10 CSFs (Based on Secondary Research)	Reference Count
1.	Top Management Support	16
2.	Communication in Project	11
3.	Project Planning	9
4.	Project Control Mechanisms	9
5.	Clear Project Goal	8
6.	Project Schedule	8
7.	Project Manager's Competence	8
8.	User Involvement	8
9.	Technical Tasks	5
10.	Customer Involvement	5
Reference Paper:	1) Sudhakar, G.P. (2012), "A Model of Critical Success Factors for Software Projects", <i>Journal of Enterprise Information Management</i> , Emerald Group Publishing Limited, UK, Vol. 25, Issue 6, 2012, ISSN: 1741-0398, pp. 537-558.	

2) CSFs of Software Projects based Primary/Empirical Research:

This specific empirical study was conducted using a questionnaire developed based in the secondary research findings of Sudhakar (2012) and was administered the questionnaire on respondents between May 2011 and June 2012 (around 6 respondents). This empirical study considered statistical techniques such as Mean, Median, Mode. The findings of this specific empirical research was published in Sudhakar (2020) and are presented Table-2.

Table-2: Top-10 CSFs of Software Projects based on Empirical Research

SL.No.	Top-10 CSFs (Based on Primary Research)	Mean Value
1.	Clear Project Goal	5
2.	Reliability of Output	5
3.	Project Planning	4.833
4.	Teamwork	4.833
5.	Project Team Coordination	4.833
6.	Quality control	4.833
7.	Client Acceptance	4.833
8.	Accuracy of Output	4.833
9.	Reduce ambiguity	4.833
10.	Communication in Project	4.667
Reference Paper:	2) Sudhakar, G.P. (2020), "Critical Success Factors of Software Projects: A Managerial Perspective", Amazon Publishing, ASIN: B08CSMS58S	

3) Critical Failure Factors (CFFs) of Software Projects based on Secondary Research:

This specific research work Sudhakar (2016) was presented in a Conference in India; and is also published in an edited book titled *Management Research: Contemporary Perspectives*. This is secondary research based study considered 33 already published conceptual/empirical papers and case studies. Based on the literature review following Top-10 Critical Failure Factors of Software Projects are identified; and are presented in Table-3:

Table-3: Top-10 CFFs of Software Projects based on Secondary Research

SL.No.	Top-10 CFFs (Based on Secondary Research)	Reference Count
1.	Poor Project Planning	15
2.	Unclear Project Objectives and goals	12
3.	Inappropriate Estimations	12
4.	Lack of Senior Management Involvement, Support & Commitment	11
5.	Lack of Risk Management	11
6.	Unrealistic Schedules/Deadlines	11
7.	Scope Creep	10
8.	PM Methodology/ Process Used	10
9.	Ineffective Communication	10
10.	Vague Requirements & Scope	9
Reference Paper:	3) Sudhakar, G.P. (2016), "Critical Failure Factors (CFFs) of IT Projects", <i>Proceedings of National Conference on Management Research-2016</i> , Institute of Computers and Business Management (ICBM) – School of Business Excellence, Hyderabad, India, 24 September, 2016; Published in Gaurav, K., Govindani, J. and Zarar, R. (2017) (eds.), <i>Management Research: Contemporary Perspectives</i> , ICBM, Hyderabad, 2017, ISBN: 978-81-924315-2-9.	

4) CFFs of Software Projects based on Primary/Empirical Research:

This specific empirical investigation Sudhakar (2022) was conducted during 2020 June-Dec; by administering a Questionnaire developed based on the secondary research findings of Sudhakar (2016). There were around 80 respondents to this empirical survey. Based on the findings of this investigation, Top-10 CFFs of Software Projects identified are presented in Table-4.

Table-4: Top-10 CFFs of Software Projects based on Empirical Research

SL.No.	Top-10 CFFs (Based on Primary Research)	Response Count (Total 80 Respondents)
1.	Poor Project Planning	73
2.	Ineffective Communication	69
3.	Unclear Project Objectives and Goals	68
4.	Unclear Schedules/Deadlines	64
5.	Vague Requirements and Unclear Project Scope	60
6.	Inappropriate Estimates	57
7.	Lack of Senior Management Commitment	49
8.	Project Management Methodology Used	29
9.	Lack of Risk Management	26
10.	Scope Creep	24
Research Paper:	4) Sudhakar, G.P. (2022), "Survey-8: Reasons for Project Failure" in Book: Sudhakar, G.P. (2022), <i>Project Management: A Research Handbook</i> . (BOOK-ready to publish)	

5) CSFs-Consolidated Research Findings:

Table-5 presents the consolidated research findings of 4 different studies. Table-6 presents the Top-3 common CSFs contributing to Project Success. They include Having Clear Project Goal and Objectives, Having Proper Project Planning, and Having Effective Communication. All these 3 factors are present as one among the Top-10 factors in all 4 different studies (see Table-5).

Table-6: Common CSFs Critical to Software Project Success

SL.No.	Top-3 CSFs of Software Projects	Occurrence in Number of Research Works Specified in Table-5
1.	Clear Project Goal and Objectives	4
2.	Project Planning	4
3.	Effective Communication	4

Above 3 CSFs are Present in all 4 different research works specified in Table-5.

Conclusion:

In Summary this longitudinal research found that having clear project goal, doing project planning and having effective communication are critical in making software project success. Basically, in these empirical investigations, earlier secondary research findings became input to empirical investigations; in constructing the instrument for data collection. Overall, these findings are applicable to industry practitioners and research community across the world. More than 90% of the respondents expressed that having Proper Project Planning is Critical in making software project successful.

Table-5: Top-3 CSFs Factors of Software Projects – Common Research Findings

10 Years of Research on CSFs and CFFs of Software Projects (of Dr.Goparaju Purna Sudhakar)								
(Both Secondary Research and Primary Research)								
CRITICAL SUCCESS FACTORS					CRITICAL FAILURE FACTORS			
SL.No.	Top-10 CSFs (Based on Secondary Research)	Reference Count	Top-10 CSFs (Based on Primary Research)	Mean Value (Total 6 Respondents)	Top-10 CFFs (Based on Secondary Research)	Reference Count	Top-10 CFFs (Based on Primary Research)	Response Count (Total 80 Respondents)
1.	Top Management Support	16	Clear Project Goal	5	Poor Project Planning	15	Poor Project Planning	73
2.	Communication in Project	11	Reliability of Output	5	Unclear Project Objectives and goals	12	Ineffective Communication	69
3.	Project Planning	9	Project Planning	4.833	Inappropriate Estimations	12	Unclear Project Objectives and Goals	68
4.	Project Control Mechanisms	9	Teamwork	4.833	Lack of Senior Management Involvement, Support & Commitment	11	Unclear Schedules/Deadlines	64
5.	Clear Project Goal	8	Project Team Coordination	4.833	Lack of Risk Management	11	Vague Requirements and Unclear Project Scope	60
6.	Project Schedule	8	Quality control	4.833	Unrealistic Schedules/Deadlines	11	Inappropriate Estimates	57
7.	Project Manager's Competence	8	Client Acceptance	4.833	Scope Creep	10	Lack of Senior Management Commitment	49
8.	User Involvement	8	Accuracy of Output	4.833	PM Methodology/ Process	10	Project Management Methodology Used	29

					Used				
9.	Technical Tasks	5	Reduce ambiguity	4.833	Ineffective Communication	10	Lack of Risk Management	26	
10.	Customer Involvement	5	Communication in Project	4.667	Vague Requirements & Scope	9	Scope Creep	24	
Reference Paper:	1) Sudhakar, G.P. (2012), “A Model of Critical Success Factors for Software Projects”, <i>Journal of Enterprise Information Management</i> , Emerald Group Publishing Limited, UK, Vol. 25, Issue 6, 2012, ISSN: 1741-0398, Pp. 537-558.		2) Sudhakar, G.P. (2020), “Critical Success Factors of Software Projects: A Managerial Perspective”, Amazon Publishing, ASIN: B08CSMS58S		3) Sudhakar, G.P. (2016), “Critical Failure Factors (CFFs) of IT Projects”, <i>Proceedings of National Conference on Management Research-2016</i> , Institute of Computers and Business Management (ICBM) – School of Business Excellence, Hyderabad, India, 24 September, 2016; Published in Gaurav, K., Govindani, J. and Zarar, R. (2017) (eds.), <i>Management Research: Contemporary Perspectives</i> , ICBM, Hyderabad, 2017, ISBN: 978-81-924315-2-9.		4) Sudhakar, G.P. (2022), “Survey-8: Reasons for Project Failure” in Book: Sudhakar, G.P. (2022), <i>Project Management: A Research Handbook</i> . (BOOK-ready to publish)		

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- 3) Sudhakar, G.P. (2020), “Critical Success Factors of Software Projects: A Managerial Perspective”, Amazon Publishing, ASIN: B08CSMS58S

- 4) Sudhakar, G.P. (2022), “Survey-8: Reasons for Project Failure” in Book: Sudhakar, G.P. (2022), *Project Management: A Research Handbook*. (book-looking for publisher)

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Dr.Goparaju Purna Sudhakar, PhD, PMP has 27 years of experience in both Industry and Higher Education. A Management Professor by profession, he has authored or edited over 16 books and 120+ papers/articles. Based in Hyderabad, India, He does research on Economics, Project Management, Entrepreneurship, Conflict Management and on Organizational Teams. He has M.Tech, Executive MBA, PMP. He received PhD in Business Administration from Aligarh Muslim University (AMU), India. He worked in US, UK, Ireland, Finland and India. He did setup two e-learning portals on Management Education. He is receipt of few national level Best Professor Awards in Management. He received Best Paper Award from ICBM (2016) and MDI (2022). He is on editorial board of a Romanian and Brazilian Journal. He can be reached at purna24@hotmail.com

TRAINING AND DEVELOPMENT IN THE FRAMEWORK OF SUSTAINABLE PRACTICES IN HUMAN RESOURCE AND ORGANIZATIONAL BEHAVIOUR

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Abstract:

Business organizations' training and development plans have evolved beyond conventional methods, with sustainability playing an important part. The convergence of organizational behaviour and human resources represents the strategy alignments towards responsible, ethical & environment aware operations. This integration doesn't deal with just employees' professional development, as well as their function in establishing a sustainable future for the business & society as a whole.

As environmental and social responsibilities become more recognized, businesses understand that they must integrate sustainability into every aspect of their operations. As the pillars of business expansion and success, training and development are no different. This study examines how training and development approaches are combining with sustainable practices in the Organizational Behaviour & Human Resource domains.

A wide variety of activities are covered by the sustainable practices covered here, including encouraging diversity and inclusion, advancing a circular economy, cutting waste, and putting environmentally aware leadership into reality.

These practices are essential for boosting organizational performance, cultivating a healthy corporate culture, and increasing employee engagement in addition to environmental sustainability. By providing pertinent examples of how companies are adopting and benefiting from this cutting-edge approach, this investigation seeks to illuminate contemporary training and development trends that prioritize sustainability. Businesses who want to adapt to the shifting business environment, match training initiatives with sustainability objectives, and help create a more sustainable future must comprehend these trends.

Keywords: Diversity, Inclusion Stakeholders, Sustainability, and Social Responsibility

1. INTRODUCTION:

The concept of sustainability refers to satisfying current needs without jeopardizing future generations' capacity to meet their own. To ensure the long-term well-being of the planet and its inhabitants, economic, social, and environmental concerns must be balanced. Organizational behavior (OB) and sustainable human resource management (SHRM) are strategies used in businesses to integrate sustainability principles into employee behavior and HRM processes. One of the SHRM principles, HR development, proposes that, in combination with the other SHRM principles, staff development should be done on a continuous basis and with a long-term perspective. The aim is to ensure that company culture, employee behavior, and HRM processes promote environmental, social, and economic well-being and align with sustainability objectives.

Employee development and corporate expansion are key indications of an organization's success and growth. It is critical for the organization's success to provide its personnel the opportunity to learn and develop in their field. Training and development may help employees perform better. Long-term sustainability, moral behavior, employee satisfaction, and organizational success are all aided by ongoing training and development in organizational behaviour (OB) and human resources.

Sustainable training in HR and OB promotes ethical leadership by aligning employees' personal values with the organization's sustainability goals, ensuring that organizational values are consistent with sustainability principles, and encouraging responsible decision-making and actions at all organizational levels. Employee engagement increases retention rates because engaged workers are more inclined to remain with the organization.

By supporting DEI projects, it guarantees a workforce that is inclusive and diverse. Diverse experiences and viewpoints contribute to creativity and invention, improving the organization's overall sustainability and adaptability while preparing staff for organizational changes and encouraging flexibility significant organizational changes are often necessary for sustainability programs, and a staff that can adjust easily is essential to the implementation of sustainability. Developing training and development initiatives that are sustainable requires taking into account a number of elements that affect their efficacy, durability, and compatibility with corporate and societal sustainability objectives.

Incorporating sustainability training into work tasks and responsibilities; aligning training with the organization's sustainability plan; and including key stakeholders in design

and development are the main considerations to take into account when making training and development sustainable. Inclusion and accessibility to support a varied workforce.

2.1.Design and development stakeholders:

To make sure that training and development programs satisfy the requirements of the company and are in line with its strategic goals, it is crucial to include important stakeholders in their creation. Senior executives, staff members, human resources specialists, subject matter experts, and everyone else with a stake in the training's success might all be considered key stakeholders. Involve stakeholders in needs assessments to establish which specific skills and competences need training.

Then, while deciding on the best training method, examine if workshops, e-learning, in-person instruction, simulations, or a mix of these will be the most beneficial. Stakeholders may provide ideas on how to tailor training programs to the individual requirements and learning preferences of workers across departments and positions.

Frequent feedback from stakeholders throughout the design and implementation stages improves content and distribution methods while also ensuring optimal use of existing resources. Obtain the support of CEOs and senior executives; their involvement and approval of training programs may have a significant influence on their performance.

Table 1: Key project stakeholders' roles and duties.

ROLE OF THE PROJECT	RESPONSIBILITY	COMMENTS
Executives Sponsors	A entity in charge of ensuring the project's success by providing resources and help.	Assist in removing problems. Accepts these final plan
Projects Lead	The primary person in charge of the project's success. All stakeholders will get updates on the work plan, resource allocation, risk management, scope change prevention, milestone monitoring, and project status.	The ability to regulate people, disagreements, dangers, and difficulties. If you do not have an MPP, get permission from your supervisor.
Project Coordinator	Oversees the project's progress from start to finish. Uses project management procedures and resources to guarantee that projects are completed	Restricts control over resources and gives the project manager more power for risk, problems, and personnel

	on schedule, within budget, and with the desired outcomes.	management difficulties.
Functional/Technical Lead	SME in charge of spearheading an area's functional or technological activities	Authority to assign work and resources
Team Member: Subject Matter Experts (SMEs)	Employees those are very proficient in a certain profession, job, or talent. To achieve the project's objectives, SMEs are in charge of carrying out certain tasks. They often play an important part in testing and training, as well as in the development of requirements.	They keep the project leader and coordinator updated on the status of their work, as well as any potential risks or challenges.

Develop job-specific sustainability training courses that cover the stated capabilities. According to Table 1, roles and duties are broad descriptions that may be adjusted & customized to meet each project's unique requirements. Modifying training materials to match the needs of different departments and job positions. Integrate job performance and sustainability skills into assessments and performance reviews. I utilize assessment tools to determine how effectively employees understand and implement sustainability concept are there in job tasks.

Encourage staff to share their sustainability successes and strategies with their colleagues in order to promote a culture of peer learning and inspiration. Organizations may create a more socially and environmentally aware workforce by integrating sustainability training into job duties and responsibilities. In addition to supporting sustainability goals, this strengthens an organization's status and competitive advantage in a business climate that is growing more cognizant of environmental challenges.

Accessibility and inclusion of a diverse workforce:

To preserve accessibility and inclusion in training and development, as well as to accommodate a varied workforce, businesses must use inclusive methods that consider the requirements and preferences of all employees, regardless of their backgrounds, talents, or learning styles. Providing training materials in a range of media, such as written text, video, audio, and interactive forms, as well as adopting accessible document formats to ensure

compatibility with screen readers and other assistive devices. A diversified set of trainers and facilitators who can connect with and understand the participants' experiences and backgrounds will help to identify a diverse workforce.

The inclusiveness and accessibility of a varied workforce:

Organizations must implement inclusive practices that consider each employee's needs and preferences, regardless of their origins, skills, or learning preferences, in order to ensure accessibility and inclusiveness in training and development and to accommodate a diverse workforce. To ensure compatibility with screen readers and other assistive devices, training materials should be supplied in a number of formats, such as written text, audio, video, and interactive. Accessible document formats should also be employed. Recognizing a diverse workforce would benefit from a diversified set of trainers and facilitators who can connect with and understand the participants' experiences and backgrounds.

2.3.Future competencies:

Future sustainable training and development approaches will focus on decreasing negative environmental and societal consequences while providing individuals with the information and skills required to flourish in a fast changing world. The following significant trends and practices are anticipated to influence sustainable training and development in the future.

- **Digital and Remote Learning:** The transition to digital learning was accelerated by the COVID-19 epidemic. This tendency is probably going to continue, lowering the demand for tangible resources and lessening the environmental damage caused by infrastructure and transportation.
- **Personalized Learning Paths:** As adaptive learning technologies proliferate, people will be able to customize their voyage of learning. As a result, less time and money is spent on irrelevant material.
- **Eco-friendly Educational Resources:** Paper waste is decreased when digital resources replace printed textbooks. Sustainability will also be aided by the development of more energy-efficient equipment and the usage of renewable energy for data centers.
- **Blended Learning Models:** By combining online and in-person instruction, huge, energy-intensive buildings are not as necessary, and flexibility is increased.
- **Green Training Facilities:** Green and sustainable training facilities shall be prioritized when in-person instruction is required. These might incorporate rainwater collection, solar-powered classrooms, and other eco-friendly elements.

- **Education on Renewable Energy:** As the globe moves toward renewable energy, there will be an increasing need for training in these fields in order to foster sustainable practices and create a trained labor force.
- **Sustainable Workforce Development:** In line with the broader goal of a greener future, corporations will increasingly sponsor training and development projects that focus on sustainability and corporate social responsibility.
- **Circular Economy Training:** People will need to be prepared to work in the circular economy. This includes teaching on sustainable resource management, upcycling, and recycling.
- **Training on Diversity, Equity, and Inclusion (DEI)** Creating an inclusive and diverse workforce will remain a primary priority. Training classes will focus on social sustainability, equality, and DEI.
- **Lifelong Learning:** As technology and society evolve at a fast pace, individuals will need to seek lifelong learning. Programs for training and development will be developed to enable continuous skill improvement throughout a person's career.
- **Augmented reality (AR) and virtual reality (VR):** These technologies will be important for practical instruction while lowering the requirement for tangible materials.
- **Training on Mental Health and Well-Being:** Training programs will improving include aspects of stress management, mental health support, and well-being as a result of the importance of mental health.

Building a Sustainable Future with a Skilled Workforce



2.4. Training via remote mobile:

Companies have come to understand that, in addition to their existing expertise, workers now need training on how, when, and when to apply their growing experiences to improve performance. Because mobile technologies have advanced, businesses are now depending more and more on mobile workers. Training is moving to mobile devices, where applications deliver "just-in-time" information and suggestions to workers in a variety of businesses.

2.5. Artificial intelligence training:

The capacity of AI systems to analyze unstructured data is on par with that of humans. Language patterns, images, scripts, and auditory inputs may all be understood by these systems. AI-based software may provide learners with personalized training materials that include their learning preferences, past performance, and expected training requirements.

2.6. Developing Quickness

Agile learning is a technique that encourages individuals to learn by doing and constantly repeating, resulting in organizational transformation and acceptance. Companies such as IBM have established a platform known as IBM Garage to help manage, scale, and complete an organization's various transformation activities. Companies like as Ford Motor Company and Travelport use IBM Garages throughout the globe to foster an open affiliation and continuous learning culture.

2.7. Materials and methods:

This research relies on secondary data to assist and guide long-term training and development programs. These resources have offered useful information, data, research results, and best practices on social responsibility, ethics, and sustainability. Academic journals, government publications, business sustainability reports, internet databases, news stories, historical data, and other multimedia are the sources of secondary data materials utilized in sustainable training and development. Making use of a range of secondary Data resources have improved sustainable training and development programs' efficacy and substance.

3. Discussion & Conclusion:

Sustainable Training & Development methodologies have expanded to include a wide range of topics, including social and environmental responsibility, sustainable leadership, and cutting-edge training technology. Sustainability continues to be a crucial component in developing training and development programs that satisfy the demands of both business and society as companies continue to adapt to a fast changing environment.

An important breakthrough in the domains of organizational behavior (OB) and human resources (HR) is the incorporation of sustainable practices into training and development. This change is not only the result of environmental and social constraints; it is also a strategic need for businesses looking to succeed in the long run and uphold moral principles. As we wrap up our investigation of these sustainable behaviors, a few important conclusions emerge.

By providing workers with the information, abilities, and mindsets needed to function sustainably, sustainability in training and development helps firms not only protect the environment but also future-proof their operations. By taking a comprehensive approach, the organization's objectives are in line with the demands of society and the environment, which eventually results in a more prosperous and sustainable future.

Embracing a diverse workforce and building an inclusive culture is not just a social justice problem, but also a strategy for fostering innovative and sustainable practices. Sustainable training and development strategies are founded on the concepts of responsible sourcing, waste reduction, and the circular economy. These concepts have the potential to provide significant outcomes while also being environmentally friendly. As we look forward, training and development are well-positioned for transformative research that stresses sustainability.

To summarize, including sustainable practices into training and development is a paradigm shift that is defining the future of work, rather than a passing trend. It is critical for generating new ideas, increasing employee engagement, and meeting the growing requirements of an ecologically conscious populace. Organizations that recognize the value of sustainable training and development are better positioned to prosper in a rapidly changing and sustainable future. Future research on sustainable practices in training and development has the potential to generate good change by encouraging a more responsible and environmentally sensitive approach to learning.

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PERFORMANCE APPRAISAL – An OVERVIEW

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Introduction:

It is important to know the emergence of performance appraisal in the field of human resource systems across the world. It puts its benchmark in all aspects of organization's wellness. Success of the organisation depends on the well developed and effective human resource system. Human factors are the important element in the organizations' soundness. Employees' performance is to be assessed and evaluated based on a well-established set of guidelines. Those guidelines are continuously maintained for successive growth of any entity.

It is on par for all forms of organisation. Formally and informally the organisations develop their own guidelines for expanded growth and development on the whole. It is more advanced and imperative in nature. Evergreen in the industrial world focussed on the goodness of the business world and working group.

Need and requirements of Performance Appraisal

Employees performance is to be evaluated on par to their standard and must be motivated to their achievements. Articulatory activities and efforts of employees in any organization to be monitored, evaluated and properly advanced to the next level for their professional attainment.

Every industry needs its employees to be uplifted to the next level. It is important to see the employees are being graded and appraised, rewarded economically as well as intellectually. Performance appraisal is a tool for deciding and shaping the industry to move the world.



Objectives of Performance Appraisal

The objectives of performance appraisal are listed here are:

- To identify the level of performance and achievements done by each employee.
- To know the strength and weakness of employees
- To differentiate the efficient worker and inefficient worker in an organization.
- To assess the degree and achievement in the line of work done by each employee.
- To evaluate the contributions made by each employee towards the development of an organisation.
- To Know the requirement of employees and their needs in fulfilling the organizational goal.
- To promote employees based on skills and performance
- To decide whether to confirm the services of an employee
- To assess the training needs of employees.
- To decide increments based on performance
- Enables the firm to assess the capabilities of the staff which is essential for human resource planning.
- To inform employees about their level of performance.
- Based on the appraisal the employee and his superior can agree the targets to be achieved for the next assessment period.
- To provide guidance for the purpose of employee development.
- To improve communication between the superior and subordinates.
- Performance appraisal may be used to determine whether HR programs such as selection, training and transfer have been effective or not.
- To provide a clear idea to subordinates of their strengths and weaknesses and areas of development.
- To create a strong relationship between superiors and subordinates.
- To improve morale and motivation of employees through regular and objective feedback.
- To improve organisational effectiveness.

Primary elements of performance appraisal:

- Individual Goal and organizational goal
- Periodic Assessment
- Industrial growth and development
- Performance appraisal plan;

- Continuous Assessment and overview
- Establishing relationship between achievement and rewards corresponding

Features of Performance Appraisal:

- It is a continuous process It assesses one's performance at regular intervals of time.
- It is a goal oriented process.
- Performance appraisal serves as a link between an organisation's strategy and its results.
- It is the process of assessing an employee's performance and also aims at spotting their potential.
- It is based on various HR frameworks such as promotion, transfer, dismissal, pay increase, incentives, training etc.,
- It is not a fault finding exercise; but it is for employee development
- It is future oriented. Deficiencies are noted down to improve future performance.
- It may be formal or informal. The formal process is objective and the informal process is subjective.
- It is related to job evaluation and merit rating.
- The main objective of performance appraisal is to measure and improve employee performance.
- There are different performance appraisal methods and suitable one to be chosen based on objectives accordingly.

Advantages of performance appraisal:

**** Suitable Placement:** Performance appraisal is useful for evaluating performance and identifying potential. This can be used for assigning duties according to skill and potential.

**** Assistance in Self-improvement:** Performance appraisal provides details of strengths and weaknesses of employees. They are guided to overcome weaknesses and improve their strengths.

**** Incentive to grow and develop:** Performance appraisal acts as an incentive to improve performance, develop new skills and secure higher positions.

**** Effective training programme :** Performance appraisal helps to identify areas of improvement. This helps in providing the right type of training.

**** Improving personnel policies:** Personnel policies are directly connected with performance appraisal. They become fair and impartial if they are based on performance appraisal.

**** Cordial Employer-Employee Relation:** Performance appraisal minimises employee grievances regarding promotions, transfers, increments etc., Employees develop confidence that the appraisal system is fair. This results in better employer-employee relations.

**** Human Resource planning and Development:** Performance appraisal enables human resource planning and development. Existing manpower can be trained to fill higher positions in the firm.

**** High Employee Morale:** Employees feel that the management is interested in their career development. This improves their morale and motivation.

**** Enables Communication:** Performance appraisal enables effective communication between employees and employers. This results in better understanding and removes mistrust. Managers have an opportunity to provide feedback to employees.

**** Identifying hidden potential:** The jobs in which employees are placed may not use their full potential. Through appraisal, the hidden potential of employees can be found out. The organisation can place them in jobs which utilises their full potential.

**** Planning future goals:** Performance appraisal enables an employee to plan for the coming year and set goals. In other words, appraisal is the basis for goal setting.

**** Feedback:** Managers can provide feedback to employees about their performance. They can discuss the achievements of goals, measures to improve performance etc.,

**** Improves Job Satisfaction:** Performance appraisal improves job satisfaction of employees. It indicates to an employee that the firm is interested in their development.

**** Lower absenteeism and turnover:** Performance appraisal satisfies employee desire for recognition. This increases interest in their job and reduces absenteeism and turnover.

**** Monitoring effectiveness of recruitment:** Appraisal data are useful in assessing the effectiveness of a firm's recruitment and induction. It assesses whether the quality of the workforce is improving, staying steadily or declining.

Limitations of Performance Appraisal:

****** It may not be objective in certain cases and situations. It might be affected by the personal likes and dislikes of superiors. If a superior likes a subordinate, he may be given a rating high even if performance is poor.

****** Some superiors may not have the knowledge or skills of appraisal. They may not be able to appraise in a perfect manner.

** There might be conflicts and misunderstanding regarding the criteria to be used. Lack of uniform criteria might affect the appraisal process.

** If superiors are not serious about the appraisal, the quality of appraisal would suffer.

** Qualitative factors such as honesty, commitment, loyalty, customer orientation etc., are difficult to measure. Appraisal based on such factors might be subjective.

** There are different methods of performance appraisal. Each method has its merits and demerits which might affect its effectiveness.

** Some superiors are very lenient while few others might be very harsh. Appraisal conducted by such superiors would not be objective.

** If superiors are biased on the basis of caste, religion, gender, age etc., the appraisal would be faulty.

** If superiors are not well trained in appraisal methods and technique, the appraisal would be incorrect.

** Superiors may consider only certain aspects of performance or give importance only to recent events.

An Effective Performance Appraisal System:

- Clarity of objectives: The objectives of performance appraisal should be clear and specific. It should be communicated to the superior and subordinates.
- Fair : The appraisal system should be fair and beneficial to employees and the organisation. The process should be transparent. In order to create trust among employees.
- reliable and valid: The appraisal system should provide reliable and valid information. Appraisals should measure what they are supposed to measure. If appraisal is conducted to identify training needs, it should provide clear information about the strength and weakness of an employee and areas in which he should be trained.
- Standardisation: Performance criteria and standards should be specific and clear. Employees should be made aware of the standards. The appraisal form, procedures and rules should be standardised.
- Attention on job related behaviour: The appraisal system should focus attention on job related behaviour. It should provide information on job related activities.
- Viability: Performance appraisal techniques should be viable to implement. It should be economical in nature.

- Trained appraisers: Appraisers should be well trained on the methods and procedures of appraisal. They should be able to avoid rating errors.
- Mutual trust: Mutual trust, cooperation and open communication should exist in the organisation. This is essential for creating confidence in the appraisal process.
- Focus on development: The appraisal process should not be a fruit finding exercise. The purpose should be to enable growth and development of an employee. The appraiser should be a coach and counsel employees on ways to perform better.
- Suited to the company: Organisations differ in their size, industry, environment, resources etc., The performance appraisal system should be based on the requirement of each organisation.
- Timely feedback: Employees should be provided frank and timely feedback. They should be informed of good performance and areas requiring improvement.
- Economical and less time consuming: Effective performance appraisal systems should be less time consuming. They should be cost effective. Benefits derived should be more than the costs.
- Recognition and reward: Appraisals should recognise and reward employee achievements. This would motivate them and also encourage others to perform better.
- Proper documentation: Results of the appraisal, feedback and corrective measures taken should be documented. This would serve as future reference and as important evidence.

Methods of Performance Appraisal:

Traditional methods:

- Rating Scale
- Ranking Method
- Heck List Method
- Critical Incidents Method
- Forced Choice Method
- Forced Distribution Method
- Essay Method
- Paired Comparison Method
- Field Review Method

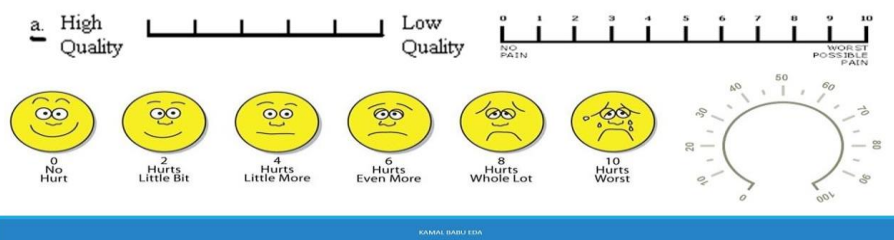
Modern Methods:

- 360 Degree Feedback
- MBO
- Assessment Centres
- Behaviourally Anchored Rating Scale (BARS)

Traditional Methods:**Rating Scale:**

This is the simplest and most popular method of employee appraisal. The qualities or factors to be assessed are determined. Some of the factors are loyalty, commitment output, attendance, attitude, work knowledge, team spirit etc., The rater checks the performance level on each factor and gives the rating. The rating can be Excellent, Very good, Good, Average and Poor.

RATING SCALES

**Merits:**

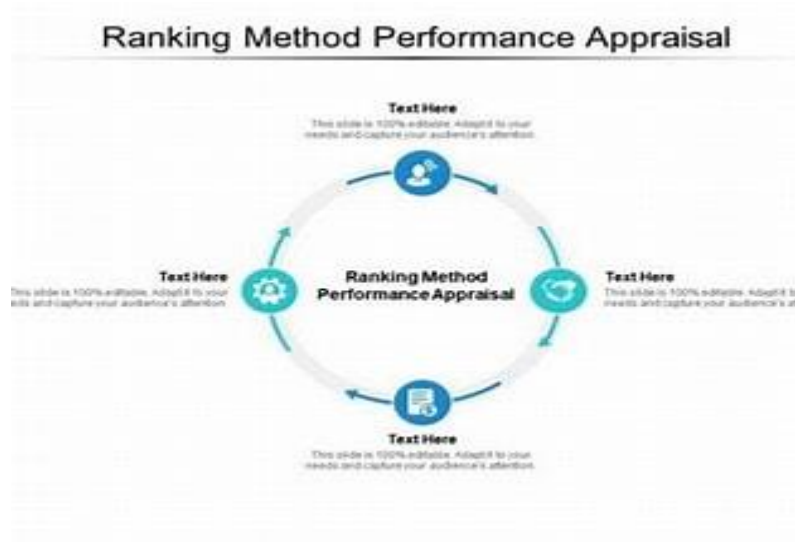
- Simple to understand and use
- It can relate to all types of jobs
- It can cover a large number of employees.
- It eliminates the discrepancies among the workers
- reduces labour turnover

Demerits:

- Sometimes the raters may give very strict or very lenient rating
- It is difficult to rate average employees
- Different raters may use different criteria in their evaluation.

Ranking Method:

It is a simple and easy method of performance appraisal. Performance of employees is evaluated. Then employees are ranked based on their relative levels of performance. Among employees, the best performer is assigned first rank and the worst performer is ranked last.



Merits:

- It is easy to identify the best performers and poor performers
- It is simple to understand and easy to administer

Demerits:

- It is not a suitable method to compare employees with different traits
- It is difficult to apply in companies with large number of employees
- It does not measure how one employee is better or worse compared to another employee

Checklist Method:

A check list of statements representing aspects of employee behaviour is prepared. The rater mentions Yes or No for each aspect of behaviour. The following is a sample of the check list method:

a). Is the employee committed to the organisation

Yes/No

b). Does he meet organisational requirements

Yes/No

c). Is he interested in work

Yes/No

d). Does he respect his superiors

Yes/No

e). Is he respected by his subordinates

Yes/No

CHECKLIST METHOD

1. Is regular on the job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Does maintain discipline well?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. Shows consistent behaviour to all colleagues?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. Is interested in their job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5. Keeps making mistakes?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6. Shows favouritism towards particular colleagues?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Merits:

- It is a cost effective method
- It is simple to administer

Demerits:

- The rater would not be able to give relative ratings
- Rater’s bias might affect the quality of appraisal
- It is a time consuming method.

Critical Incidents Method:

Critical behaviours influencing performance of an employee are identified. superiors record incidents when such critical behaviours occur. Critical incidents can be positive or negative. They are used for appraising employee performance.

CRITICAL INCIDENT TECHNIQUE
Critical Incident Method



Merits:

- Evaluation is based on actual job behaviour
- It reduced bias
- Ratings are supported by actual description

- There are better chances for improvement of employees.

Demerits:

- Negative incidents might be given importance
- Might result in close supervision
- Certain important incidents might be forgotten

Forced Choice Method:

- The rater is provided a set of statements describing the qualities of a worker. The statements reflect the positive and negative qualities. The rater has to choose whether a statement is the most or least descriptive of a worker. The rater cannot change or add any statement. It is illustrated as follows:

1. Least Most

- A Has High team spirit A
- B Helps team members in case of difficulty B
- C Willingness contributes ideas in team meetings C
- D Voluntarily guides new team members D

Merits:

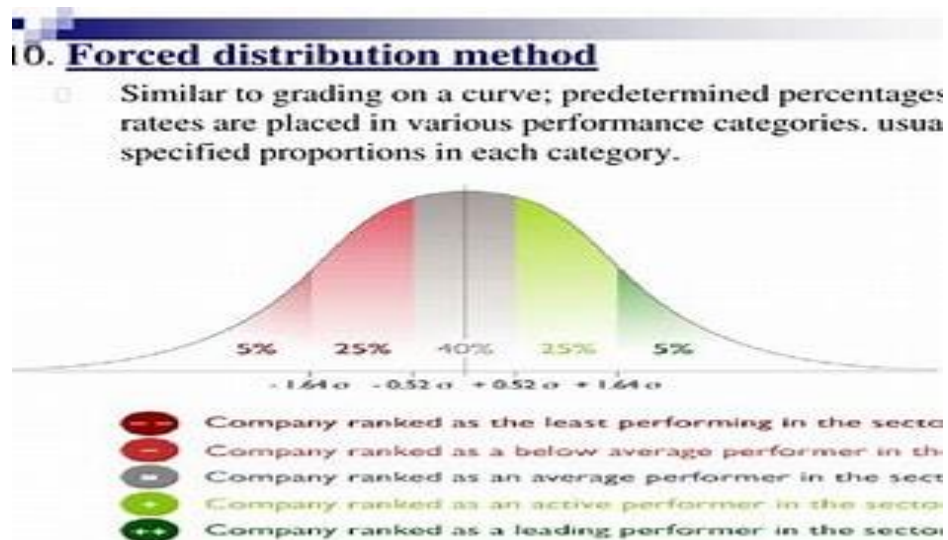
- Due to forced choice, personal bias is avoided
- Avoids the possibility of high ratings and low ratings to all employees

Demerits:

- Statements might be wrongly prepared
- Choice of statements is limited.
- The rater might feel that the statements do not correctly reflect employee behaviour or performance.

Forced Distribution Method:

The rater appraises employees performance on a predetermined distribution scale. Employees are appraised on the basis of two factors. They are job performance and capacity for promotion. The best performers are placed in the top 20% and marked outstanding, the next level of performers are placed in the next 40% as good, the next set is placed as fair in the next 20% and the balance is placed as poor in the last 20%.

**Merits:**

- Eliminates rater bias
- Simple method to understand and administer
- Promotable employees can be identified
- useful to identify training needs of employees.

Demerits:

- Employees who feel that they were given a lower grade in spite of good performance may get frustrated.
- It might limit creativity and risk taking
- Can affect team spirit because employees may not be willing to share knowledge.

Essay Method:

The rater has to write a short essay describing an employee's performance and behaviour. The essays point out the strong and weak points. They can be written by the rater in free form without any specific guidelines. It can be written in a structured manner or may involve answering specific questions.

1. Essay appraisal method

- ✓ This traditional form of appraisal, also known as "*Free Form method*" involves a description of the performance of an employee by his superior.
- ✓ The description is an evaluation of the performance of any individual based on the facts and often includes examples and evidences to support the information.
- ✓ A major drawback of the method is the inseparability of the bias of the evaluator.

Merits:

- It provides more flexibility to the rater
- It is a reliable method because it is written in the rater's own language

Demerits:

- Essay may not reflect the actual performance of an employee
- Some raters may not have good writing skills
- It is a time consuming method.

Paired Comparison Method:

Each employee is compared with other employees on all criteria of appraisal. The number of pairs of employees that the supervisor has to compare is based on the formula $N(N-1)/2$. If there are five employees, the pair of comparisons to be made is 10.

Merits:

- Provides more reliable rating than the ranking method
- Simple to understand and administer

Demerits:

- Not a suitable method when number of employees is more

Field Review Method:

This is a different approach to performance appraisal. In this case, an interviewer from the personnel department of the enterprise would meet the supervisor and gather information on the performance of the subordinates working under him.

The supervisor may also be asked to suggest measures to improve the subordinates performance. The interviewer records the views of the supervisor carefully and the same will be preserved for future reference or guidance.



Merits:

- More reliable method
- The rater can directly identify the good performer

Demerits:

- This method relies with the capacity of interviewer
- There are chances for misunderstanding and under-estimation.

Modern Methods:**360 - degree Feedback:**

Appraisal made by peers, superiors, subordinates, clients and outsiders with whom an employee interacts in his job is 360 degree appraisal. The human resource department collects the appraisal inputs, consolidates them and provides feedback to the employee. Apart from performance of an employee, his talent, behaviour, values and skills are also appraised.

It was first developed at the General Electric Company in US in 1992. Many companies started using this method meticulously.

**Merits:**

- It helps in identifying the strengths, weakness and potential of employees
- Training needs of employees can be assessed and suitable training programs can be organised
- Enables to identify employees for promotion
- It encourages open feedback
- Helps in self development of employees.

Demerits:

- Difficult to get feedback from multiple sources
- It is a time consuming process

MBO : Management by Objectives:

The superior and his subordinates jointly discuss and set the goals of the subordinates. The superiors assess performance of subordinates to identify problems and find solutions at the initial stage itself. At the end of the evaluation period, actual performance is compared with the targets. If objectives are not achieved, the superior identifies the reason and takes corrective action. Based on the evaluation, mutually agreed targets are fixed for the next period.

Merits:

- Links performance of an employee and the organisation in achievement of objectives.
- Better commitment among subordinates for achieving objectives
- Each employee is clearly aware of his role and responsibilities
- Free flow of communication and sharing of information
- Better utilisation of talent and potential of employees.

Demerits:

- Employees are forced to work behind the task
- It is not suitable for skill based work environment.

Assessment centres:

Assessment centres are used for evaluation executive and supervisory potential. In an assessment centre, managers participate in job related exercises and are evaluated by trained observers. Assesseees participate in in-basket exercises, work groups, computer simulations and role playing.

Merits:

- It provides better estimates of future performance and progress.
- It is a reliable and valid method
- It ensures that suitable employees are hired or promoted
- It is based on direct observation of the behaviour of candidates
- The behaviour of candidates are observed in simulated situations which are close to the actual workplace
- Assessment is based on judgement of several appraisers. Therefore personal bias and partiality are avoided.

Demerits:

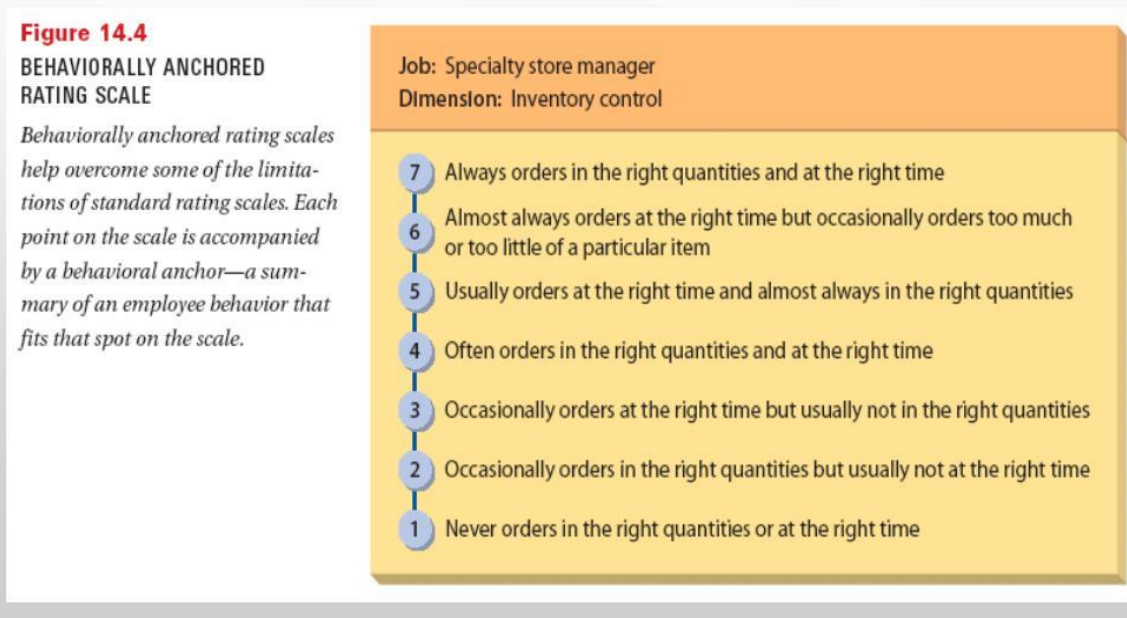
- It is a costly and time consuming method
- Good Performers may get affected in simulated situations.

- Those who are not selected may get affected.

Behaviourally Anchored Rating Scale (BARS):

Behavioural anchored rating scales measure observable and important job behaviours. Evaluation is based on behaviour required for each individual position. Development of BARS evaluations require understanding of each position's tasks and the behaviour of employees. The behaviour for each employee is rated. Then the behaviour is anchored to points on a rating scale. It indicates whether the behaviour is very good, good, average or poor.

Behaviorally Anchored Rating Scales (BARS)



Merits:

- It provides a better idea of employee's behaviours
- Those who are involved in the job participate in determining the job dimensions.
- It is aimed at specific aspects of job performance
- Objective feedback can be provided because evaluation is based on specific behaviour.
- It is useful to inform the behaviours that a candidate should improve.

Demerits:

- It is a time consuming and expensive method. For each position in the firm BARS form must be created.

- Detailed information about actions of employees is required. Collecting such data is difficult and many managers do not have time.
- Since jobs keep changing, BARS require regular updation.

Conclusion:

Performance appraisal is a tool and key to measure the effectiveness of workers in any organisation. It explores the qualitative characters of employees in the organisation. It gives benefits for both employer and employee. It makes the management of human resource system so simple in a safe corner.

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ETHICAL DIMENSIONS OF AI IN HRM: TOWARD RESPONSIBLE AND SUSTAINABLE PRACTICES

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Abstract

Artificial Intelligence (AI) is revolutionizing Human Resource Management (HRM), offering enhanced efficiency in recruitment, performance management, and employee well-being. Yet, its adoption raises profound ethical challenges that demand responsible, sustainable practices. Consider a recent case where a hiring bot screened out all qualified female candidates for a technical role, highlighting algorithmic bias and making the urgency of ethical vigilance all the more palpable. This chapter confronts the critical question: How can AI-driven HRM safeguard human dignity at scale? Through an ethical lens, it highlights risks such as algorithmic bias, privacy breaches, and the erosion of human judgment, emphasizing the importance of transparency, inclusivity, and fairness. Drawing on global case studies, the chapter examines frameworks for the ethical use of AI, including governance, audits, and stakeholder engagement. By striking a balance between innovation and accountability, organizations can effectively harness AI to promote equity and trust. Ultimately, sustainable HRM cannot be achieved without a hybrid model-one that combines human empathy with machine intelligence to ensure that workplaces remain both technologically advanced and ethically grounded. The challenge is clear: leaders must commit to the ongoing, vigilant integration of responsible AI in HRM to deliver not just efficiency but also enduring employee well-being and institutional trust.

Keywords: Artificial Intelligence, Human Resource Management, Ethics, Algorithmic Bias, Transparency, Sustainable Practices

1. Introduction: AI and Ethical Concerns in HRM

The rapid integration of AI into HRM has transformed hiring, training, and performance evaluation. However, this progress is accompanied by ethical dilemmas

concerning fairness, accountability, and human dignity. Framing AI as a driver of social and cultural change, not merely a tool for efficiency, the chapter examines its impact through a specific ethical lens—emphasizing the principle of dignity as a guiding compass for subsequent analyses. By employing ethical theories, such as deontology, which emphasizes duty and rules, and virtue ethics, which focuses on character and virtues, the chapter underscores the importance of evaluating HR technologies through moral frameworks that extend beyond business benefits, examining AI's effects on equity, justice, and employee well-being. This narrative highlights why the subsequent sections examine practical areas where ethical concerns arise in AI-driven HRM, starting with recruitment practices.

2. Algorithmic Bias and Fairness in Recruitment

Having explored fairness, the next critical area is transparency and explainability. Beyond bias prevention, understanding how AI decisions are made is central to ethical HRM. To make fairness audits actionable, specific demographic slices, such as gender-race intersections, disability status, and age brackets, should be tracked and analyzed for their impact. Focusing on these metrics can help guide the auditing process in effectively addressing potential biases. The key takeaway is: regular, targeted fairness audits and incorporating diverse perspectives are essential for preventing bias and achieving equitable hiring outcomes with AI.

3. Transparency and Explainability of AI Systems

Building on transparency, effective data protection becomes equally vital. The increasing volume of sensitive HR data gathered by AI systems highlights growing privacy risks. To enhance transparency and trust, organizations are encouraged to implement a standardized 'explanation sheet' for every HR algorithm. This sheet documents the key inputs, outputs, and confidence scores, providing a detailed overview of the decision pathways. By offering a template for these explanation sheets, organizations can model actionable transparency and ensure stakeholders have a clear understanding of how AI-driven decisions are made. The key takeaway is that explainable AI both increases trust and yields measurable positive results in hiring processes.

4. Privacy and Data Protection in HR Analytics

Addressing privacy leads us to consider the intersection of data ethics and decision-making roles. The next section explores how humans and AI share responsibilities in HR decision-making. The main takeaway is: maintaining employee privacy in HR AI is crucial for protection and drives the ongoing improvement of data practices. Privacy and data ethics intersect with the challenge of balancing human and AI roles in decision-making. A key

dilemma in AI-driven HRM is how much decision-making to assign to machines. While AI drives efficiency, overreliance risks dehumanizing workplaces. This section advocates hybrid models, pairing AI recommendations with human managers' decisions to preserve empathy and moral responsibility. A hybrid approach leverages AI's analytical strengths and highlights managers' willingness to own tough calls as a demonstration of leadership. By incorporating empathy-driven courage, managers humanize decision-making processes, recognizing the multifaceted nature of workplace ethics. To apply this approach, implement a matrix that assigns human judgment to ambiguous cases and AI to repetitive tasks. This preserves human insight and ethical considerations alongside AI's strengths. The key point is that a hybrid approach blending human oversight with AI input best preserves ethical principles in HRM.

5. The Human–Machine Balance in Decision-Making

One of the ethical dilemmas in AI-driven HRM is how much decision-making should be left to machines. While AI can optimize efficiency, over-reliance risks dehumanizing the workplace. A hybrid model is essential, with AI providing evidence-based recommendations and human managers making final decisions. This approach upholds ethical standards, improves employee engagement and retention, and positively impacts organizational performance. It is essential to acknowledge that AI's recommendations reflect the values and assumptions of those who develop these systems, which can potentially introduce biases. Hiring, promotions, and evaluations involve moral and social judgments that algorithms alone cannot fully capture; employees may feel reduced to data points if machines dominate decision-making. To mitigate this, organizations should conduct regular bias audits and ensure data transparency to reinforce trust and confidence in their data. In a balanced model, AI may shortlist candidates, while human recruiters assess cultural fit and interpersonal qualities. This collaboration strikes a balance between efficiency and fairness, fostering empathy and accountability. Retaining human responsibility for critical judgments aligns organizations with ethical principles and maintains employee trust. The goal is not to replace human expertise, but to enhance it through responsible AI integration.

6. AI and Employee Well-Being: Ethical Responsibilities

Ensuring well-being also means fostering inclusive environments. The discussion now turns to how AI can support or undermine diversity and inclusion within HRM. The main takeaway is that regular feedback and clear standards can help differentiate between supportive and intrusive monitoring, supporting ethical use of well-being analytics. To better ensure psychological safety alongside well-being analytics, organizations can introduce 'safety pulse' surveys. These surveys are designed to gauge whether monitoring tools are

fostering trust or unintentionally contributing to stress within teams. By piloting these surveys in conjunction with the use of well-being analytics, companies can identify unintended stress signals early, enabling them to adjust their strategies to enhance psychological safety and trust effectively.

7. Diversity, Inclusion, and Ethical AI Practices

Strong diversity and inclusion efforts require robust governance to be effective. The next section examines governance frameworks and their role in integrating ethical AI into HRM practice. The takeaway is that routine auditing and inclusive datasets are required to truly foster diversity through AI systems. To effectively embed inclusion goals across the AI model lifecycle, it is vital to map each phase—data sourcing, model tuning, and post-deployment—against concrete diversity KPIs. For instance, during data sourcing, ensuring that data reflects diverse demographics could be a KPI. During model tuning, reducing tracking bias in predictive outcomes can guide improvements. In the post-deployment phase, monitoring impact through metrics like diverse hiring ratios will help assess ongoing inclusivity. By presenting a lifecycle checklist that aligns AI processes with inclusion objectives, organizations can translate their commitment into practical actions.

8. Governance and Ethical AI Frameworks in HRM

Strong governance frameworks are foundational to responsible and ethical AI in HR. Organizations must establish clear ethical guidelines, robust accountability mechanisms, and interdisciplinary review boards to anchor transparency and accountability. This section examines models such as the EU AI Act, IEEE standards, and corporate ethics charters, highlighting how they guide the adoption of sustainable AI. Effective governance ensures that AI in HRM aligns with social values and stakeholder expectations. With evolving regulations—such as anticipated updates in the US and China’s increased focus on AI ethics—organizations are urged to invest early in governance strategies. Ultimately, operationalizing governance, for instance, with a 'first-week checklist,' is crucial to transforming ethical commitments into practical, daily HRM practices.

9. Sustainability and Long-Term Ethical Impact

Beyond governance, the long-term sustainability of AI in HRM becomes a key consideration. Beyond immediate efficiency, the ethical use of AI in HRM must also be considered in terms of sustainability. Sustainable HRM encompasses not only environmental goals but also social equity, fair work practices, and fostering long-term trust and confidence. This section examines how ethical AI contributes to the development of resilient organizations that prioritize intergenerational fairness, workforce adaptability, and socially

responsible growth. One measurable indicator of long-term impact is the 'ethical risk-adjusted turnover rate'. This metric evaluates turnover by weighing it against ethical risks, such as algorithmic bias and privacy concerns, providing organizations with a concrete way to track the impact of AI on workforce stability and ethical standards over time. To make this metric actionable without specialist analysts, we propose the following simple formula for calculating it: $[(\text{Total Turnover} - \text{Turnover Attributable to Ethical Risks}) / \text{Total Employees}] \times 100$. A 'risk-weighted turnover' rate exceeding 5% should trigger an internal audit to investigate potential ethical pitfalls affecting employee retention. Integrating this risk-adjusted turnover rate into the existing HR scorecard, alongside metrics like cost-per-hire and engagement scores, can sharpen accountability by elevating ethics to an equal footing with financial and performance metrics. This practical approach enables organizations to act promptly, maintaining workforce stability and upholding ethical standards.

10. Conclusion: Toward Responsible and Sustainable AI in HRM

The conclusion synthesizes the central themes and powerfully argues that AI in HRM must be unwaveringly guided by principles of responsibility, fairness, and sustainability. Organizations that boldly embrace transparency, vigorously protect employee rights, and actively balance human and machine intelligence will not only secure a competitive edge but also achieve enduring ethical legitimacy. Ultimately, only through committed, principled leadership can the promise of AI in HRM be realized, building workplaces that are advanced, just, and trusted. In summary, responsible AI use is non-negotiable: fairness and transparency must prevail, employee rights and well-being must be fiercely protected, a hybrid human-AI approach must be established to foster trust, and robust governance must be embraced to ensure truly sustainable and ethical HRM. As you consider your role in fostering responsible AI practices, reflect on this: How will you champion responsible AI in your next HR decision? Such introspection can transform agreement into actionable commitment, leading to real change as you implement AI-driven HRM strategies. Imagine a future where responsible AI propels your organization toward unprecedented innovation, boosting morale and driving sustained growth. Conversely, envision a scenario without ethical AI, which could potentially lead to diminished trust, increased turnover, and stagnated progress. Which future will you choose to create? This decision rests with you. Will you rise to the challenge and drive the transformation with ethical AI at the core of your strategic planning?

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FUNCTIONAL MARKETING MANAGEMENT IN INDIA

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ABSTRACT

This chapter examines the major challenges encountered by marketing managers in Indian organizations, highlighting the distinctive dynamics of India's diverse and rapidly changing marketplace. It addresses structural difficulties such as fragmented organizational systems, interdepartmental conflicts, limited resources, and gaps in performance measurement. In addition, it considers cultural and contextual factors, including variations in consumer behavior, complex distribution networks, and the accelerated shift toward digital platforms. By integrating theoretical frameworks—such as the RACI model, Stage-Gate process, Balanced Scorecard, and adaptive marketing loop—with practical case studies from Indian companies like Amul, Hindustan Unilever, and modern retail chains, the chapter bridges theory and practice. It also offers operational checklists and templates to assist managers in campaign planning and post-campaign assessment. Emphasizing the importance of skill development and ethical practices, the chapter demonstrates how Indian firms can adapt their marketing functions to handle market volatility, infrastructural challenges, and regulatory demands. Overall, it provides professionals, educators, and students with practical guidance and teaching tools for understanding functional management within the Indian marketing landscape.

INTRODUCTION

Functional management in marketing involves overseeing the planning, execution, and monitoring of marketing activities within an organization's specific functional area. Unlike strategic management, which focuses on long-term vision and corporate direction, functional management deals with the practical, day-to-day operations of marketing, sales, and related departments. The functional marketing manager is therefore crucial in aligning daily decisions with broader organizational goals while ensuring seamless coordination with other functions such as supply chain, research and development, and finance.

In India, functional marketing management carries particular importance due to several local challenges. First, the country's market is highly diverse in terms of language, culture, and socio-economic conditions, demanding region-specific approaches to product development, pricing, distribution, and communication. Standardized strategies rarely succeed, requiring continuous adaptation across different regions and consumer segments.

Second, India's distribution network is complex, combining modern retail formats, emerging e-commerce platforms, and traditional kirana stores. Functional managers must design strategies that balance operational efficiency with market reach, ensuring product availability from urban centers to rural areas.

Third, budgetary limitations and resource constraints are significant, especially for small and medium enterprises (SMEs) and cooperative models prevalent in India. Marketing managers face constant pressure to maximize return on marketing investment (ROMI) and focus on initiatives that offer high impact at lower costs. Fourth, India's regulatory landscape is dynamic, with frequent changes in tax structures, labeling requirements, and advertising standards. Managers must ensure compliance while maintaining flexibility to respond to evolving policies.

Finally, the rapid digital transformation—including mobile-first consumption, the growth of UPI payments, and social commerce—presents both opportunities and challenges. Digital platforms allow precise targeting and cost-effective engagement but also require new skill sets such as analytics, campaign automation, and influencer marketing, which many firms are still developing.

Given these pressures, studying functional management in marketing in the Indian context is both timely and necessary. This chapter outlines these challenges, integrates relevant theoretical frameworks, and highlights practical insights through India-specific case studies. It also provides actionable resources such as campaign planning checklists and post-campaign review templates. For professionals, the chapter serves as a guide to managing complexity, while for students and educators, it bridges theory with applied practice.

THE INDIAN CONTEXT: WHY FUNCTIONAL MARKETING IS UNIQUE

1. Market Diversity

India is a highly heterogeneous market, comprising multiple languages, religions, traditions, and consumption behaviors. With 22 officially recognized languages and numerous regional dialects, marketing communications must be tailored to resonate with local audiences. For example, promoting the same product may require distinct cultural references in Tamil Nadu, West Bengal, or Punjab. Consumer preferences for design, taste, and packaging also differ significantly between urban and rural areas. This diversity compels marketing managers to adopt a multi-segmentation approach, customizing the 4Ps—product, price, place, and promotion—for specific micro-markets rather than relying on uniform nationwide campaigns.

2. Infrastructure and Distribution Complexity

India's distribution system is notably fragmented, featuring both modern trade, such as organized retail and e-commerce, and traditional trade, including kirana stores, rural haats, and weekly markets. While organized retail is expanding in cities, nearly 90% of retail transactions still occur through small neighborhood shops. This duality presents challenges in supply chain management, product availability, and merchandising consistency. Marketing managers must develop strategies suitable for these parallel ecosystems, balancing digital-first platforms like Amazon or Flipkart with localized neighborhood stores. Managing last-mile logistics in rural areas, where infrastructure can be limited, further adds to operational complexity.

3. Price Sensitivity and Value Orientation

Indian consumers, particularly in the lower- and middle-income segments, are highly price-sensitive. Even minor price changes can significantly affect demand, while small discounts or promotional offers can drive large sales volumes. Consequently, value-for-money positioning is critical across sectors, from FMCG to durable goods. The sachet marketing strategy—small, affordable packs of products such as shampoos and detergents—originated in India and has become a global example of delivering value at scale. Functional marketing managers must balance cost-efficiency with innovation, providing aspirational products at accessible prices while protecting profit margins.

4. Regulatory and Compliance Landscape

India's marketing regulations are evolving rapidly, covering taxation, labeling, and advertising standards. The implementation of Goods and Services Tax (GST) transformed pricing and distribution practices across industries. Regulatory bodies such as the Food Safety and Standards Authority of India (FSSAI) enforce strict guidelines on food packaging and labeling, while the Advertising Standards Council of India (ASCI) monitors misleading claims. Increasing scrutiny of digital and influencer marketing has added new compliance requirements. For marketing managers, staying informed about these rules is essential not only to avoid legal penalties but also to maintain brand credibility and consumer trust.

CORE CHALLENGES FOR FUNCTIONAL MARKETING MANAGERS

1. Siloed Organizational Structures

A significant obstacle in many Indian firms is the existence of departmental silos, where marketing operates largely independently from sales, R&D, supply chain, and finance. This separation often results in fragmented decisions and conflicting objectives. For instance, marketing may launch campaigns promising quick product availability, but the supply chain

may be unprepared, causing stock-outs and customer dissatisfaction. Similarly, sales teams may focus on short-term volume targets that undermine brand-building initiatives. Many mid-sized Indian firms still rely on outdated ERP systems or manual processes, exacerbating the problem. Addressing this challenge requires improved cross-departmental communication and aligning KPIs with shared organizational goals rather than isolated departmental targets.

2. Cross-Functional Coordination and Conflict

Functional managers must frequently navigate trade-offs between departments. R&D may develop premium products unaffordable for mass-market consumers, while finance may emphasize strict cost controls that limit product appeal. Supply chain may favor longer lead times to reduce costs, whereas marketing needs faster timelines to capitalize on seasonal promotions. In India's dynamic consumer environment, missing festival- or event-driven opportunities due to delays can be costly. Effective managers employ formal mechanisms such as joint planning sessions and cross-functional committees, alongside soft skills like negotiation, persuasion, and conflict resolution, to mitigate such frictions.

3. Limited Budgets and Resource Prioritization

Budget constraints are particularly pronounced in Indian SMEs and cooperative organizations such as Amul. Marketing teams are often expected to achieve results with minimal spending, balancing efficiency and effectiveness. Unlike multinational corporations, many Indian firms cannot sustain high-budget campaigns and must focus on low-cost, high-impact initiatives like digital pilots, local influencer campaigns, and community-based promotions. Demonstrating short-term ROI while maintaining long-term brand value is critical. Innovative resource allocation, such as targeting high-potential micro-markets or leveraging public-private partnerships, becomes essential.

4. Talent Shortages and Capability Gaps

There is a notable gap between academic training and the practical skills required for modern marketing in India. While graduates often have strong theoretical knowledge, they may lack competencies in digital analytics, programmatic advertising, shopper insights, and omnichannel execution. High attrition rates in the digital sector further complicate talent retention. Functional managers must invest in on-the-job training, rotational programs, and skill development initiatives to bridge these gaps. Leading firms such as Hindustan Unilever and ITC have established structured learning frameworks, though SMEs and regional players continue to face challenges.

5. Measurement, Metrics, and Accountability

Many Indian organizations traditionally emphasize input-based metrics, such as campaign counts or distribution coverage, rather than outcome-based metrics like customer lifetime value (CLV), return on marketing investment (ROMI), or incremental sales. This often leads to inefficiencies, where marketing is measured by visibility rather than business impact. For example, brands may spend heavily on celebrity endorsements without assessing their contribution to sales growth. Functional managers must adopt evidence-based marketing practices, utilizing analytics, A/B testing, and attribution models to establish accountability, improve efficiency, and enhance credibility.

6. Rapid Digital Disruption

India is experiencing one of the fastest rates of digital adoption globally, driven by affordable smartphones, high internet penetration, and the growth of UPI-based digital payments. This has opened avenues such as social commerce (e.g., Meesho, Instagram Shops) and direct-to-consumer (D2C) channels. However, organizational readiness often lags behind technological change. Traditional firms may struggle to adapt to new platforms, while startups risk over-reliance on digital channels without strong offline presence. Functional marketing managers must balance innovation with organizational capacity, piloting new formats like reels, livestreaming commerce, or WhatsApp-based sales while ensuring scalability.

7. Managing Multiple Channel Strategies

Indian consumers engage with brands through diverse channels, including modern retail, e-commerce, and traditional kirana stores. Each channel has unique economics, consumer behavior, and promotional needs. For instance, discounts may boost e-commerce sales but disrupt price consistency in traditional retail, causing conflicts with distributors. Consumer expectations also vary: urban millennials demand seamless digital experiences, while rural consumers prioritize affordability and trust through local retailers. Marketing managers must design strategies that deliver consistent brand messaging while customizing execution for each channel to prevent brand dilution and channel conflicts.

THEORETICAL FRAMEWORKS USEFUL FOR PRACTITIONERS

1. RACI Model for Clarifying Roles

The RACI framework (Responsible, Accountable, Consulted, Informed) is a widely used tool to define roles and responsibilities within projects or functional processes. In marketing, where multiple stakeholders—including creative agencies, sales teams, and operations—are involved, unclear roles can delay execution or lead to duplicated efforts.

- **Responsible (R):** Individuals or teams who carry out the work. For example, a brand executive may be responsible for designing campaign creatives.
- **Accountable (A):** The person ultimately answerable for results, often the marketing head or brand manager.
- **Consulted (C):** Stakeholders who provide input or expertise, such as the legal team reviewing advertising compliance.
- **Informed (I):** Parties who need updates on progress, including senior management or distribution partners.

In India, the RACI model is particularly important due to multi-layered hierarchies and extended value chains. During FMCG product launches, for example, distributors, retailers, and advertising agencies must clearly understand their responsibilities to prevent miscommunication.

2. Stage-Gate Model for New Product Introductions

The Stage-Gate process provides a structured framework for taking a product from ideation to commercialization. The process is divided into stages—such as idea generation, concept testing, development, market testing, and launch—with decision gates in between where cross-functional stakeholders evaluate progress and approve or halt further investment.

- **Stages:** Defined sets of activities, like prototype testing or consumer research.
- **Gates:** Evaluation points where feasibility, costs, and regulatory compliance are assessed. In India, Stage-Gate is particularly valuable because of market heterogeneity and regulatory oversight. For instance, before a new packaged food launch, companies like ITC or HUL may run regional pilot tests to assess consumer acceptance before committing to a national rollout, thereby reducing the risk of large-scale failure.

3. Balanced Scorecard (BSC) Tailored for Marketing

The Balanced Scorecard, originally designed for organizational performance management, can be adapted for marketing to link functional activities with broader corporate objectives. It translates goals into measurable indicators across four perspectives:

- **Financial Perspective:** Metrics such as return on marketing investment (ROMI) and sales uplift attributable to campaigns.
- **Customer Perspective:** Measures like Net Promoter Score (NPS), Customer Satisfaction (CSAT), and market share.
- **Internal Process Perspective:** Efficiency indicators including time-to-market, campaign cycle duration, and error rates.

- **Learning and Growth Perspective:** Capability development through digital training, employee engagement, and skills readiness.

For Indian firms, a marketing-focused BSC is crucial, especially in budget-constrained contexts like SMEs or cooperatives. By linking activities—such as influencer partnerships—to measurable outcomes like improved conversion rates, managers can enhance accountability and demonstrate tangible results.

4. Adaptive Marketing Loop

The Adaptive Marketing Loop emphasizes iterative learning and agility in campaign management, consisting of four stages: Plan → Pilot → Learn → Scale.

- **Plan:** Define objectives, target audience, and key performance indicators (KPIs).
- **Pilot:** Execute a small-scale, often region-specific campaign.
- **Learn:** Analyze outcomes, gather feedback, and identify areas for improvement.
- **Scale:** Expand the campaign nationally or across segments after refining strategies.

This framework is especially useful in India's diverse markets. For example, a digital campaign successful in a metropolitan city like Bangalore may not resonate in Tier-2 or Tier-3 towns. Companies such as Amul and Britannia frequently test promotional initiatives in specific regions like Gujarat or Maharashtra before implementing them nationwide, minimizing risk and optimizing resource allocation.

INDIA-CENTRIC OPERATIONAL TACTICS

1. Localized Segmentation and Micro-Targeting

India's diverse market requires multi-level segmentation that accounts for language, culture, income levels, urban-rural divides, and purchasing channels. For instance, a shampoo brand may introduce premium products in metropolitan cities like Delhi and Mumbai while offering affordable sachets in rural regions such as Bihar or Odisha. Localized segmentation allows firms to allocate resources efficiently, focusing on high-potential consumer clusters. Micro-targeted campaigns—such as festival-specific promotions during Pongal in Tamil Nadu or Onam in Kerala—help brands establish stronger consumer connections. These small-scale pilots reduce the risk of failure and provide valuable insights that guide broader national rollouts.

2. Trade Partnership Programs for Kirana Networks

Kirana stores continue to dominate the Indian retail landscape, accounting for approximately 85–90% of FMCG sales. Managing this fragmented network poses challenges in terms of visibility, consistency, and retailer loyalty. Trade partnership programs aim to strengthen relationships with these outlets through:

- **Incentives:** Loyalty rewards, bulk discounts, or credit facilities.
- **Merchandising:** Branded shelves, posters, and small refrigeration units to enhance visibility.
- **Training:** Educating store owners on product features and cross-selling opportunities.

Companies like HUL and ITC have implemented structured initiatives—such as Project Shakti—that support local retailers and improve last-mile product availability. These programs not only enhance distribution efficiency but also foster goodwill within communities.

3. Low-Cost Content Strategies

While high-quality content can be expensive, Indian marketing managers often rely on regional influencers, vernacular content, and user-generated material to control costs. Brands like Zomato and Swiggy create locally relevant, humorous social media posts that engage young audiences without large budgets. Similarly, Amul's topical ads use cultural references and wit to achieve virality at minimal cost. Such strategies are particularly effective in India, where consumers appreciate authenticity and relatability over expensive production.

4. Pragmatic Use of Data and Analytics

Unlike global firms that may use sophisticated predictive models or AI-driven analytics, many Indian companies—especially SMEs—face limitations in infrastructure and skilled personnel. A practical approach is to start with a focused set of actionable metrics, such as conversion rates, customer acquisition cost (CAC), payback period, and incremental sales uplift. Over time, analytics capabilities can be expanded to include cohort analysis, sentiment analysis, and customer lifetime value forecasting. Organizations like Reliance Retail and Flipkart have demonstrated that gradually scaling analytics capabilities can provide sustainable competitive advantage.

CASE STUDIES (INDIA)

1. Amul — Cooperative Advantage and Functional Coordination

Amul, operated by the Gujarat Cooperative Milk Marketing Federation (GCMMF), is one of the most successful cooperative models globally. Its success stems from the seamless integration of upstream and downstream functions. Milk supplied by farmers is processed and distributed through a highly coordinated network. Despite relatively modest marketing budgets, Amul has developed a strong brand reputation through consistent product quality, extensive distribution, and memorable topical advertising. The collaboration between marketing and supply chain ensures that promises made in advertisements are effectively fulfilled in stores. Functional managers can draw lessons

from Amul's model, where cross-functional alignment drives efficiency even in resource-constrained contexts.

2. Hindustan Unilever (HUL) — Scale, Portfolio, and Capability Development

HUL has achieved success by efficiently managing one of India's largest FMCG portfolios, encompassing personal care, food, and household products. Functional marketing managers at HUL focus on:

- **Channel Expertise:** Building strong relationships with distributors and retailers.
- **Trade Promotions:** Carefully planning campaigns to avoid channel conflicts.
- **Measurement Systems:** Tracking ROI rigorously for all marketing initiatives.
- **Capability Building:** Implementing continuous training programs to develop skills in digital marketing and analytics.

The HUL example highlights the importance of robust systems, where scale is combined with disciplined execution and ongoing learning mechanisms.

3. Modern and Regional Retail in India

India's retail landscape features a dual structure. Large organized retail chains (e.g., Big Bazaar, Reliance Retail) and e-commerce platforms are expanding rapidly, while regional players and Kirana stores continue to dominate local markets. This duality presents challenges for campaign execution. National-level campaigns may resonate with urban organized retail but may fail in rural areas, where regional preferences are critical. For instance, uniform pricing on e-commerce platforms can create friction with traditional distributors. Functional managers must adopt adaptive pilots and establish KPIs for distributors and regional partners to maintain harmony across channels.

PRACTICAL TOOLS: TEMPLATES AND CHECKLISTS

Campaign Pre-Launch Checklist

Before starting a marketing campaign, managers should systematically ensure the following:

1. **Clear Objective:** Confirm whether the campaign is aimed at awareness, trial, or conversion.
2. **Target Micro-Segment and Channel Mix:** Identify the right consumer clusters and most effective touchpoints.
3. **ROMI Estimate and Break-Even Analysis:** Ensure the campaign is financially viable.
4. **Cross-Functional Sign-Offs:** Involve sales, supply chain, legal, and finance teams to prevent operational or compliance issues.
5. **Logistics Readiness:** Check SKU availability and regional allocation.
6. **Measurement Plan:** Define control groups and techniques to measure campaign uplift.

7. **Post-Campaign Review Template:** After execution, managers should evaluate
8. **Actual vs. Planned Reach and Expenditure:** Compare the intended outcomes with actual results.
9. **Incremental Sales and ROMI:** Assess the financial impact.
10. **Channel Performance Comparison:** Analyze performance across all channels used.
11. **Key Learnings and Corrective Actions:** Document insights and improvements for future campaigns.

These tools provide a structured framework that promotes accountability and encourages continuous improvement.

BUILDING MARKETING CAPABILITY IN INDIAN FIRMS

To stay competitive in India's fast-evolving market, organizations must focus on capability development:

- **Rotational Programs:** Allow junior employees to work across different roles—digital marketing, sales, trade marketing—to build versatile expertise.
- **Academic Partnerships:** Collaborate with institutes for certifications in areas such as analytics, digital marketing, and consumer insights.
- **Test-and-Learn Budgets:** Dedicate a portion of marketing funds to experiment with new platforms, campaign formats, and emerging channels.

POLICY AND ETHICAL CONSIDERATIONS

1. Advertising to Vulnerable Populations

Marketing targeted at children, rural consumers with low literacy levels, or economically disadvantaged groups raises significant ethical issues. Regulatory bodies such as the Advertising Standards Council of India (ASCI) mandate truthful communication, responsible targeting, and the avoidance of misleading claims. For instance, there are restrictions on directly promoting unhealthy food products to children. Functional marketing managers must ensure that campaigns are designed with sensitivity to these populations, balancing business objectives with social responsibility.

2. Data Privacy and Digital Compliance

With the rapid growth of digital marketing, adherence to India's data protection regulations is crucial. Collecting and using consumer data for targeted campaigns must be conducted transparently, with consumers providing informed consent. Mismanagement of personal information can result in legal penalties and damage to brand credibility. Additionally, influencer marketing is now closely monitored, and ASCI guidelines require explicit disclosure of sponsored content.

Functional managers must therefore integrate creativity with ethical responsibility, ensuring that marketing strategies comply with both legal requirements and broader ethical standards.

CONCLUSION

Functional marketing managers in India operate within one of the world's most dynamic and complex business environments. The interplay of market diversity, fragmented distribution networks, price sensitivity, and rapid digital adoption places significant demands on their ability to adapt, innovate, and coordinate across organizational functions. This chapter demonstrates that the role of a functional marketing manager extends beyond day-to-day execution, translating broad corporate objectives into localized, measurable, and actionable marketing initiatives.

Success in this environment depends on several key factors. Cross-functional integration is essential, replacing silos between marketing, sales, supply chain, and R&D with structured collaboration. Outcome-focused metrics enable teams to go beyond activity tracking, measuring results in terms of incremental sales, customer lifetime value, and return on marketing investment. Localization strategies ensure that segmentation, pricing, and promotional activities are tailored to India's linguistic, cultural, and socio-economic diversity. Equally important is continuous capability development, equipping marketing professionals with the digital, analytical, and adaptive skills needed to navigate a rapidly changing market.

Frameworks such as the RACI model, Stage-Gate process, Balanced Scorecard, and Adaptive Marketing Loop offer structured approaches for decision-making and process management. India-specific operational tactics—ranging from kirana partnership programs to cost-effective content strategies—illustrate how managers can innovate within resource constraints. Case studies from Amul, Hindustan Unilever, and the modern retail sector highlight the value of disciplined functional coordination and context-sensitive execution.

Ultimately, functional marketing managers in India face the challenge of transforming structural limitations into competitive advantages. By embedding adaptability, accountability, and cultural awareness into their practices, managers can drive firm performance while shaping the evolution of marketing practices in one of the world's fastest-growing economies. For educators and students, this emphasizes the importance of viewing functional marketing not as a peripheral activity but as a central discipline that bridges theory with practical application in the Indian context.

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FUTURE PROSPECTS AND INNOVATION OPPORTUNITIES IN AI BUSINESS

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AI's ongoing evolution offers vast opportunities for business transformation, innovation, and global competitiveness, fundamentally reshaping how value is created across industries.

Overview of AI

Introduces what artificial intelligence is, how it differs from related concepts like machine learning and big data, and the reasons for its growing use in business.

Applications in Business

Highlights common business uses of AI such as automation, customer service, marketing, decision-support and recommendation systems. Discusses how AI is integrated into functions like human resources, sales, operations, and customer analytics.

Implementation and Strategy

Outlines steps to prepare an organization for AI adoption, such as building an AI-ready culture, investing in technical talent, developing an AI implementation plan, and focusing on data readiness. Addresses the need for an enterprise AI strategy, including stakeholder and resource management.

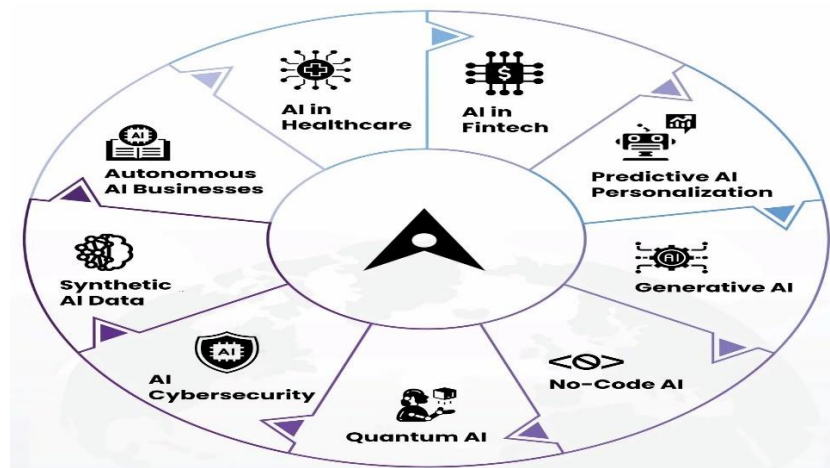
Challenges and Ethical Considerations

Examines obstacles like data quality, technical gaps, change resistance, privacy, potential bias in AI models, and organizational readiness. Includes discussions on AI ethics, governance, and responsible deployment to avoid negative consequences for workers or customers.

Case Studies and Future Directions

May provide practical case studies and describe future trends, such as evolving AI technologies and how they might drive innovation or competitive advantage in various industries.

Top AI Trends in 2025



1. Predictive AI Goes Hyper-Personalized

Entrepreneurs rely on predictive analysis to make more informed decisions. However, predictive AI: future trends suggest that business owners will move beyond general predictive analytics to offer hyper-personalized forecasting in the upcoming year. Emerging technologies such as Artificial Intelligence use real-time data from multiple touchpoints, social media activity, IoT devices, and neural patterns. This will help you to make more precise recommendations before users even realize what they need. It's one of the most advanced and new developments in artificial intelligence that businesses can use to unleash the AI industry impact. To leverage this shift, many startups are availing mobile application development services in USA to embed predictive AI directly into user-facing applications. Example: Imagine you are using an AI-driven app that predicts when your customers are about to churn. Not only this, but it also offers your users a tailored discount right before they think of leaving your app.

2. AI Becomes Your Business Consultant

When you come across Generative AI Trends, you might think of different tools such as ChatGPT, Claude, etc. But in 2025, forget about having chatbots in your app, you will witness the rise of Generative AI-powered business consultants. You can have an AI-driven system that will analyze your business's weaknesses and suggest various strategies to enhance growth and success. Sounds Amazing right? The success of ChatGPT gave birth to several chatbots that are being used by businesses to transform their operations. DeepSeek, Perplexity, and Grok have become popular AI tools 2025. Many enterprises are already collaborating with a leading chatbot development company to integrate these advanced AI systems into their apps and customer support solutions.

Example: Instead of hiring a business consultant, your AI business assistant will help you to a great extent. They can study your target audience, latest AI news and trends, competitors, and internal data. Also, they can give you step-by-step growth plans.

3. AI-Generated Code & No-Code AI Development

With the continuous advancements, entrepreneurs will no longer need technical skills to build AI models for their businesses. AI-generated code will enable anyone to create custom AI applications without writing a single line of code. This allows business owners to build applications faster than ever. AI app developers use various recent developments in AI tools such as GitHub Copilot and OpenAI Codex to automate code generation, reduce errors, and accelerate the development process.

However, complex AI models, integrations, and scalability challenges still require experienced professionals. You can hire mobile app developers who have in-depth knowledge of recent developments in artificial intelligence, expertise in AI developments to ensure security, efficiency, and customization. Example: Drag-and-drop AI tools that build mobile apps and automate business processes. However, to utilize AI-powered automation, you also need to work with skilled developers to optimize and scale up your applications effectively.

4. AI in Quantum Computing

With the help of quantum AI algorithms, you can process huge data at a speed impossible for classical computers. Therefore, because of Quantum computing, various industries such as drug discovery, climate modeling, and financial risk assessment will witness game-changing advancements. In 2025, AI-powered quantum computing will solve various problems within a few minutes. If you don't have expertise in AI quantum and algorithmic optimization, then you can also seek help from professional experts. The latest AI advancements have opened several opportunities through quantum computing. However, both these concepts are new, but the excessive use of artificial intelligence latest developments can make them a necessary part of daily lives, just like popular chatbots. Businesses looking to turn such complex AI-driven systems into scalable products often partner with a top-notch custom app development company to bring these advanced solutions into real-world applications.

Example: AI-powered quantum algorithms are transforming drug discovery, allowing pharma companies to simulate complex molecules with unprecedented accuracy.

5. AI-Driven Cybersecurity

With cyber threats becoming more sophisticated, traditional security measures are no longer enough. AI-driven cybersecurity in 2025 will leverage AI and machine learning trends, behavioral analytics, and real-time threat detection to easily detect cyberattacks before they happen. Businesses will rely on AI for fraud detection, automated security frameworks, AI-powered threat intelligence, and self-learning algorithms to identify and prevent breaches. Example: AI-driven threat detection systems can predict cyberattacks before they happen. Therefore, helping financial institutions prevent fraud in real time.

6. AI-powered Synthetic Data Generation

One of the current trends in artificial intelligence is synthetic data generation. AI models need vast amounts of data for training. On the other hand, real-world data is often biased or may be expensive. Businesses can use AI-powered synthetic data generation to solve various challenges by having realistic data for machine learning models. The demand for synthetic data will accelerate AI model development across industries like healthcare, finance, and robotics. Thus, reducing privacy concerns and regulatory challenges. You can stay ahead of the competitive industry by investing in new developments in AI powered synthetic data tools to develop robust, unbiased synthetic datasets. Example: Companies like Tesla use AI-generated synthetic data to train autonomous vehicles. Therefore, it reduces the need for costly real-world testing.

7. AI-Driven Autonomous Businesses

The concept of an AI-driven autonomous business will become a reality in 2025. In every industry, business leaders can operate with minimal human intervention. From self-managing supply chains and automated financial operations to AI-powered customer service bots, AI will automate several business processes. Therefore, investment in AI app development services will be worth it for business owners.

Businesses will operate with minimal human intervention. emerging AI trends will power systems to analyze market trends, make real-time strategic decisions, and even develop new business models. While automation will drive efficiency, entrepreneurs must collaborate with AI engineers to build, optimize, and fine-tune autonomous workflows, ensuring they align with business goals and customer needs.

Example: Amazon's AI-powered fulfillment centers automate inventory management. It helps them to reduce the overall operational costs and improve efficiency.

8. AI-Powered Healthcare Predictions & Biohacking

Technologies such as Artificial Intelligence are bringing a huge change in the healthcare industry as well. With the integration of AI in healthcare apps, doctors can easily detect diseases before any symptoms appear. Thus, it will revolutionize preventive healthcare. Biohacking AI will also emerge shortly which will help individuals to optimize their health and mental performance using AI-driven recommendations.

Example: Patients have started using AI wearables that predict potential heart attacks before they happen. Thus, AI-powered apps and devices ensure early interventions.

9. AI in Fintech For More Efficient Financial Services

AI is transforming the FinTech industry by enhancing fraud detection, automating risk assessment, and personalizing financial services. Fintech industries are making the best use of Predictive AI and machine learning trends to improve credit scoring, while AI-driven chatbots are enhancing customer support. Not only this, AI in Fintech is also streamlining financial reporting and investment strategies. It will help financial companies to provide more faster and secure services. However, regulatory compliance and ethical AI implementation remain key challenges. That's why, you will need the help of an expert AI developer.

Example: Robo-advisors like Betterment and Wealthfront leverage AI to create personalized investment strategies. After the emergence of AI development trends, several fintech apps have emerged and helped individuals manage their finances.

AI Trends Across Industries

Artificial Intelligence isn't a buzzword anymore; it's driving real change in every sector. With the latest developments in artificial intelligence, many industries saw a new era. Here are some of the most important trends you should know:

Healthcare

AI recent developments have started transforming the healthcare industry. This emerging technology has made healthcare services more accessible and budget-friendly. Here's how AI transformed healthcare:

- **Predictive Analytics:** AI models can forecast disease risks and patient deterioration, helping doctors act earlier.
- **Medical Imaging:** Computer vision algorithms detect cancers, fractures, and other issues faster than humans alone.
- **Virtual Health Assistants:** Chatbots and AI-powered apps are part of the top developments in artificial intelligence. They answer patient questions, manage appointments, and improve access to care.

- **Drug Discovery:** AI speeds up the process of identifying promising compounds, saving years of research time.

Finance & Banking

The finance industry has become fintech after the inclusion of technology in the financial industry. AI market trends 2025 have introduced a new revolution in the fintech industry, and it is used for:

- **Fraud Detection:** Machine learning trends are used by businesses to monitor transactions in real time to spot suspicious activity.
- **Personalized Financial Services:** The newest AI technology recommends products, investments, and budget tools based on individual behavior.
- **Algorithmic Trading:** Businesses use the latest AI technology to build AI-powered trading platforms that analyze market data to make faster and data-based decisions.
- **Risk Assessment:** AI latest developments allow lenders to evaluate creditworthiness more accurately and fairly.

Retail & E-Commerce

The top AI use cases 2025 in the retail and e-commerce industry are:

- **Recommendation Engines:** AI suggests products based on browsing and purchase history.
- **Inventory Management:** Artificial intelligence current trends enable the use of predictive tools to help retailers optimize stock levels and reduce waste.
- **Customer Service Automation:** Chatbots handle common queries, returns, and complaints 24/7.
- **Dynamic Pricing:** The latest developments in AI allow algorithms to adjust prices in real time to match demand and competitor pricing.

Supply Chain & Logistics

The logistics and supply chain industry has seen tremendous growth with the use of emerging trends in artificial intelligence. The different uses of AI latest trends in supply chain and logistics are:

- **Route Optimization:** AI calculates the fastest, most efficient delivery routes.
- **Demand Forecasting:** Predictive models anticipate fluctuations in demand to improve planning.
- **Warehouse Automation:** Robots and the latest AI technologies manage storage, picking, and packing.

- **Quality Control:** AI technology trends use computer vision to check products for defects automatically.

Real Estate

The use of AI in Real Estate opened a new door of opportunities for the real estate industry. Here are the different use cases of artificial intelligence trends:

- **Property Valuation:** AI models estimate property prices with high accuracy.
- **Smart Buildings:** AI controls heating, lighting, and security systems for better energy efficiency.
- **Tenant Screening:** AI technology advancements analyze applications to help property managers find reliable tenants.
- **Virtual Tours:** With the use of the latest advances in artificial intelligence, real estate can enable 3D tours to make property viewing easy and realistic.

Education

The education industry has seen a new transformation during the pandemic era. Businesses launched their e-learning apps to connect students with teachers remotely and make learning available at their fingertips. Artificial Intelligence developments have automated the industry and helped businesses achieve success. Here are the top uses of AI in education:

- **Personalized Learning:** AI tailors content to each student's strengths and weaknesses.
- **Automated Grading:** Machine learning can grade essays and assignments quickly.
- **Virtual Tours:** AI-powered bots help students with homework and revision.
- **Predictive Analysis:** Schools use the latest AI technologies and models to spot students at risk of falling behind.

Key Future Prospects

- **Hyper-Personalized Predictive AI:** Businesses will leverage AI for deeply individualized customer experiences and forecasting, using real-time data from multiple sources to anticipate user needs and optimize engagement before customers even express them.
- **AI-Driven Autonomous Businesses:** Many operations will be self-managing with minimal human intervention, such as automated supply chains, real-time market analysis, and autonomous financial operations. This boosts efficiency and reduces operational costs.

- **Synthetic Data Generation:** AI will increasingly generate synthetic data to train and improve models, solving problems related to data privacy, bias, and scarcity across industries like healthcare, fintech, and robotics.
- **AI-Powered Cybersecurity:** Adaptive, self-learning AI systems will be essential for real-time threat detection, fraud prevention, and network security, especially as cyber threats grow in sophistication.
- **Industry-Specific Integration:** Sectors such as finance, healthcare, retail, logistics, education, and real estate are rapidly adopting AI, applying it for personalized recommendations, predictive analytics, dynamic pricing, medical diagnostics, and more.

Innovation Opportunities

- **AI Business Consulting:** Next-gen AI agents and generative AI systems will act as virtual business consultants, analyzing companies, markets, and audiences to provide actionable growth strategies and support decision-making.
- **Niche AI Startups:** New ventures are emerging in areas like virtual health assistants, AI-driven fraud detection, precision farming solutions, personalized education apps, legal research tools, and smart home automation.
- **Multimodal and Emotionally Intelligent AI:** Future AI experiences will involve multimodal interfaces—combining text, voice, images, and gestures—for more natural, human-like customer interaction. Emotionally intelligent AI will further enhance customer service and loyalty.
- **Sustainability and Energy Efficiency:** AI systems will play a growing role in optimizing energy consumption for enterprises, supporting efficient operations and greener business practices, as well as supporting global sustainability targets.
- **AI-Driven Innovation Ecosystems:** Businesses investing in continuous AI innovation will be able to develop new business models, products, and services faster, maintaining adaptability in rapidly evolving markets.

Conclusion

The latest trends in AI are not about enhancing efficiency, it's more about unlocking new possibilities. From self-evolving AI models to emotionally intelligent customer experiences, AI will shape the next generation of business leaders. Entrepreneurs who will leverage these emerging trends can future-proof their businesses, increase profitability, and stay ahead in an ever-evolving landscape

IMPACT OF DIGITAL PAYMENT ADOPTION ON FINANCIAL INCLUSION: EVIDENCE FROM CHENNAI DISTRICT

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ABSTRACT

The rapid adoption of digital payment systems has transformed the global financial ecosystem, redefining how individuals, businesses, and governments transact. Moving beyond cash-based economies, digital financial tools such as mobile wallets, Unified Payments Interface (UPI), internet banking, and contactless payments have created new pathways for financial inclusion. This study examines the impact of digital payment adoption on financial inclusion in the Chennai district, a metropolitan region that reflects both opportunities and challenges of India's digital economy.

The research highlights how digital payment adoption reduces dependency on cash, fosters economic transparency, and expands access to financial services among underserved groups. Drawing upon primary data from 86 respondents in Chennai, the study explores demographic factors influencing adoption, usage patterns of digital payment tools, and barriers such as digital illiteracy, cybersecurity concerns, and infrastructural constraints. The findings demonstrate that while young, educated, and tech-savvy populations readily adopt digital payments, challenges persist for older, rural, and low-income groups.

By integrating theoretical perspectives with empirical evidence, the study provides insights into how digital payments contribute to inclusive growth. It concludes with recommendations for policymakers, financial institutions, and fintech providers to strengthen digital literacy, enhance security frameworks, and ensure that digital financial ecosystems remain inclusive and sustainable.

INTRODUCTION

The financial landscape in India, and globally, has undergone a profound transformation with the advent and rapid adoption of digital payments. Traditional cash transactions, long dominant in everyday commerce, are increasingly being replaced by electronic and mobile-based payment systems. These systems not only enhance the convenience and speed of financial transactions but also play a crucial role in promoting financial inclusion. For developing economies like India, where large segments of the

population have historically remained unbanked or underbanked, digital payments serve as a gateway to the formal financial system.

The Government of India's Digital India initiative, combined with the 2016 demonetization drive, acted as a catalyst for the large-scale adoption of digital financial services. The introduction of Unified Payments Interface (UPI) has further revolutionized the way people conduct financial activities, offering real-time, user-friendly, and low-cost payment solutions. By December 2023, UPI transactions alone crossed ₹18.41 lakh crore, underscoring its role as the backbone of India's digital economy. Chennai, as a metropolitan hub, presents an ideal case for studying this transformation since it encapsulates both advanced digital infrastructures and socio-economic diversity.

Digital payments contribute to financial inclusion by providing equitable access to financial products and services, particularly to marginalized groups. Mobile wallets, QR code-based payments, and internet banking have enabled individuals from low-income and rural backgrounds to participate in the economy more effectively. Moreover, direct benefit transfers (DBT) facilitated by digital platforms reduce leakages in government welfare programs and ensure transparency in financial flows.

However, despite the potential benefits, several challenges hinder the universal adoption of digital payments. Cybersecurity threats, lack of trust, digital illiteracy, poor internet infrastructure in rural areas, and concerns over data privacy are persistent barriers. The urban-rural divide further exacerbates the problem, with rural populations often excluded from the benefits of digital financial ecosystems. The situation calls for a balanced approach that maximizes the benefits of digital technologies while addressing the risks and limitations. The scope of this research extends to understanding how digital payment adoption influences financial inclusion in Chennai district. Specifically, it investigates the demographic variables affecting adoption, the usage patterns of various digital payment tools, and the extent to which these tools contribute to financial inclusion. The study also identifies the challenges faced by different socio-economic groups and suggests strategies to overcome them.

The objectives of this research are threefold:

1. To identify the demographic variables of consumers using digital payments.
2. To analyze the usage patterns of various digital payment methods.
3. To determine the factors influencing financial inclusion through digital payments.

The significance of this study lies in its potential to guide policymakers, financial institutions, and fintech companies in designing inclusive strategies that bridge digital

divides. As India moves towards a cashless economy, ensuring equitable access to digital payment platforms is essential for sustainable development.

This paper is organized into several sections: a review of literature that synthesizes past studies on digital payments and financial inclusion; an overview of key concepts and theories guiding the research; a detailed methodology describing data collection and analysis; empirical findings and discussion; challenges and limitations; future directions; and a conclusion summarizing insights and policy implications. Through this structure, the study seeks to provide a comprehensive understanding of how digital payments can foster inclusive growth while highlighting the gaps that must be addressed for universal adoption.

LITERATURE REVIEW

A review of literature is a critical component of any research study, offering a synthesis of existing scholarly work and establishing a foundation for new contributions. It provides insights into the development of ideas, debates, and empirical findings surrounding a given research topic. In the context of digital payments and financial inclusion, the literature spans diverse areas, including mobile money, fintech innovations, consumer adoption, and the broader socio-economic implications of digital financial services. This section synthesizes global, national, and regional studies, identifying key findings, contradictions, and research gaps relevant to the current study on Chennai district.

Digital Payments and Financial Inclusion: Global Perspective

Globally, digital payments have been recognized as a transformative force in bridging financial exclusion. Mobile money services such as M-Pesa in Kenya are often cited as exemplary cases of how technology can connect unbanked populations to formal financial systems. Mbiti and Weil (2015) demonstrated that M-Pesa significantly increased access to financial services, reduced transaction costs, and improved economic security among Kenyan households. Their findings established that mobile money could be a tool not only for financial inclusion but also for broader socio-economic empowerment.

Similarly, Demirgüç-Kunt, Klapper, Singer, Ansar, and Hess (2018), using data from the Global Findex Database, revealed that digital payments enhanced financial inclusion across 140 countries, particularly among underserved groups. The study highlighted the importance of digital infrastructure, financial literacy, and supportive regulatory environments. Digital payments, they argued, not only improve access but also reduce costs, enhance transparency, and strengthen economic empowerment, especially in low- and middle-income economies.

Other scholars emphasized the role of fintech innovations in reshaping financial systems. Philippon (2019) argued that fintech solutions such as peer-to-peer lending, crowdfunding platforms, and mobile payments are disrupting traditional financial intermediation and making financial services more accessible. These innovations, while reducing costs, also enhance efficiency and trust, thus accelerating inclusion.

National and Regional Studies on Digital Payments

Within India, digital payments have been positioned at the center of financial inclusion initiatives. The introduction of Unified Payments Interface (UPI) in 2016 transformed the landscape by enabling seamless, instant, and low-cost transfers across banks. Sahoo and Mohanty (2020) found that UPI and other digital solutions substantially improved access to financial services in India, particularly among low-income groups. The study also noted that digital payments foster financial literacy and improve decision-making capabilities, thereby enhancing empowerment.

Durai and Stella (2019) examined digital finance delivered through mobile phones, internet platforms, and cards, concluding that such technologies offered affordable and secure banking solutions to the unbanked. Their findings reinforced the idea that digital finance can narrow socio-economic disparities by democratizing access to financial services.

In the Indian context, Kumar and Kumar (2020) studied the impact of digital payments on women entrepreneurs. Their analysis revealed that digital tools enhanced women's economic empowerment by lowering barriers to accessing credit and enabling participation in broader markets. Such studies underscore that digital inclusion has strong gendered implications, often empowering groups historically marginalized in financial systems.

Kumar and Kumar (2020) also highlighted the role of digital payments in improving financial literacy among low-income households. They argued that access to digital platforms facilitated not only financial transactions but also financial education, enabling better decision-making and reduced financial stress. Similarly, Anjali Kumar and Anand Kumar (2020) found that digital payments improved access for low-income households, but adoption remained constrained by digital literacy and trust issues.

CONCEPTS AND THEORIES

1. Digital Payments: Conceptual Foundations

Digital payments refer to financial transactions made through electronic devices such as smartphones, computers, or cards, without relying on physical cash. They encompass a range of platforms including mobile wallets, internet banking, Unified Payments Interface

(UPI), debit/credit cards, contactless payments, and even emerging systems such as cryptocurrencies and central bank digital currencies (CBDCs). Scholars highlight that digital payments offer advantages such as speed, transparency, and accessibility (Durai & Stella, 2019).

Digital payment ecosystems typically rely on three fundamental enablers:

1. **Technological Infrastructure** – high internet penetration, smartphone adoption, and interoperable payment systems.
2. **Institutional Support** – government policies, regulatory frameworks, and central bank initiatives.
3. **User Adoption** – influenced by demographics, trust, and perceived ease of use.

In India, UPI has emerged as the dominant system due to its interoperability, low cost, and real-time capabilities. Alongside, QR code-based payments and mobile wallets have democratized access to financial services among small vendors and low-income users (Sahoo & Mohanty, 2020).

2. Financial Inclusion: Definitions and Dimensions

Financial inclusion is broadly defined as the availability, accessibility, and affordability of financial services to all individuals and businesses, irrespective of socio-economic status. The World Bank emphasizes that inclusion goes beyond opening bank accounts; it requires enabling people to save, borrow, invest, and insure against risks effectively (Demirgüç-Kunt et al., 2018).

The dimensions of financial inclusion can be categorized as follows:

- **Access:** Ensuring that financial institutions and services are physically and digitally available.
- **Usage:** Measuring the extent to which people actively engage with these services.
- **Quality:** Assessing whether services meet the needs of different groups, such as women, rural populations, and small businesses.

Digital payments bridge access and usage gaps by lowering transaction costs, reducing reliance on cash, and integrating underserved groups into the formal economy. They also improve transparency, which enhances trust and reduces corruption in welfare distribution (Khera et al., 2021).

3. Diffusion of Innovation Theory

Rogers' **Diffusion of Innovation (DOI) Theory** provides a conceptual framework to explain how digital payments spread within society. According to Rogers (2003), innovations

diffuse through five adopter categories: innovators, early adopters, early majority, late majority, and laggards.

In the context of digital payments:

- **Innovators** are tech enthusiasts who experiment with new payment methods like cryptocurrencies or NFC-based systems.
- **Early adopters** are often young, educated, urban populations who embraced UPI and mobile wallets soon after their launch.
- **Early majority** includes wider segments such as small businesses and middle-income households who adopt when benefits become evident.
- **Late majority and laggards** are often rural, elderly, or low-literacy groups who adopt reluctantly due to barriers such as trust issues or lack of awareness.

This framework helps explain why adoption rates differ across demographic groups in Chennai and similar urban regions.

4. *Technology Acceptance Model (TAM)*

The **Technology Acceptance Model (TAM)**, introduced by Davis (1989), posits that two primary factors determine whether individuals adopt technology:

1. **Perceived Usefulness (PU)** – the degree to which a person believes using a system enhances performance.
2. **Perceived Ease of Use (PEOU)** – the extent to which a person believes using the system is free of effort.

Applied to digital payments, TAM suggests that individuals adopt systems like UPI or mobile wallets when they perceive them as useful (fast, secure, reliable) and easy to use (simple interfaces, local language support). Studies in India confirm that both PU and PEOU are strong predictors of adoption, especially among youth and educated users (Kumar & Kumar, 2020).

5. *Unified Theory of Acceptance and Use of Technology (UTAUT)*

The **Unified Theory of Acceptance and Use of Technology (UTAUT)**, developed by Venkatesh et al. (2003), expands on TAM by including additional constructs:

- **Performance Expectancy** – belief that digital payments improve financial efficiency.
- **Effort Expectancy** – ease of learning and using digital platforms.
- **Social Influence** – the extent to which peers and communities influence adoption.
- **Facilitating Conditions** – the availability of infrastructure and support.

In Chennai, for example, peer influence plays a key role, especially among students and young professionals. If friends and colleagues widely use Google Pay or PhonePe, others

are likely to adopt too. Facilitating conditions, such as government promotion of UPI and widespread merchant acceptance, further strengthen adoption.

6. Institutional Theory and Policy Frameworks

Institutional theory emphasizes the role of formal rules, government initiatives, and organizational legitimacy in shaping adoption. India's policy interventions—such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), Aadhaar-enabled payments, and the Reserve Bank of India's push for UPI—illustrate how institutional pressures accelerate digital payment adoption (Srouji, 2020).

In Chennai, the impact of institutional support is evident through public awareness campaigns, integration of UPI in government services, and incentives for digital transactions. Institutional theory underscores that digital payment adoption is not only a consumer-driven choice but also shaped by regulatory and policy environments.

7. Risk Perception and Trust Theory

Another theoretical strand focuses on **risk perception and trust**, which significantly influence digital financial adoption. Users often evaluate the risks of cybercrime, fraud, hidden charges, and data misuse before embracing digital payments (Sharma & Díaz Andrade, 2023). Trust-building mechanisms such as secure encryption, two-factor authentication, and grievance redressal systems are therefore critical.

Trust is especially vital in developing economies, where financial literacy gaps amplify fears of fraud. In Chennai, concerns over scams and data misuse remain key barriers among older and less educated populations. Addressing trust deficits is thus integral to deepening financial inclusion.

RESEARCH METHODOLOGY

Research methodology is the structured framework through which a study is designed, conducted, and analyzed. It ensures that the research process is systematic, reliable, and replicable. This study investigates the role of digital payment adoption in fostering financial inclusion, focusing on the Chennai district as a representative metropolitan area. The methodology employed integrates both descriptive and inferential statistical tools to analyze patterns of adoption and identify challenges.

Research Design

A **quantitative research design** was adopted for this study. Quantitative approaches are particularly suited to research questions that aim to measure the extent, frequency, and determinants of a phenomenon (Creswell & Creswell, 2018). By collecting structured numerical data, the study evaluates relationships between demographic variables and digital

payment adoption, as well as their impact on financial inclusion. The design is cross-sectional in nature, meaning that data were collected at a single point in time. This approach provides a snapshot of consumer behavior regarding digital payments in Chennai. While longitudinal designs may capture evolving trends, the cross-sectional approach is appropriate for identifying demographic correlations and present challenges.

Target Respondents

The study focuses on residents of **Chennai district**, one of India's largest metropolitan areas, where digital payment adoption has been accelerated by infrastructure, government initiatives, and socio-economic diversity. Chennai provides an ideal case because it represents both advanced urban adoption and pockets of digital exclusion, especially among older and low-income groups. Respondents included individuals from diverse demographic backgrounds such as students, private-sector employees, self-employed individuals, and public-sector workers. This diversity allows for meaningful analysis of how variables such as age, education, occupation, and income affect adoption patterns.

Sampling Design and Sample Size

The **convenience sampling method** was employed for selecting respondents. Convenience sampling, a non-probability technique, involves selecting participants based on accessibility and willingness to participate. Although it may not provide the representativeness of probability sampling, it is widely used in exploratory social science research where time and resource constraints exist (Etikan, Musa, & Alkassim, 2016). A total of **86 respondents** were surveyed. This sample size, though modest, is sufficient to provide insights into adoption patterns and conduct statistical analyses such as percentages, mean comparisons, and factor analysis. The selection of 86 participants balances feasibility with the need to capture demographic diversity within the Chennai district.

Data Collection Methods

Data were collected through a **structured questionnaire** distributed to respondents. The questionnaire consisted of three sections:

1. **Demographics** – capturing age, gender, education, occupation, income, and marital status.
2. **Digital Payment Usage** – measuring the extent and frequency of use of different payment methods such as UPI, debit/credit cards, internet banking, QR codes, and cryptocurrencies.
3. **Perceptions and Barriers** – assessing attitudes toward digital payments, including convenience, affordability, trust, risks, and institutional support.

Responses were recorded on a Likert scale (1 to 5), allowing for quantitative analysis of user preferences and perceptions. The use of structured instruments ensured consistency and reliability across participants.

Data Analysis Tools

The collected data were analyzed using **descriptive and inferential statistics**. Descriptive statistics included frequencies, percentages, means, and standard deviations to summarize demographic distributions and usage patterns. Inferential statistics, particularly **exploratory factor analysis (EFA)**, were employed to identify underlying dimensions influencing financial inclusion through digital payments. To test data adequacy, the **Kaiser-Meyer-Olkin (KMO) measure** and **Bartlett's Test of Sphericity** were applied. A KMO value of 0.855 indicated sampling adequacy, while the Bartlett test confirmed correlations among variables, validating the use of factor analysis. Principal Component Analysis (PCA) with Varimax rotation was used to extract factors. This technique reduced ten observed variables into three main components: *Convenience and Financial Incentives*, *Access and Institutional Support*, and *Perceived Risks and Technological Barriers*. Such data reduction techniques are useful in identifying the latent constructs influencing adoption.

Limitations of the Methodology

Despite its strengths, the methodology has several limitations. First, the reliance on convenience sampling limits generalizability, as the sample may not represent all demographic groups in Chennai. Second, the sample size of 86, while adequate for exploratory analysis, restricts the statistical power of more advanced techniques. Third, data collection relied on self-reported responses, which may be subject to bias or inaccuracies due to social desirability or misunderstanding of questions. Additionally, the cross-sectional design captures behavior at one point in time, preventing analysis of changes over time. Future studies could employ longitudinal or mixed-method approaches to capture richer insights.

DATA ANALYSIS AND INTERPRETATION

The analysis and discussion section presents the empirical findings from the survey conducted among 86 respondents in Chennai district and situates them within broader theoretical and empirical contexts. The objective is twofold: (1) to describe the demographic profile of respondents and their digital payment usage patterns, and (2) to identify and interpret the factors influencing financial inclusion through digital payment adoption. By integrating descriptive statistics with factor analysis, the study reveals insights into how socio-demographic variables, institutional support, and user perceptions shape adoption. The

discussion further connects findings to existing literature, highlighting both confirmations and contradictions.

Demographic Profile of Respondents

Demographic characteristics strongly influence technology adoption, including digital payment usage. The surveyed population was diverse in terms of **age, gender, education, occupation, income, and marital status**.

- **Age:** Younger respondents (18–35 years) constituted the majority, reflecting India’s demographic dividend and the tech-savvy nature of youth populations. Older groups (above 50) were underrepresented, consistent with global trends that show older individuals are slower to adopt digital financial services (Rogers, 2003).
- **Gender:** Both male and female respondents participated, though a slightly higher proportion of men reported frequent digital payment use. This reflects persistent gender gaps noted in studies by Biswas (2021), where women face higher barriers to adoption due to digital literacy and cultural norms.
- **Education:** Respondents with higher education (graduates and postgraduates) dominated the sample, underscoring the role of educational attainment in influencing digital readiness. As Demirgüç-Kunt et al. (2018) highlight, financial and digital literacy are closely linked to adoption.
- **Occupation:** Private sector employees and students formed the bulk of respondents, both groups being heavy users of digital platforms. Public-sector employees and self-employed individuals also reported use but with more varied intensity.
- **Income:** Middle-income groups (₹25,000–₹50,000 monthly) were the largest adopters, suggesting affordability is a key factor. Low-income groups showed lower adoption, indicating barriers such as affordability of devices and trust issues.
- **Marital Status:** Single respondents reported higher usage, aligning with global patterns where younger, unmarried individuals are more open to experimenting with technology.

This demographic breakdown sets the foundation for understanding adoption patterns and challenges across different groups.

Patterns of Digital Payment Adoption

Respondents reported using a wide variety of digital payment methods: **UPI (Google Pay, PhonePe, Paytm), debit/credit cards, QR code payments, internet banking, and in fewer cases, cryptocurrencies**.

Payment Method	N	Minimum	Maximum	Mean	Std. Deviation
Unified Payment Interface	86	1	5	4.57	1.012
Debit Card Payments	86	1	5	3.33	1.323
Credit Card Payments	86	1	5	2.88	1.641
Internet Banking (Net Banking, IMPS, NEFT, RTGS)	86	1	5	3.14	1.473
QR Code Payments (Scan & Pay)	86	1	5	4.45	0.941
Contactless Payments(NFC-enabled cards, mobile tap-to pay)	86	1	5	2.71	1.586
Buy Now, Pay Later (BNPL) services(simple, Lazypay)	86	1	5	2.64	1.615
Cryptocurrency Transaction	86	1	5	2.47	1.671

1. **Dominance of UPI:** UPI emerged as the most frequently used system. Its popularity can be attributed to its interoperability, real-time transfer capabilities, and low transaction costs. UPI's success in Chennai mirrors national trends, where UPI transactions reached record highs in 2023 (NPCI, 2023).
2. **Debit and Credit Cards:** Cards remain significant, particularly for larger or formal transactions. Respondents viewed cards as secure, though younger users preferred UPI for everyday small payments.
3. **Mobile Wallets:** Services like Paytm and Amazon Pay are still used but have been overshadowed by UPI. Many respondents expressed that wallets are convenient for specific use cases like bill payments and e-commerce.
4. **QR Code Payments:** Widely adopted among students and employees for small, peer-to-peer, and merchant transactions. QR codes are especially popular in retail and food services, making them a critical driver of cashless transactions.
5. **Internet Banking:** Used mainly for large-value transfers, utility bills, and professional payments. Adoption is high among older and more educated groups.

6. **Cryptocurrencies:** Only a very small fraction of respondents indicated awareness or limited experimentation with cryptocurrencies. Legal and regulatory uncertainties, coupled with risk perceptions, hinder widespread use.

These patterns confirm that while multiple digital payment methods coexist, UPI dominates everyday transactions due to convenience, speed, and policy support.

Impact the Financial Inclusion by using Digital Payments

The study applied **Exploratory Factor Analysis (EFA)** to identify underlying constructs influencing digital payment adoption.

- **KMO and Bartlett’s Test:** The Kaiser-Meyer-Olkin (KMO) measure was 0.855, indicating sampling adequacy. Bartlett’s Test of Sphericity was significant ($p < 0.001$), confirming that factor analysis was appropriate.
- **Factor Extraction:** Using Principal Component Analysis with Varimax rotation, three major factors were extracted from ten observed variables, accounting for a cumulative variance of over 65%.

Table 2 Rotated Component Matrix^a For Factor That Impact The Financial Inclusion By Using Digital Payments

	Component		
	Accessibility	Affordability	Risk
Digital payments reduce to visit a physical bank branch.	0.823		
Cashback and Reward make digital payment more attractive.	0.782		
The availability of low-cost or free digital payment services has encourage to avail the service s.	0.696		
I find it easy to create and manage a digital payment account.		0.954	
The availability of digital payment services in rural areas has improved financial access.		0.875	
Government initiatives have improved access to digital payments in my area.		0.562	
I prefer using digital payments over cash for everyday transactions		0.372	

Lack of devices, internet, and digital literacy hinders digital financial service usage.			0.73
Fear of fraud and cybercrime discourage to use digital payments.			0.729
Hidden charges or fees discourage from using digital payments.			0.618
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 6 iterations.			

Factor 1: Convenience and Financial Incentives

This factor included variables such as *ease of use, speed of transactions, cashbacks, and discounts*. Respondents widely agreed that digital payments save time and offer attractive rewards. Younger and student populations, in particular, highlighted cashback incentives as motivators for adoption. This aligns with findings by Kumar and Kumar (2020), who noted that perceived usefulness and ease of use are critical determinants of digital adoption.

Factor 2: Access and Institutional Support

This factor included *availability of internet, banking support, interoperability, and government initiatives*. Respondents emphasized that improved infrastructure and supportive policies (like UPI integration and merchant onboarding) encouraged adoption. The role of institutional frameworks resonates with Srouji (2020), who argued that government and regulatory support are central to accelerating adoption in developing economies.

Factor 3: Perceived Risks and Technological Barriers

This factor captured *concerns over cybersecurity, fraud, lack of trust, and digital illiteracy*. Many older respondents and those from lower income groups expressed apprehensions about fraud and data misuse. These perceptions mirror Sharma and Díaz Andrade’s (2023) findings, which noted that trust deficits remain one of the largest barriers to digital financial inclusion globally.

DISCUSSIONS

The study found clear demographic influences on adoption. Younger, educated, and middle-income respondents were most likely to adopt digital payments, while older, less educated, and low-income groups faced barriers. This confirms Rogers’ (2003) Diffusion of Innovation theory, which posits that innovators and early adopters tend to be younger, more educated, and risk-tolerant. Gender disparities were also evident, though narrower than in

earlier studies. Women respondents used digital payments less frequently, consistent with Biswas (2021), who highlighted persistent gender gaps in mobile financial services. However, government and fintech initiatives targeting women entrepreneurs have begun to narrow these divides.

Factors Driving Adoption

Convenience and incentives emerged as dominant motivators. The speed of UPI, coupled with rewards such as cashback, created strong incentives for younger users. This supports the **Technology Acceptance Model (TAM)** (Davis, 1989), which emphasizes perceived usefulness and ease of use. Institutional support also played a crucial role. Government initiatives like demonetization, Digital India campaigns, and zero-charge UPI transactions were cited as enablers. Institutional theory explains how regulatory and structural frameworks push adoption at scale (Khera et al., 2021).

Barriers and Risks

Perceived risks significantly hinder adoption among certain groups. Concerns over fraud, hacking, and hidden charges discourage older and less literate populations. Lack of trust in digital ecosystems aligns with **Risk-Trust theory**. Moreover, infrastructural limitations—such as poor internet connectivity in semi-urban areas—create barriers, confirming findings by Jeremy Srouji (2020).

Theoretical Implications

The findings reinforce the applicability of multiple theoretical models:

- **DOI Theory** explains generational and socio-economic divides in adoption.
- **TAM and UTAUT** highlight the roles of usefulness, ease of use, and social influence.
- **Institutional Theory** underscores the significance of government and regulatory frameworks.
- **Risk-Trust models** capture barriers that cannot be explained by convenience or incentives alone.

By integrating these frameworks, the study provides a holistic understanding of digital payment adoption in Chennai.

Practical Implications

1. **For Policymakers:** Strengthen digital literacy campaigns targeting older and rural populations, focusing on trust and security.
2. **For Financial Institutions:** Enhance fraud prevention mechanisms and user-friendly grievance redressal systems.

3. **For Fintech Companies:** Continue offering incentives such as cashbacks while innovating around user experience.
4. **For Society:** Encourage inclusive digital ecosystems where marginalized groups can benefit equally.

FUTURE DIRECTIONS

The findings of this study on digital payment adoption in Chennai highlight both the transformative potential of financial technologies and the persistent barriers limiting universal inclusion. While significant progress has been made, the rapid evolution of digital finance, coupled with socio-economic disparities, underscores the need for continued research and innovation. This section outlines key directions for future efforts by researchers, policymakers, financial institutions, and technology providers.

Future research should move beyond urban centers like Chennai to include **semi-urban and rural populations**, where infrastructural limitations and digital illiteracy are more prevalent. Comparative studies between urban and rural areas could provide a holistic picture of financial inclusion across diverse geographies. Additionally, **longitudinal research designs** would capture how digital payment adoption evolves over time, especially with new technologies such as Central Bank Digital Currencies (CBDCs) and Buy Now Pay Later (BNPL) platforms. Such studies could reveal not only adoption patterns but also long-term impacts on household savings, consumption, and financial security.

Policymakers need to focus on reducing the **digital divide** by investing in rural internet infrastructure and ensuring affordable smartphone access for low-income groups. Policies should also promote **digital literacy campaigns**, targeting older populations, women, and marginalized communities who are often left behind. Moreover, future policies should strengthen **cybersecurity frameworks** to build trust among hesitant users. Introducing stronger consumer protection laws and robust grievance redressal systems could further boost confidence in digital ecosystems.

Fintech providers should design **inclusive and user-friendly platforms** with multilingual support and simplified interfaces for first-time users. Emerging technologies like **voice-based payments** and **biometric authentication** could help bridge literacy gaps. The integration of **AI-driven fraud detection** systems can address security concerns and reduce risks of scams, a major deterrent for older and less literate populations. Fintechs must also expand services beyond payments to include **micro-credit, insurance, and savings solutions**, thereby deepening financial inclusion.

CONCLUSIONS

The purpose of this study was to examine the impact of digital payment adoption on financial inclusion in Chennai district. By analyzing demographic variables, usage patterns, and perceptions of digital financial services, the research provides valuable insights into how digital payments influence economic participation and inclusion. This conclusion summarizes the key findings, highlights the study's contributions, and reflects on its broader implications. The study established that **digital payments are widely adopted in Chennai**, with Unified Payments Interface (UPI) emerging as the most dominant method. Younger, educated, and middle-income respondents were identified as the most frequent users, while older, less educated, and low-income groups showed lower adoption rates due to barriers such as digital illiteracy, lack of trust, and perceived risks.

Factor analysis revealed three main dimensions influencing adoption:

1. **Convenience and Financial Incentives** – ease of use, speed, and rewards drive adoption.
2. **Access and Institutional Support** – availability of infrastructure, bank support, and government initiatives enable usage.
3. **Perceived Risks and Technological Barriers** – concerns about fraud, privacy, and digital literacy hinder participation.

These findings confirm theoretical models such as the **Technology Acceptance Model (TAM)**, **Unified Theory of Acceptance and Use of Technology (UTAUT)**, and **Diffusion of Innovation (DOI)**, which highlight the role of perceived usefulness, ease of use, and social influence in technology adoption. They also underscore the importance of institutional support and trust-building in shaping inclusive financial ecosystems.

The study highlights that digital payments are not merely a matter of convenience but a pathway to **financial empowerment and inclusion**. They facilitate access to formal financial services, reduce reliance on cash, and enhance transparency in economic transactions. However, the persistence of adoption gaps suggests that inclusive growth requires targeted interventions, particularly for marginalized groups.

In conclusion, digital payments have transformed Chennai's financial landscape, but their benefits remain unevenly distributed. To achieve universal financial inclusion, stakeholders must address structural barriers, strengthen digital literacy, and foster trust in digital ecosystems. As technology continues to evolve, the challenge lies in ensuring that innovation does not exacerbate divides but rather bridges them. This study, while limited in scope, offers a foundation for future research and policy design aimed at creating a more inclusive and sustainable digital financial ecosystem in India.

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IMPACT OF SHORT VIDEOS ON BUSINESS PEOPLE, SERVICE PROVIDERS, CONTENT CREATORS AND INFLUENCERS

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Abstract:

Recent trends in short-form video platforms such as TikTok, Instagram Reels, and YouTube Shorts have profoundly reshaped global marketing strategies. This paper presents a systematic literature review that examines the unique characteristics of these platforms, including algorithmic architecture, content creation dynamics, and patterns of user engagement, and evaluates their influence on marketing effectiveness. In addition, the review identifies central themes, acknowledges research limitations, and proposes avenues for future inquiry. Findings suggest that short-form video platforms offer marketers compelling opportunities for creating relevant, engaging, and highly shareable content. Nonetheless, further research is essential to assess their long-term efficiency, ethical considerations, and comparative performance against other content-sharing platforms, particularly across different countries. It is now incumbent on scholars and practitioners to explore these emerging domains to fully harness the marketing potential of short-form video media.

Keywords

Short-form video platforms; Marketing effectiveness; Algorithmic design; User engagement; Content creation.

Introduction

In today's fast-moving world, the way we communicate, market and build our brand has changed completely. One of the biggest reasons behind this change is the rise of short videos. Whether it is a business person trying to promote products, a service provider attracting customers, a content creator building a fan base, or an influencer growing their presence short videos have opened new doors of opportunity for everyone. With platforms like Instagram Reels, YouTube Shorts and TikTok becoming household names, short videos are no longer just entertainment. They have become an important tool for business growth, brand building and personal connection. In this article, we will explore how short videos have impacted different groups of people and why they are becoming a must in today's digital age.

The Rise of Short-Form Video: A Brief History

To understand the impact of short-form video content on social media marketing, it's important to explore its origins. The rise of TikTok in 2016, followed by Instagram's launch of Reels in 2020, ushered in a new era of digital content consumption. While platforms like YouTube and Facebook had already established the dominance of video content, the introduction of shorter, easily digestible videos created an instant connection with a growing generation of users who valued quick, entertaining, and informative content.

Younger audiences, particularly Millennials and Gen Z, became the driving force behind this trend. These generations grew up in the age of smartphones and have shorter attention spans compared to previous generations. A study from Microsoft claims that the average attention span has dropped from 12 seconds to 8 seconds in recent years. As a result, the bite-sized nature of short-form videos allows brands to capture their attention quickly and deliver a memorable message within moments.

The Power of Short Videos

Short videos are powerful because they match the lifestyle of today's audience quick, busy, and always looking for something engaging. In just 15 to 60 seconds, you can tell a story, teach something new, showcase a product, or even inspire someone. Unlike long videos or articles, short videos grab attention instantly. They are easy to create, cost-effective and highly shareable. A single short video, if done well, can bring massive reach and create a strong impression in the minds of viewers.

Impact on Business People

For business owners, short videos have become a smart marketing tool. Earlier, promoting a product required large budgets for advertisements, but today, even a simple video shot on a mobile phone can create a buzz. Business people are using short videos to introduce their brand, explain product features, show customer feedback and even give a behind-the-scenes look into their company. This personal touch helps customers connect better with the brand. A local bakery, for example, posting short videos of fresh cakes being made daily, can attract customers without spending a single rupee on advertising. Short videos create trust, excitement and a feeling of connection, all of which are important for growing a business today.

Impact on Service Providers

Service providers like doctors, teachers, fitness trainers, beauticians and consultants are also seeing the magic of short videos. For them, it is a chance to show their skills, share knowledge and build relationships with potential clients. A yoga instructor, for example, can

post daily 30-second videos showing simple stretches. Over time, people begin to trust the instructor's expertise and are more likely to sign up for classes. Similarly, a home chef can post short recipes, creating both entertainment and marketing in one shot. Short videos help service providers to appear more approachable and real. Instead of boring advertisements, they can now build their brand through genuine content that adds value to people's lives.

Impact on Content Creators

For content creators, short videos have opened up a whole new world of opportunities. In earlier days, it was difficult to grow a large audience without spending years creating blogs, long videos, or heavy content. Today, a smart, creative 30-second video can make someone famous overnight. Creators are using short videos to express their talents whether it is dance, art, music, cooking, or storytelling. Platforms reward creativity and consistency. Many young talents from small towns in India are now seen globally, simply because of their short videos. Short videos allow creators to experiment with different styles, connect emotionally with audiences and even collaborate with brands. It has given them faster exposure and better income opportunities than ever before.

Impact on Influencers

Influencers rely on building a strong relationship with their audience. Short videos help them stay connected with their followers in a more natural, frequent way. Earlier, influencers had to work hard on creating long, polished YouTube videos or blogs. Now, they can simply share snippets of their life, quick reviews, tips, daily routines, or motivational talks all through short videos. Because these videos are easy to consume, audiences feel closer to influencers. They see the human side behind the picture-perfect images. This emotional closeness builds trust, which is highly valuable when influencers promote products, services, or causes. Brands also prefer influencers who are active in the short video space because their reach is often higher and engagement is quicker.

Challenges Faced by Short Video Creators

While the benefits are many, creating short videos also comes with its own set of challenges. Firstly, grabbing attention in the first few seconds is very difficult. If the video is boring in the beginning, viewers will simply scroll away. Secondly, maintaining regular posting without losing creativity is tough. Audiences expect fresh, exciting content all the time. Moreover, the competition is very high. Millions of videos are posted every day. Standing out requires a good understanding of audience interests, trends and creative presentation. Consistency, patience and learning from feedback are very important for success in the short video world.

Tips for Using Short Videos Effectively

If you want to make the best use of short videos, a few simple tips can help:

- Always start your video with something catchy to grab attention.
- Keep the message clear and simple.
- Show real emotions authenticity connects better than perfection.
- Add subtitles because many people watch without sound.
- Use trending music, styles, and hashtags to increase discoverability. Above all, be consistent. Growth may not happen overnight, but regular posting builds momentum over time.

The Future of Short Videos

The future of short videos looks very bright. Experts believe that videos will become even shorter, smarter and more interactive. Features like clickable products inside videos, interactive polls, AI-based personalization and instant shopping options will become common. Businesses, creators, and influencers who adapt early to these trends will enjoy bigger success. Instead of selling directly, they will focus on building a community and offering value through short, meaningful videos. In India, with cheaper internet and rising smartphone usage even in rural areas, short videos will become a bigger part of our daily lives. Whether it is learning, shopping, entertainment, or social causes short videos will lead the way.

Conclusion

Short videos have changed the way the world communicates. For business people, service providers, content creators and influencers, they are no longer optional they are essential. By making smart, engaging short videos, anyone can grow their brand, build strong relationships and create new opportunities. It does not require expensive equipment or professional skills. What matters most is creativity, consistency and a genuine desire to add value. In the world of short videos, a few seconds of smart work can bring a lifetime of success.

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INDIA'S SEMICONDUCTOR REVOLUTION: BUILDING A SELF-RELIANT CHIP-MAKING ECOSYSTEM

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Abstract

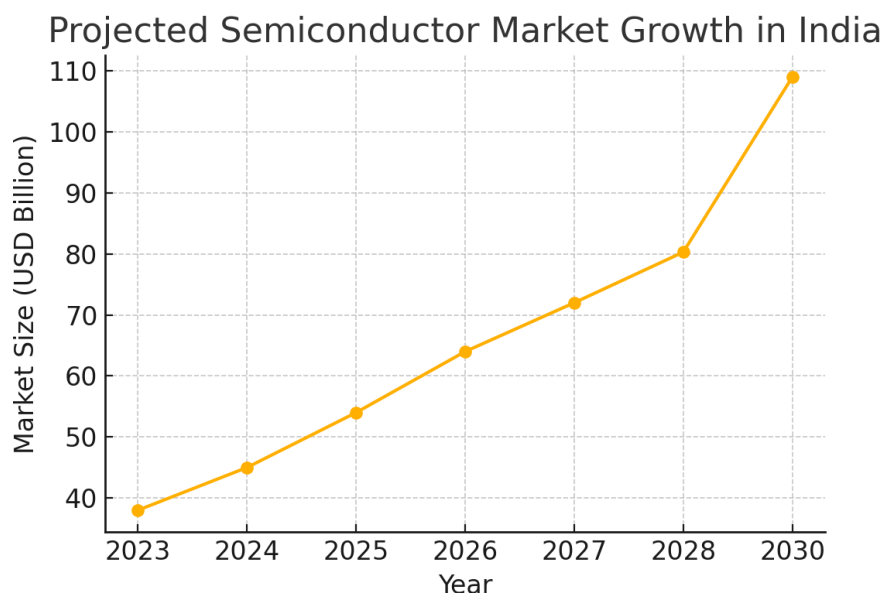
India is undergoing a strategic transformation to establish itself as a significant player in the global semiconductor ecosystem. Anchored by the India Semiconductor Mission (ISM) and backed by a comprehensive policy framework, the country is witnessing robust investments from both domestic and international stakeholders across the entire semiconductor value chain—including chip design, fabrication, assembly, testing, and packaging. This article examines the recent milestones in India's semiconductor landscape, highlighting major infrastructure projects such as fabrication units by Tata Electronics and HCL-Foxconn, and the ATMP facility by Micron Technology. It also explores strategic global partnerships with leading players like Foxconn, Renesas, and Tower Semiconductor, and outlines the government's extensive incentive schemes aimed at fostering innovation, enhancing manufacturing capabilities, and building a skilled workforce. While challenges remain in areas such as access to advanced technologies and talent development, India's proactive approach, combined with growing domestic demand and geopolitical opportunities, positions it as an emerging hub for semiconductor innovation and manufacturing. The article concludes with insights into the sector's future outlook, emphasizing India's long-term potential in reshaping global chip supply chains.

Keywords: India Semiconductor Mission, chip manufacturing, semiconductor fabrication, OSAT, chip design, strategic partnerships, government incentives, Tata Electronics, Micron Technology, semiconductor ecosystem, Foxconn, semiconductor policy India.

1. Introduction

Semiconductors are the foundational components that power a wide range of modern electronic devices, including smartphones, laptops, automobiles, and advanced industrial equipment. Recognizing their strategic importance in the digital age, India has traditionally relied heavily on imports to meet its semiconductor demands. However, this dependency

poses significant risks to economic resilience and technological sovereignty. To address this challenge and catalyze the growth of its digital economy, the Government of India launched the India Semiconductor Mission (ISM) in 2021. With a robust financial commitment exceeding USD 10 billion, the mission aims to establish a comprehensive and sustainable semiconductor ecosystem within the country. Its key objectives include fostering semiconductor manufacturing, promoting chip design capabilities, encouraging research and innovation, and enabling advanced packaging and testing facilities. The ISM is part of a broader vision to transform India into a global hub for electronics system design and manufacturing (ESDM). Through strategic policy support, public-private partnerships, and the development of skilled talent, the initiative is expected to reduce import dependency, enhance national security, generate high-value employment, and position India as a competitive player in the global semiconductor value chain.



2. Recent Developments in the Sector

India's semiconductor landscape is undergoing a transformative phase, characterized by a surge in high-value investments, technological collaborations, and proactive policy initiatives. These recent developments are laying the foundation for a resilient and self-sufficient semiconductor ecosystem that spans from chip design and fabrication to testing and packaging.

New Manufacturing Facilities: HCL–Foxconn Joint Venture

On May 15, 2025, the Government of India approved its sixth semiconductor fabrication facility, a joint venture between HCL Technologies and Foxconn, a globally renowned Taiwanese electronics manufacturer. The facility is being established near Jewar

Airport in Uttar Pradesh, a strategic location chosen for its logistical advantages and proximity to emerging industrial zones. This plant is dedicated to the production of display driver integrated circuits (DDICs), which are essential components in smartphones, laptops, automotive displays, and various consumer electronics. With a projected investment of approximately INR 3,700 crore (USD 433.6 million), the venture is expected to enhance India's indigenous semiconductor capabilities, reduce reliance on imports, and contribute significantly to regional employment and infrastructure development. The facility will serve as a catalyst for ancillary industries in the region, while also playing a key role in advancing India's ambitions to become a global player in chip design and manufacturing.

Tata Electronics' Mega Semiconductor Fab in Gujarat

Tata Electronics, in collaboration with Power chip Semiconductor Manufacturing Corporation (PSMC) of Taiwan, is developing one of the largest and most advanced semiconductor fabrication plants in the country. The facility is located in the Dholera Special Investment Region (DSIR) in Gujarat, a designated industrial hub with world-class infrastructure. Designed to produce up to 50,000 semiconductor wafers per month, the fab will cater to emerging technologies including artificial intelligence, automotive electronics, and high-performance computing. The total estimated investment exceeds USD 10 billion, with up to 50 percent of the funding provided under the Government of India's Semicon India Program. This project represents a significant milestone in India's efforts to establish high-volume, high-technology chip manufacturing capabilities. In addition to reducing dependency on overseas supply chains, the facility is expected to create thousands of skilled jobs and promote the development of a robust semiconductor cluster in Gujarat.

Micron Technology's ATMP Facility in Sanand

Micron Technology, a leading US-based semiconductor company known for its memory and storage solutions, is investing USD 2.75 billion to set up an advanced Assembly, Testing, Marking, and Packaging (ATMP) plant in Sanand, Gujarat. This facility will focus on processing DRAM and NAND memory products—critical components for data centers, mobile devices, and industrial applications. The plant is scheduled to become operational by the end of 2024 and represents a strategic move to bolster India's capabilities in semiconductor backend processes. While fabrication is often in the spotlight, packaging and testing are equally vital to ensuring the reliability and performance of semiconductor products. Micron's investment not only strengthens India's position in the global semiconductor value chain but also aligns with the broader national objective of creating an end-to-end, full-stack ecosystem. The facility is expected to generate a substantial number of

high-skilled jobs and support India's ambitions of becoming a major exporter of advanced semiconductor components.

3. Strategic Partnerships and Global Collaborations

India is actively engaging in international collaborations to accelerate the growth of its semiconductor ecosystem. These strategic partnerships are crucial for enabling technology transfer, enhancing domestic capabilities, and integrating India into the global semiconductor value chain.

Foxconn, a leading Taiwanese electronics manufacturer, is making substantial investments across multiple semiconductor initiatives in India. These projects are expected to significantly contribute to India's manufacturing strength and technological depth.

Renesas Electronics Corporation from Japan, in collaboration with CG Power of India and Stars Microelectronics of Thailand, is establishing an Outsourced Semiconductor Assembly and Test (OSAT) facility in Gujarat. This initiative is set to strengthen India's back-end capabilities in chip packaging and testing.

India has also entered into formal agreements with the United States and the European Union to collaborate on semiconductor supply chain resilience, research and development, and innovation. These partnerships reflect the growing geopolitical and economic importance of India in the global semiconductor strategy.

Additionally, Tower Semiconductor from Israel has proposed the development of a USD 8 billion fabrication facility in partnership with the Adani Group. This project is aimed at producing analog and mixed-signal semiconductors for applications in telecommunications, automotive, and industrial sectors.

These collaborations underscore India's emergence as a critical destination for semiconductor investment and innovation amid global supply chain diversification.

4. Policy Incentives and Government Support

The Government of India has introduced a comprehensive policy framework to attract investments and stimulate growth in the domestic semiconductor industry. These incentives are designed to support the entire semiconductor value chain, including design, fabrication, assembly, testing, and packaging.

The government offers a 50 percent capital subsidy for companies establishing semiconductor fabrication units. In addition, several state governments provide further financial support ranging from 10 to 25 percent, aimed at encouraging regional participation and balanced industrial development.

To promote domestic innovation in semiconductor design, the Design-Linked Incentive (DLI) scheme has been launched. This scheme supports startups, academia, and research institutions in developing indigenous chip designs and intellectual property.

As of 2024, more than 45 applications have been submitted under India's semiconductor incentive programs. Among these, four semiconductor units approved under the India Semiconductor Mission are expected to collectively produce around 70 million chips per day. These chips will serve various high-demand sectors such as telecommunications, automotive, defense, and consumer electronics.

These policy initiatives demonstrate the government's commitment to building a competitive, self-reliant, and globally integrated semiconductor manufacturing ecosystem.

5. Emerging Startups and Innovation Ecosystem

India's semiconductor strategy places significant emphasis on nurturing innovation through a growing base of startups and academic research. The focus is on the fabless model and the development of indigenous chip design capabilities.

AMD has partnered with the Indian Institute of Technology Bombay to support research in energy-efficient chip design. This collaboration aims to create advanced semiconductor solutions for next-generation applications such as artificial intelligence, the Internet of Things, and edge computing.

Several Indian startups are making notable progress in semiconductor design. Companies like Saankhya Labs, Mindgrove Technologies, and Incore Semiconductors are developing low-power, application-specific chips suited for sectors including communications, defense, and consumer electronics. These startups benefit from funding, mentorship, and policy support under government schemes like the DLI.

Larsen & Toubro, a prominent Indian technology and engineering firm, has announced its plan to launch a fabless chip design company. The initiative aims to design and commercialize 15 semiconductor products by 2027, with a focus on critical applications such as 5G, industrial automation, and aerospace.

This innovation-led environment, supported by both public and private stakeholders, is instrumental in transforming India into a global hub for semiconductor research, design, and product development.

6. Regional Growth and Job Creation

The expansion of India's semiconductor industry is driving significant regional development, creating both high-skilled employment and supporting infrastructure in

multiple states. Key semiconductor and electronics manufacturing projects are contributing to inclusive growth by promoting job opportunities outside of traditional industrial hubs.

In Assam, Tata Electronics is setting up a semiconductor facility that will provide training and employment to approximately 1,500 local youth. This initiative not only boosts the local economy but also plays a crucial role in developing a skilled workforce in the northeastern region.

Kaynes Technology, a leading Indian electronics manufacturing company, is establishing an advanced Outsourced Semiconductor Assembly and Test (OSAT) facility near Hyderabad, Telangana. The project is expected to generate over 2,000 jobs, further enhancing the state's reputation as a high-tech manufacturing hub.

Other states such as Gujarat, Uttar Pradesh, and Odisha are also witnessing increased activity in semiconductor-related investments. These projects are fostering the development of industrial clusters, improving infrastructure, and attracting ancillary industries, thereby supporting long-term regional economic growth.

7. Challenges and Future Outlook

Despite the promising momentum, India's semiconductor sector continues to face several structural and operational challenges that must be addressed to ensure sustainable growth and global competitiveness.

One of the primary challenges is the limited domestic access to cutting-edge semiconductor technologies, particularly in advanced nodes below 10 nanometers. Bridging this gap requires strategic technology partnerships, focused research and development, and robust intellectual property creation.

The sector also faces a shortage of highly skilled professionals in areas such as chip design, process engineering, and materials science. Strengthening academic-industry collaboration, investing in technical education, and upskilling the workforce will be critical to meeting future talent demands.

Additionally, semiconductor projects typically involve long gestation periods. Many of the approved fabrication and assembly units are not expected to reach full-scale commercial production until after 2026. This necessitates sustained policy consistency, efficient project execution, and long-term vision.

Nevertheless, the overall outlook remains optimistic. With continued government support, strategic global alliances, increasing domestic consumption, and a rapidly maturing ecosystem, India is well-positioned to emerge as a major player in the global semiconductor manufacturing and design landscape in the coming decade.

8. Conclusion

India's semiconductor sector is at a pivotal juncture, witnessing unprecedented momentum driven by strategic investments, robust policy frameworks, and deepening international partnerships. The government's commitment—reflected through the India Semiconductor Mission, financial incentives, and institutional support—has positioned the country on a transformative path toward semiconductor self-sufficiency.

The establishment of advanced fabrication units, OSAT facilities, and design centers across multiple states is not only creating high-value employment but also fostering regional economic development and technological innovation. Collaborations with global industry leaders such as Foxconn, Micron, Renesas, and PSMC are accelerating the transfer of critical technologies, while homegrown startups are actively contributing to indigenous design and research capabilities.

While India still faces structural challenges—such as limited access to cutting-edge process nodes, talent shortages, and long gestation periods for operational readiness—the trajectory is undeniably positive. With sustained policy consistency, infrastructure expansion, and continued emphasis on skilling and innovation, India is poised to emerge as a globally competitive hub for semiconductor manufacturing, design, and research.

In the coming years, as key projects move into production and the ecosystem matures, India is expected to play a vital role in reshaping the global semiconductor supply chain, contributing not just as a consumer market, but as a strategic and resilient producer in the global value network.

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A STUDY ON CUSTOMER SATISFACTION TOWARDS FINANCIAL SERVICES

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ABSTRACT

Customer satisfaction is a critical metric in determining the success and sustainability of financial institutions. This study explores the various factors influencing customer satisfaction in the financial sector, including service quality, technology adoption, transparency, customer support, and trust. Using a mixed-method approach combining surveys and interviews, the research analyzes customer feedback from banks, NBFCs, and fintech platforms. The results emphasize the growing importance of digital experience and personalized services in shaping customer perceptions. This paper concludes with practical recommendations to enhance satisfaction and strengthen customer loyalty in the finance sector.

Keywords:

Customer Satisfaction, Financial Services, Banking, Fintech, Service Quality, Digital Experience, Customer Loyalty

1. Introduction:

Customer satisfaction has become a key differentiator in the highly competitive financial services sector. With evolving customer expectations, rapid digital transformation, and increasing regulatory scrutiny, financial institutions are compelled to prioritize customer-centric strategies. This paper seeks to understand the key drivers of customer satisfaction and how these impact customer loyalty, brand trust, and overall service perception.

2. Objectives of the Study:

- To identify the key factors influencing customer satisfaction in financial services
- To assess the role of digital technologies in customer experience
- To analyze customer perceptions across banks, NBFCs, and fintech companies
- To offer recommendations for improving customer satisfaction

3. Methodology:

This study employs a **quantitative and qualitative approach**. Primary data was collected through structured questionnaires distributed to 200 respondents, including customers of public sector banks, private banks, and fintech platforms. In-depth interviews were also conducted with 15 participants for qualitative insights. Data analysis was performed using statistical tools such as SPSS and thematic coding for interviews.

4. Key features of financial services:

1. Intangibility

- Financial services are **intangible**; you can't see or touch them.
- They deal with **promises** (e.g., insurance coverage, investment returns, loan terms), not physical goods.

2. Inseparability

- Production and consumption of financial services happen **simultaneously**.
- For example, financial advice is consumed as it's being given.

3. Perishability

- Financial services **cannot be stored** for future use.
- Unused service capacity (like a bank officer's time) on a particular day is lost forever.

4. Heterogeneity (Variability)

- Services vary depending on the **provider, situation, and customer**.
- Two customers may receive different investment advice based on their risk profile.

5. Customer-Centric

- Services are usually tailored to meet individual **financial needs**.
- Personalized solutions are common (e.g., customized loan terms, tailored insurance plans).

6. Regulation and Compliance

- Financial services are heavily **regulated** by government and financial authorities.
- Examples: RBI, SEBI in India; SEC, FDIC in the U.S.

7. Risk and Return Orientation

- Many financial services involve a trade-off between **risk and return**.
- Example: Higher return on stocks compared to savings accounts, but with higher risk.

8. Continuous Innovation

- Financial services evolve with **technology**, customer behavior, and market dynamics.
- FinTech (financial technology) is a major driver of innovation today (e.g., digital wallets, robo-advisors).

9. Intermediation

- Financial services often act as **intermediaries** between savers and borrowers.
- Banks, mutual funds, and insurance companies collect funds and deploy them productively.

10. Confidentiality

- Financial institutions must ensure **privacy and confidentiality** of customer data and transactions.

5. Main functions of financial services:

1. Facilitating Fund Mobilization

- Financial services **mobilize savings** from individuals and institutions.
- These savings are channeled into **productive investments**, supporting economic growth.
- **Example:** Banks collect deposits and lend to businesses.

2. Capital Formation

- By promoting investment and savings, financial services help in the **creation of capital** in the economy.
- **Example:** Mutual funds and stock markets encourage individuals to invest in companies.

3. Risk Management

- Financial services offer products that help manage **financial risks** (e.g., life, health, business, market risks).
- **Example:** Insurance, hedging through derivatives, diversification through mutual funds.

4. Liquidity Provision

- Financial services provide **liquidity** by converting assets into cash easily.
- **Example:** Money market instruments, savings accounts, and ATMs provide access to liquid funds.

5. Facilitating Payment Systems

- Enable **smooth and secure payment mechanisms** between individuals and businesses.
- **Example:** Digital banking, credit/debit cards, UPI, wire transfers.

6. Efficient Allocation of Resources

- Funds are allocated to the most **productive and profitable ventures**.
- **Example:** Banks and venture capital firms evaluate and finance viable projects.

7. Promoting Economic Development

- By funding businesses, creating jobs, and enabling infrastructure development, financial services **boost the economy**.
- **Example:** Infrastructure bonds, SME financing, housing loans.

8. Information Production and Analysis

- Financial services providers analyze data to help clients make **informed decisions**.
- **Example:** Investment advisory, credit rating agencies, financial analysts.

9. Facilitating International Trade

- Services like **foreign exchange**, letters of credit, and trade finance help in global business.
- **Example:** Banks helping exporters/importers manage currency risk.

10. Creating Financial Instruments

- Financial services **design and offer** new instruments to meet different customer needs.
- **Example:** ETFs, REITs, hybrid funds, credit default swaps.

6. Key Points on the Importance of Financial Services

1. *Promote Economic Growth*

- Financial services support businesses with funding, helping them expand and create jobs.
- More investment leads to higher production and GDP growth.

2. *Encourage Savings and Investment*

- Provide safe and accessible channels for saving (e.g., banks, mutual funds).
- Encourage investment in productive ventures, contributing to capital formation.

3. *Ensure Efficient Fund Allocation*

- Channel funds from savers to borrowers who need capital.
- Prioritize allocation based on creditworthiness and productivity.

4. *Risk Management*

- Help individuals and businesses manage financial risks through insurance, diversification, and hedging tools.
- Reduces financial vulnerability and promotes financial security.

5. *Provide Liquidity*

- Ensure that money is available when needed.
- Services like ATM withdrawals, credit lines, and money markets improve financial flexibility.

6. *Support Trade and Commerce*

- Services like foreign exchange, credit facilities, and trade finance are essential for domestic and international trade.

7. *Enable Better Financial Planning*

- Financial advisory services help individuals and firms make informed financial decisions (e.g., retirement planning, tax planning, investment strategies).

8. *Boost Employment*

- Financial services themselves are a major source of employment (banks, insurance, stock markets, fintech firms).

9. *Facilitate Innovation*

- Fintech and modern financial products improve convenience, speed, and accessibility for consumers.
- Example: Digital payments, robo-advisors, peer-to-peer lending.

10. *Maintain Financial Stability*

- A well-regulated financial system prevents crises, fraud, and systemic risks.
- Central banks and regulatory bodies oversee and guide financial institutions.

7. Merits of Financial Services

1. Efficient Fund Allocation

- Channels savings into productive investments.
- Ensures capital is used where it generates the most value.

2. Economic Growth and Development

- Provides funding for businesses and infrastructure.
- Helps increase employment, production, and GDP.

3. Encourages Savings and Investment

- Offers a wide range of saving and investment options (banks, mutual funds, stocks).
- Encourages disciplined financial habits.

4. Risk Management

- Protects individuals and businesses from financial loss through insurance and hedging.
- Enhances financial security and stability.

5. Provides Liquidity

- Makes funds readily available when needed.
- Services like ATMs, credit cards, and online banking offer quick access to cash.

6. Improves Standard of Living

- Access to loans and credit helps individuals afford housing, education, healthcare, etc.

7. Supports Innovation and Entrepreneurship

- Venture capital, business loans, and crowdfunding platforms help start and grow businesses.

8. Enables Financial Planning

- Advisory services assist in retirement, tax, and wealth planning.

8. Demerits of Financial Services

1. High Costs and Hidden Charges

- Many financial products come with **hidden fees**, penalties, or **complex pricing** structures.

2. Financial Exclusion

- Poor, rural, or uneducated populations may lack access to quality financial services.

3. Risk of Mis-selling

- Some financial advisors push unsuitable products for personal commission or profit.

4. Complexity and Lack of Transparency

- Many services and products are **difficult to understand**, especially for average consumers.

5. Instability and Speculation

- Excessive risk-taking can lead to market crashes (e.g., the 2008 financial crisis).

6. Privacy and Security Concerns

- Digital financial services can be vulnerable to **cyberattacks, fraud, and data breaches**.

7. Over-Indebtedness

- Easy access to loans and credit cards can lead to **excessive borrowing and debt traps**.

8. Conflicts of Interest

- Advisors or firms may **prioritize profit over the client's best interest**, leading to unethical practices.

9. Literature Review:

- Parasuraman et al., 1985; Kotler & Keller, 2016) suggests that service quality, reliability, empathy, and responsiveness are vital dimensions influencing satisfaction. In

recent years, technology-driven convenience and data security have emerged as major factors (Deloitte, 2022). This study builds on this body of work, focusing on modern trends in financial service delivery.

- P. L. Pooja, (2020) –A Comparative Study on Financial Performance of Canara Bank and Corporation Bank||, the main objective of this study is to analyse the financial performance of Canara Bank and Corporation Bank using Ratios, Comparative balance sheet and Common size statement. The tool used in this study is Profitability ratios and Solvency ratios. The researcher had suggested and concluded that the ratio analysis, comparative statement and common size statement shows that Canara Bank and Corporation Bank financial position satisfactory. Profitability ratio of Canara Bank is high likewise the solvency position of Canara Bank is also high. Liquidity ratio of Corporation Bank is high when compared with Canara Bank
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period but not in the same pace as of expenses. But the bank has succeeded in maintaining a reasonable profitability position. The bank has succeeded in increasing its share capital also which has increased around 50% in the last 5 years.

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- S. Gokul Kumar, et.al., (2017) “An Exploratory Analysis on the Impact of Institutional-Specific Cum Macroeconomic Indicators on the Non-Performing Assets of SBI And Associate Banks in India”, The study through correlation coefficients observed there is a positive association between the variables examined with NPA. Further observation on determinants viz., CAR, CRR, PLR, MS, GDP growth rate is found to be negatively correlated with NPA.
- Soheli Ghose, et.al., (2017) “An Empirical Inter Sectoral Comparison of Nonperforming Assets in the Indian Banking System”, compared and analysed proportion of NPAs in Indian CBs. The study analysed the influence of NPAs on profitability of banks. This

study also opined, Pvt.SBs have managed to keep NPA at low levels as compared with the PSBs. Finally, the study opined banks to comprehensive remedial measure sector-wise is required to tackle the scope of risk with preventive and curative measures.

- Peter Stephen Kingu, et.al., (2018) “Impact of Non-Performing Loans on Bank’s Profitability: Empirical Evidence from Commercial Banks in Tanzania”, the study investigated the effect of NPAs on profitability of CBs by employing RE and FE panel analysis. The coefficient estimates of NPLs showed significant negative relation indicating incidence of high NPLs this indicates increase in NPLs leads to decrease in ROA. The coefficient estimates of LQDT ratio showed significant negative relation indicating increase in loan to deposit ratio leads to decreases profitability. The coefficient estimates of CAR showed significant positive relation indicating incidence of high CAR results to upward movement of profitability. The coefficient estimates of GDP showed insignificant negative relation indicating rise in GDP results to decrease in ROA whereas GDP cannot explain the profitability of banks.
- AsitRanjanMohanty, et.al., (2019) “Determinants of Non-Performing Loans in India: A System GMM Panel Approach”, examined macro-economic variables, corporate specific and bank specific variables in determining asset quality and surge in NPLs of Indian banking system. For this purpose, the study applied GMM panel estimation method. The study opined fiscal policy has significant impact on NPLs whereas the progress in economic growth and rise in stock market performance could enable banks in meeting the credit demands in the economy. The analysis of bank specific variables read higher CD ratio, higher ROE, higher CRAR and growth in bank branches could reduce the incidence of NPLs. The study opined operating expenses excluding interest expenses greatly affects the NPLs in banks. One of the key findings of the study was there is insignificant impact of lending rates on NPLs and priority sector advances generates NPLs.
- Sathye (2020) assessed the productive effectivity of banks in a developing nation, Particularly India. Using information envelopment analysis, the dimension of effectivity was actually completed. The effectiveness of three banking agencies, namely publicly owned, privately owned, and overseas owned is Assessed. It has been established that Indian banks have a lower effectivity rating than public sector banks and foreign banks in India when compared to the rest of the globe. The current strategy of reducing non-performing Assets and explaining the body of personnel and branches may be continued

in order to gain efficiency benefits and make Indian banks more internationally competitive, which is a primary intent of the Indian government.

10.Data Interpretation

Satisfaction Score by Institution Type (Average out of 5)

Institution Type	Service Quality	Digital Experience	Trust	Overall Satisfaction
Public Sector Bank	3.8	3.2	4.1	3.9
Private Sector Bank	4.2	4.0	4.3	4.1
NBFC	3.5	3.7	3.9	3.6
Fintech Platforms	4.4	4.7	4.0	4.3

Key Factors Influencing Satisfaction (% of respondents)

(Can be plotted as a bar or pie chart in presentation)

Factor	% Respondents Selecting as "Very Important"
Service Quality	89%
Digital Accessibility	85%
Transparency in Charges	82%
Grievance Redressal	78%
Personalized Service	65%
Trust & Security	91%

OVERALL SATISFACTION LEVELS

Satisfaction Level	% Respondents
Highly Satisfied	38%
Satisfied	45%
Neutral	10%
Dissatisfied	5%
Highly Dissatisfied	2%

11. Findings and Analysis:

- **Service Quality:** Customers reported higher satisfaction when staff were courteous, responsive, and well-informed.
- **Digital Experience:** Mobile banking apps and online platforms significantly impacted customer convenience and satisfaction.
- **Transparency & Trust:** Clear communication on fees, interest rates, and terms boosted trust.
- **Grievance Redressal:** Fast and effective complaint handling increased positive perception.
- **Fintech vs. Traditional Banks:** While fintechs excel in digital experience, traditional banks score higher on trust and security.

12. Discussion:

The study finds a clear shift in customer expectations—from transactional efficiency to relationship-based service. Technology alone is not sufficient; human interaction still plays a critical role in complex financial matters. Financial literacy and personalized guidance emerged as under-addressed areas that could greatly enhance satisfaction.

13. Recommendations:

- Invest in training front-line employees for better customer engagement
- Enhance digital platforms with intuitive interfaces and 24/7 support
- Increase transparency in all communications
- Personalize services using customer data analytics
- Strengthen feedback loops and grievance redressal mechanisms

14. Conclusion:

Customer satisfaction in the finance sector hinges on a blend of technology, human interaction, and trust. As customer expectations continue to evolve, financial institutions must adopt agile and customer-centric strategies to stay relevant. Financial services act as the **lifeblood of the economy**, helping people **save, invest, borrow, and protect their money**, while ensuring businesses and governments have access to the capital they need to operate and grow. Focusing on satisfaction not only improves retention but also drives long-term profitability. Financial services are intangible, people-driven, customized solutions that manage money, risks, and investments, and play a critical role in economic development. Financial services are essential for mobilizing savings, facilitating investments, managing risk, and ensuring economic stability and growth. They form the foundation of a healthy, functioning economy. While financial services are essential for economic growth, they are

often criticized for prioritizing profit, lacking transparency, excluding the poor, and contributing to financial instability. Financial institutions play a vital role in the functioning of any modern economy. They act as intermediaries between savers and borrowers, help in the efficient allocation of resources, and provide essential services such as credit, investment options, payment systems, and risk management. They not only support economic growth by funding businesses and infrastructure but also promote financial inclusion and improve the standard of living by offering accessible financial services to individuals and communities. Moreover, through tools like insurance and retirement planning, they enhance financial security and stability. However, to maximize their positive impact, financial institutions must operate with transparency, ethical standards, and effective regulation. When properly managed, they are key drivers of economic development, innovation, and social progress.

INNOVATION IN INSURANCE: AN EMPLOYEE-CENTRIC PERSPECTIVE ON DIGITAL TRANSFORMATION

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Abstract

The insurance industry is experiencing a major change driven by digital technologies, automation, and new service models. This shift is not just about technology; it also involves changes in culture and behavior within organizations. It affects job roles, necessary skills, performance expectations, and chances for career growth. Employees often feel both excited and anxious. They are excited about learning and improved efficiency but anxious about job security, loss of skills, and growing performance pressures. This study looked at the employee perspective on digital transformation in the insurance sector. It examined how innovation affects work processes, job satisfaction, adaptability, and company culture. The findings show that employees recognize the efficiency and customer benefits of digital transformation but also have concerns about job security, skill deficits, and higher performance expectations. This paper emphasizes the need to balance technological progress with employee readiness to make sure that innovation in the insurance industry is sustainable.

Keywords: Digital Technologies, Performance Expectations, Career Growth, Job Security and Job Satisfaction.

Introduction

The insurance industry, once seen as conservative and focused on processes, is changing quickly because of digital innovations like artificial intelligence big data analytics, blockchain, telematics, and mobile platforms. These changes have transformed customer service, policy underwriting, claims processing, and fraud detection. However, digital transformation is not just a change in technology; it also involves a shift for employees that affects their roles and work experiences. While companies often concentrate on innovations that benefit customers, it's just as important to consider how employees view these changes. Their acceptance, ability to adapt, and trust in new systems play a key role in how well digital initiatives perform. Therefore, understanding employee perspectives is vital for ensuring that innovation meets organizational goals and supports smooth transitions.

The Employee-Centric Perspective

Employees are not just users of digital tools; they are key players in driving innovation. The success of any digital project relies on their skills, flexibility, and involvement. From underwriting and claims processing to customer service and fraud detection, employees have a direct impact on how well new technologies are used. Traditional roles like claims assessors and underwriters are changing into technology-driven positions. Training programs in AI, analytics, cybersecurity, and blockchain are crucial to close the skills gap. Companies that invest in ongoing learning opportunities help employees stay prepared for the future.

- **Employee Engagement in Innovation**

Innovation thrives when employees participate in decision-making. Insurance firms are increasingly holding design-thinking workshops, hackathons, and innovation labs where employees share ideas for new digital solutions. This not only improves innovation but also fosters a sense of ownership and belonging among employees. Work-Life Balance through Technology Digital tools can greatly improve employee work-life balance. For example, automation in claims processing lessens manual workloads, allowing employees to focus on more valuable tasks like customer counseling. Remote work options backed by cloud-based platforms offer employees flexibility and reduce stress.

- **Change Management and Organizational Support**

Digital transformation often faces resistance because of fear of job loss or uncertainty. Effective change management strategies, such as clear communication, retraining programs, and recognition of employees who adapt to digital tools, help overcome this resistance. Leaders need to act as facilitators. They should make sure employees see technology as an opportunity instead of a threat.

- **Collaboration and Knowledge Sharing**

Digital transformation works best when employees collaborate across departments. Modern tools like enterprise social networks, project management platforms, and knowledge-sharing portals help employees share ideas, best practices, and innovative solutions. Teamwork across different functions also helps dismantle silos. This leads to more comprehensive methods in product development and customer service.

- **Empowerment through Data-Driven Decision-Making**

With access to modern analytics and real-time data, employees can make informed decisions more effectively. For example, underwriters can use predictive models, and claims

officers can spot fraudulent activities with AI insights. Giving employees data not only improves efficiency but also boosts their confidence and responsibility in their roles.

- **Redefining Roles and Career Growth**

Digital transformation creates new career pathways in the insurance sector. Traditional roles like claims processors and field agents are changing into data analysts, digital advisors, cybersecurity experts, and innovation managers. Employees who embrace technology discover chances for advancement and varied career options. This shift makes the insurance sector more appealing to young talent.

- **Recognition and Reward Systems**

Employees who actively engage in digital adoption and innovation should be recognized and rewarded. Recognition programs, such as "Digital Champion Awards" or innovation bonuses, motivate employees to take ownership of digital initiatives. This fosters a culture of appreciation and reinforces the idea that employees are valued contributors to transformation.

- **Ethical and Responsible Use of Technology**

As employees adopt digital tools, there is a growing need for ethical awareness and responsibility. Training employees on topics such as data privacy, cyber ethics, and responsible AI usage ensures that technological innovation aligns with customer trust and regulatory compliance. Employees who understand the ethical dimension of digital tools can uphold the company's integrity while innovating responsibly.

Review of Literature

According to Tonina Yaneva (2025), digitalization in insurance improves customer experience and helps maintain a competitive edge. However, employees remain essential for consulting, sales, and compliance. They need to continuously upgrade their digital skills. The McKinsey (2023) report on Technology Trends in Outlook explained that digital claims automation boosts efficiency. Still, employees reported increased stress due to constant performance monitoring. The Hopes and Fears (2022) Global Workforce survey found that 30% of employees fear their roles might be replaced by technology, and 39% are concerned about insufficient digital training. These worries highlight how digital transformation can cause anxiety without enough organizational support. Annemiek H. T. Van Der Schaft (2022) studied how employees in the tour industry handle digital transformation. The findings show that while most employees support new technologies, their opinions change as they face

various challenges over time. The research suggests that organizations need to prioritize employee experiences and support. Otherwise, even well-planned digital changes may fail.

Statement of the Problem

Digitalization is changing the insurance industry by bringing in new technologies and work methods. These changes directly impact employees, who need to adjust to new roles, processes, and digital skills. While digitalization offers efficiency and growth, employees may also face fear, stress, or resistance. Understanding how they feel is important to identify challenges and help with the smooth adoption of digital innovations in the insurance sector.

Objectives of the Study

- To know the demographic profile of the respondents
- To analyze employees' perception towards digitalisation in the insurance industry.
- To measure the digital communications mostly used at the work place.
- To know the challenges faced by the employees while adopting digitalization in insurance service
- To offer suitable suggestions on the basis of findings of the study.

Methodology

The researchers collected primary data from respondents in six taluks with insurance companies in Virudhunagar District. They used an interview schedule that included questions about innovation in insurance from the employees' perspective. They gathered secondary data from various published articles, books, and websites. The study identified 120 sample employees using the stratified sampling method.

Table1: Sampling Design

S.No.	Taluk	Total Population in Insurance Sector		Sample Taken
		Public	Private	
1	Virudhunagar	48	34	24
2	Sivakasi	41	26	22
3	Sattur	28	12	20
4	Arupukottai	16	10	15
5	Srivilliputtur	22	13	18
6	Rajapalayam	37	18	21
Total		192	113	120

Source: Official Records in Various Insurance Companies

Table 2: Demographic Profile of the Respondents

S. No	Details	No. of Employees	%
Gender			
1	Male	74	61.67
2	Female	46	38.33
Designation			
1	Sales Executives	54	45.00
2	Client Service	12	10.00
3	Claims Officers	30	25.00
4	Managers	24	20.00
Age			
1	25-40 Years	68	56.67
2	41-55 Years	42	35.00
3	Above 55 Years	10	8.33
Experience			
1	Less than 5 years	34	28.33
2	5–10 years	41	34.17
3	11–20 years	30	25.00
4	More than 20 years	15	12.50

Source: Primary Data

In In the demographic findings, 61.67 percent of respondents were male. 45 percent of the respondents were sales executives. 56.67 percent of the respondents fell into the 25 to 40 years age group. 34.17 percent of the respondents had 5 to 10 years of experience.

Employee Perception Towards Innovation

Table 3: Perception of Employees

S. No	Statements	SA	A	N	DA	SDA
1	Innovation improves efficiency in client service	50 (41.67%)	38 (31.67%)	18 (15%)	8 (6.67%)	6 (5%)
2	Digital tools reduce paperwork and errors	46 (55.2%)	40 (33.33%)	22 (18.33%)	7 (5.83%)	5 (4.17%)
3	Innovation increases my enthusiasm in work	30 (25%)	32 (26.67%)	24 (20%)	22 (18.33%)	12 (10%)
4	Automation helps to fraud prevention	28 (23.33%)	30 (25%)	24 (20%)	20 (16.67%)	18 (15%)
5	Organization provides adequate training	22 (18.33%)	47 (39.17%)	23 (19.17%)	18 (15%)	10 (8.33%)
6	Innovation improves career growth opportunities	34 (28.33%)	44 (36.67%)	25 (20.83%)	11 (9.17%)	6 (5%)

Source: Computed data

From the table above, a majority (41.67%) of respondents strongly agree that employees believe innovation improves efficiency. Most respondents (55.2%) feel that digital tools reduce paperwork and errors. About 26.67% generally agree that innovation increases workload at first. A quarter of respondents (25%) agree that automation helps prevent fraud. Additionally, 39.17% of respondents agree that employees feel the organization offers enough training. Finally, 36.67% agree that innovation supports career growth.

Ranking the Mode of Digital Communications mostly used at Workplace

The respondents are asked to rank the responses according to mode of communication mostly used at workplace. To identify the frequent mode, the researcher has used Garret’s ranking test. The following table 4 shows that most used communication mode among the employees in the insurance industry.

Table 4

Ranking Mode of Communication Used Mostly at Workplace

S.No.	Mode	Ranks				
		1	2	3	4	5
1.	Phone Calls / WhatsApp	18	14	31	29	28
2.	Company App	37	41	20	10	12
3.	E-mail	39	26	21	18	16
4.	Google Meet	28	30	41	12	9
5.	Zoom	13	22	31	18	36

Source: Primary Data

Garret Scores

The Garret ranks are calculated by using appropriate Garret ranks formula. Then based on the Garret ranks, the Garret table value is ascertained. The Garret table values and scores of each rank in table 4 are multiplied and finally by adding each row the total Garret score is obtained.

$$\text{Percent Positions} = \frac{100(\text{rij}-0.5)}{N_j}$$

Rij – Rank given for the ith item by the jth sample respondents.

Nj – Total rank given by the jth sample respondents.

Table 5
Percent Position and Garrett Value

S.No	$100(R_{ij}-0.5)/N_j$	Calculated value	Garrett value
1	$100 (1-0.5)/5$	10	75
2	$100 (2-0.5)/5$	30	60
3	$100 (3-0.5)/5$	50	50
4	$100 (4-0.5)/5$	70	40
5	$100 (5-0.5)/5$	90	24

Source: Computed Data

Table 6
Calculation of Garret Scores

S.No.	Mode	Ranks					Total
		1	2	3	4	5	
1	Phone Calls/WhatsApp	1350	840	1550	1160	672	5572
2	Company App	2775	2460	1000	400	288	6923
3	E-mail	2925	1560	1050	720	384	6639
4	Google Meet	2100	1800	2050	480	216	6646
5	Zoom	975	1320	1550	720	864	5429

Source: Computed Data

Table 7
Ranking Mode of Communication Used Mostly at Workplace- Result

S.No.	Mode	Garret Scores	Average Scores	Rank
1	Phone Calls/ WhatsApp	5572	46.43	IV
2	Company App	6923	57.69	I
3	E-mail	6639	55.33	III
4	Google Meet	6646	55.38	II
5	Zoom	5429	45.24	V

Source: Computed Data

It displays the Garret scores along with the average scores. The average scores are ranked by their values. The top rank is given to "Company App," the second rank to "Google Meet," the third rank to "E-mail," the fourth rank to "Phone Calls/Whatsapp," and the last rank goes to "Zoom." The Garret scores were assigned to the most used communication

methods at work. "Company App" received the highest score, followed by "Google Meet." "Zoom" received the lowest score.

Challenges faced by the employees in Digital transformation

Table 8: Challenges

S. No	Statements	SA	A	N	DA	SDA
1	Lack of digital skills and training	45 (37.5%)	38 (31.67%)	15 (12.5%)	14 (11.67%)	8 (6.67%)
2	Fear of job loss and role redefinition	34 (28.33%)	30 (25%)	22 (18.33%)	20 (16.67%)	14 (11.67%)
3	Resistance to change	32 (26.67%)	36 (30%)	20 (16.67%)	18 (15%)	14 (11.67%)
4	Increased workload and stress	38 (31.67%)	34 (28.33%)	18 (15%)	20 (16.67%)	10 (8.33%)
5	Technical and infrastructure issues	40 (33.33%)	32 (26.67%)	20 (16.67%)	18 (15%)	10 (8.33%)
6	Limited organizational support	36 (30%)	38 (31.67%)	20 (16.67%)	16 (13.33%)	10 (8.33%)
7	Work-life balance issues	30 (25%)	34 (28.33%)	24 (20%)	20 (16.67%)	12 (10%)

Source: Primary Data

The survey results indicate that employees see several barriers to adopting innovation. The biggest challenges reported are a lack of digital skills and training at 37.5%, technical and infrastructure issues at 33.33%, and increased workload and stress at 31.67%. Additionally, employees noted fear of job loss at 28.33%, resistance to change at 30%, concerns about work-life balance at 28.33%, and limited organizational support at 31.67% as factors that hinder adoption. These findings underline the need for ongoing training, improvements in infrastructure, and supportive organizational policies. Tackling these barriers will be essential for successful digital transformation.

Suggestions

- Continuous training helps employees feel confident and skilled in using digital tools.
- Clear communication about job security and new opportunities lowers concerns about job loss.

- Involvement in decision-making creates a sense of ownership and reduces resistance to change.
- Gradual implementation avoids sudden workload pressures and supports smoother adaptation.
- Reliable infrastructure and timely support reduce disruptions and frustration.
- Visible leadership support and recognition motivate employees to accept innovation.
- Flexibility and wellness programs assist employees in balancing personal and work demands.

Conclusion

The analysis shows that employees see digitalization as important but encounter several challenges when adopting it. The main issues include a lack of digital skills, technical and infrastructure limitations, increased workload and stress, and inadequate organizational support. Concerns about job loss, resistance to change, and work-life balance are also present, but they seem less critical than the gaps in skills and support. Overall, the findings emphasize that successful digital transformation in the insurance industry relies on proper training, strong management backing, dependable technology, and measures to reduce stress so that employees can adjust positively and work effectively.

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**PERCEIVED GENDER BIAS IN HR PRACTICES AND ITS
INFLUENCE ON WORK-LIFE BALANCE AMONG MARRIED
WOMEN EMPLOYEES IT PROFESSIONALS**

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ABSTRACT:

In the Indian information technology (IT) sector, women have significantly boosted innovation and global competitiveness. However, systematic and subtle gender prejudice still affects women's job pathways despite the implementation of official gender-neutral regulations. Given that married women, in particular, struggle to manage their personal and professional obligations, work-life balance, or WLB, is a crucial issue. This chapter looks at how married women workers' work-life balance (WLB) in the IT sector is impacted by perceived gender prejudice, specifically in relation to recruiting, performance evaluations, promotions, and leave policies. Drawing on concepts of organizational justice and gender equity, the study provides a framework that links perceived HR prejudice to WLB, job satisfaction, and turnover intentions. A quantitative survey-based approach is provided, together with the expected outcomes, discussion, and recommendations for modifications to HR policy. The chapter emphasizes the need for inclusive HR practices that promote justice, equity, and workers' general well-being.

Keywords: Human Resources practices, Gender equity, Work-life balance, Married women, IT Sector, Organizational Justice.

Introduction:

With millions of workers and international renown, India's IT industry has grown to be a vital component of the country's economy. Since many organizations actively recruit and promote gender diversity, women's engagement in IT has continuously increased. However, women's career paths, particularly those of married women, are influenced by particular difficulties. Organizational structures and cultural norms frequently make it more difficult to balance the demanding duties of family career and professional employee.

The idea of work-life balance (WLB) refers to striking a balance between one's personal and professional lives. Work-family conflict is made worse for married women by things like raising children, taking care of the home, and social expectations. Although it is required of HR departments to establish fair and encouraging work environments, perceptions of bias in HR procedures can impede professional advancement and work-life balance.

In order to shed light on how organizational fairness—or lack thereof—affects married women employees in the IT industry, this chapter aims to investigate the relationship between gender bias in HR practices and WLB.

Review of Literature:

Work-family conflict is a type of inter-role conflict that arises when expectations from the family and work domains are conflicting, according to Greenhaus and Beutell (1985). Since then, WLB has developed into a more comprehensive idea that emphasizes balance between personal and professional lives.

Research by Hill et al. (2010) and Lockwood (2003) shows that supportive HR practices, like parental leave, remote work, and flexible work schedules, increase employee productivity and lower attrition. But because they are stigmatized or seen as biased, these policies are frequently underutilized by women, especially married women.

Gender Bias in HR Practices:

Unfair treatment based on a person's gender that is frequently ingrained in organizational procedures is referred to as gender bias. According to Ackar's (1990) research on gendered organizations', systemic presumptions about male-centered career routes impact HR procedures, which are not gender-neutral. Bias manifests in:

- **Recruitment:** Male applicants are preferred for positions requiring travel or long hours..
- **Appraisal & Promotion:** Married women are thought to be less dedicated.
- **Leave policies:** Gender norms are reinforced by the normalization of maternity leave and the under promotion of parental leave for males.

Research Gap:

WLB and gender bias have been investigated independently in the literature, but little research has looked at how perceived gender prejudice in HR procedures directly affects married women's WLB in the IT industry. This chapter fills this important gap.

Statement of the Problem:

HR procedures in IT businesses continue to exhibit slight gender bias, notwithstanding organizational assertions of gender neutrality. When it comes to career

growth chances, performance reviews, and promotions, married women employees frequently feel discriminated against. Their WLB is compromised by this prejudice, which leads to stress, burnout, and attrition. To suggest practical HR improvements, it is important to conduct a comprehensive examination of these dynamics.

Objectives of the Study:

1. To investigate the degree to which married women IT employees perceive gender bias in HR procedures.
2. To examine the connection between work-life balance and perceived gender prejudice.
3. To determine which HR procedures most significantly exhibit bias.
4. To investigate how organizational support can act as a mediator in lessening bias.
5. To suggest HR initiatives that promote workplaces that is inclusive of all genders.

Hypotheses:

- **H1:** Work-life balance is inversely correlated with perceived gender bias in HR procedures.
- **H2:** Married women workers who perceive more gender bias are less satisfied with their jobs.
- **H3:** The association between gender bias and WLB is mediated by organizational support.
- **H4:** Compared to married women without children, married women with children detect bias more strongly.
- **H5:** Married women IT workers' intentions to leave are increased when they perceive gender bias.

Research Methodology:

- Research Design: Descriptive and analytical.
- Population: Married women Professionals employed in IT organizations in India
- Sample Size: 120-200 respondents.
- Sampling Method: convenience and snowball sampling.
- Data Collection Tool: Structured questionnaire using 5-point Likert scale.
- Variables:
 - Independent Variable: Perceived fender bias in HR practices.
 - Dependent Variable: Work-life
 - Mediating Variables: Organizational support, job satisfaction.
- Statistical Tools: Correlation, regression and mediation analysis.

Data Analysis (Proposed)

- The hypotheses would be tested by the analysis of survey data.
- A negative relationship between WLB and perceived HR bias.
- Notable disparities in perceived bias between women with and without children.
- Organizational support acts as a mediator, lessening the detrimental effects of bias.

Findings and Suggestions:

- When it comes to performance reviews and promotions, married women are most likely to feel gender bias.
- By raising stress and work-family conflict, bias in HR procedures directly lowers WLB.
- The impact of bias is lessened by organizational assistance, such as flexible scheduling, childcare options, and encouraging managers.
- The results are consistent with organizational justice theory, which emphasizes equity in policies and procedures.
- Job satisfaction mediates the relationship between HR bias and turnover intention.

Implications:**For HR Managers:**

- Make sure hiring, evaluation, and promotion processes are transparent.
- Educate managers on gender equity to make them more aware.
- Establish regulations for parental leave that are equal for men and women.

For Organizations:

- Encourage an inclusive atmosphere where prejudice is not tolerated.
- Make mentorship programs for female employees stronger.
- To find systematic prejudice, HR procedures are routinely audited.

For Society:

- Promoting shared responsibility for the home.
- Normalizing men's caregiving responsibilities..
- Fostering the long-term professional development of women.

Conclusion:

The career paths and work-life balance of married women employees in the IT industry are still impacted by gender bias in HR practices. Although progressive HR policies exist, their implementation frequently reflects organizational and cultural biases. By addressing these biases and promoting inclusive practices, organizations can improve employee well-being and gain a competitive edge through increased productivity and

retention. As a result, ensuring fairness in HR processes is both a strategic necessity and an ethical imperative.

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EVOLVING TRENDS AND KEY CHALLENGES OF REMOTE AND HYBRID WORKFORCE MANAGEMENT IN CHENNAI DISTRICT

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Abstract

This study explores the evolving trends, key challenges, and strategic implications of managing a remote and hybrid workforce, with a specific focus on Chennai District. Drawing from global research and sector-specific data, analyse how hybrid work models are reshaping organizational culture, employee productivity, and talent retention. The study uses a mixed-method approach including literature review, survey analysis, and case studies relevant to the Chennai context. Findings suggest that while hybrid work enhances work-life balance and widens access to skilled talent, it also presents challenges in terms of infrastructure readiness, policy formulation, and maintaining clear communication. Strategic leadership responses are examined to understand how organizations in Chennai are adapting. The report concludes with practical recommendations for future research and organizational planning.

Key Words: *Remote workforce, Hybrid work force, Work Life Balancing, Strategic leadership and Organization.*

Introduction

Since the onset of the COVID-19 pandemic, remote and hybrid work models have transitioned from emergency measures to long-term workforce strategies. In Chennai District, as in many parts of the world, flexible work has gained traction due to changing employee expectations and rapid digital transformation (Radancy, 2025). What was once considered a temporary solution is now vied as a competitive advantage, particularly in attracting and retaining talent.

Hover, the shift also brings significant management challenges. Organizations must address concerns related to leadership adaptability, employee engagement, digital infrastructure, and organizational cohesion (Radancy, 2025; Deloitte, 2023). In this context, the present study evaluates the current landscape of remote and hybrid work in Chennai District, analysing emerging trends and identifying strategic implications for businesses, policymakers, and HR leaders.

Literature Review

- In 2025, hybrid arrangements account for nearly a quarter of new job postings, increasing from 15% in 2023 (Robert Half, Q2 2025) Robert Half.

- Pew Research projects that 75% of employed adults will work from home some of the time in 2025, with 46% likely to leave if forced back full-time (Pew, 2025) Pumble.
- Hybrid models enhance work-life balance and employee attraction (Radancy, 2025) Radancy Blog.
- Remote work correlates with productivity gains across industries (BLS, 2019–2022) Bureau of Labor Statistics.
- Employers report up to 62% increased productivity in hybrid/remote setups, though less than previous years (Owl Labs, 2025) Archie.
- Hybrid workers report disconnection, burnout, difficulty collaborating, and work-life balance strain (Deloitte, 2023) Deloitte.
- Organizational challenges include cybersecurity, communication, equity, cultural erosion, infrastructure readiness (El Khalil Law, 2024; NinjaOne, 2022) Elkhilil LawDigitalisation World.
- Federal return-to-office mandates may degrade performance: one study found productivity rose 12% for remote employees (Time study, 2025) TIME.
- Companies are divided: some, like JPMorgan and Deloitte, enforce office presence tied to performance; others, like Citigroup, offer two days remote and view it as a recruitment advantage (FT case, July 2025) Financial Times.
- Without careful design, mandates may lead to disengagement, attrition, and resistance (VogueBusiness, 2025; Rippling study, Australia, 2025) Vogue BusinessNews.

Statement of the Problem

The COVID19 epidemic has sped up the transition to remote and hybrid work modes, which has drastically changed conventional workplace structures. The advantages of these models, such as greater flexibility, better work-life balance, and access to a larger talent pool, have led firms in Chennai District and many other urban regions to adopt them. But these benefits come with difficult obstacles. In a hybrid setting, many businesses find it difficult to sustain organizational culture, encourage employee engagement, and maintain steady output.

For further complicated by problems like unequal access to digital infrastructure, growing cybersecurity dangers, and a lack of inclusive regulations. Conventional methods of performance evaluation and leadership, which were created for face-to-face situations, frequently fall short when it comes to managing hybrid teams.

This misalignment between workforce expectations and organizational practices creates a strategic gap that demands urgent attention from business leaders, policymakers, and human resource professionals in Chennai District.

- How can businesses sustain productivity and innovation while operating with geographically dispersed teams?
- What strategies can mitigate risks of employee isolation, burnout, and inequity in hybrid settings?
- Which policies and technologies can effectively support hybrid workforce management?

The problem, therefore, lies in identifying how organizations can balance flexibility with efficiency, build resilient hybrid workforce strategies, and align them with long-term organizational goals.

Objectives of the Study

1. To explore the emerging trends in remote and hybrid work models among organizations in Chennai District.
2. To identify the major challenges faced by employers and employees in managing hybrid and remote work environments.
3. To analyse the effects of remote and hybrid work on employee productivity, engagement, and organizational culture.
4. To evaluate the preparedness of Chennai-based organizations in terms of infrastructure, policies, and leadership for supporting hybrid work.
5. To recommend strategic approaches for effective and sustainable hybrid workforce management in the Chennai context.

Data Analysis and Interpretation

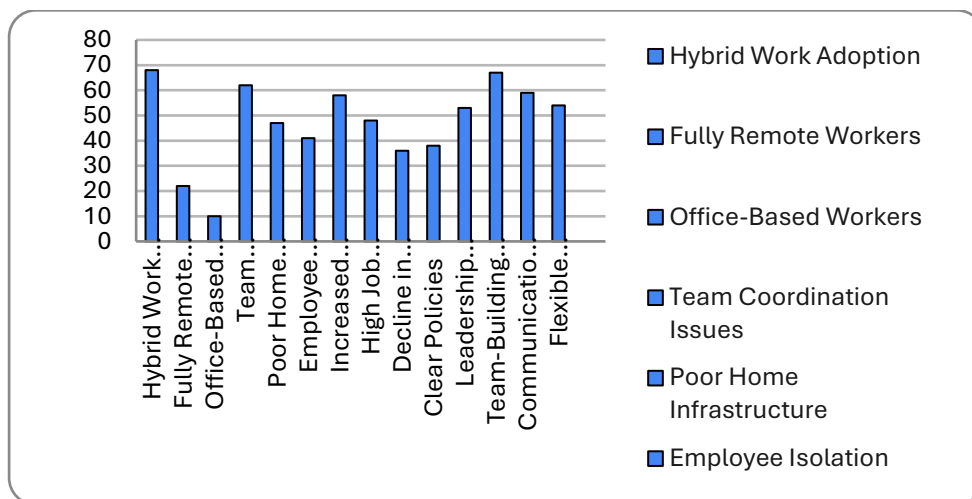
This section presents the analysis of data collected from a sample of 120 employees and 30 HR professionals and managers working across various sectors in Chennai District. The data was gathered using structured questionnaires and semi-structured interviews, covering aspects of remote and hybrid work.

TABLE NO:1: . Exploring Emerging Trends in Remote and Hybrid Work Models

Aspect	Percentage
Hybrid Work Adoption	68
Fully Remote Workers	22
Office-Based Workers	10
Team Coordination Issues	62
Poor Home Infrastructure	47
Employee Isolation	41
Increased Productivity	58
High Job Satisfaction	48

Decline in Culture	36
Clear Policies	38
Leadership Issues	53
Team-Building Recommended	67
Communication Protocol Suggested	59
Flexible Policies Suggested	54

CHAT NO :1



Source :Primary data

• Interpretation:

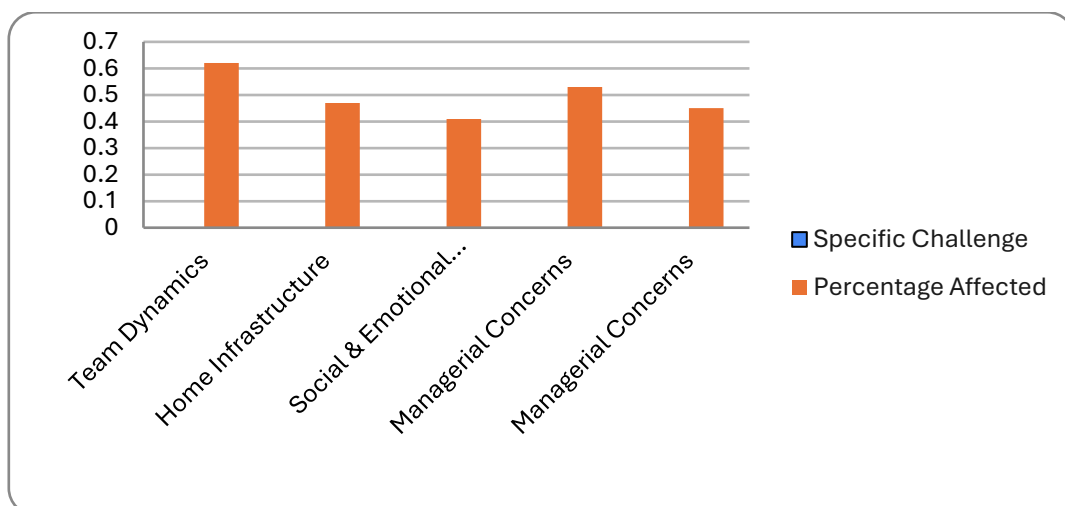
Hybrid work has become the preferred model in Chennai District, especially in knowledge-based industries. This indicates a sustained shift toward flexible work arrangements, driven by both employer strategies and employee preferences.

2. TABLE NO 2: Identifying Major Challenges Faced in Hybrid and Remote Environments

Challenge Area	Specific Challenge	Percentage Affected
Team Dynamics	Team coordination and communication	62%
Home Infrastructure	Unstable internet and inadequate home setups	47%
Social & Emotional Well-being	Feelings of isolation or disconnection	41%
Managerial Concerns	Difficulty in performance tracking	53%
Managerial Concerns	Issues with employee accountability	45%

Source :Primary data

Chat No:2



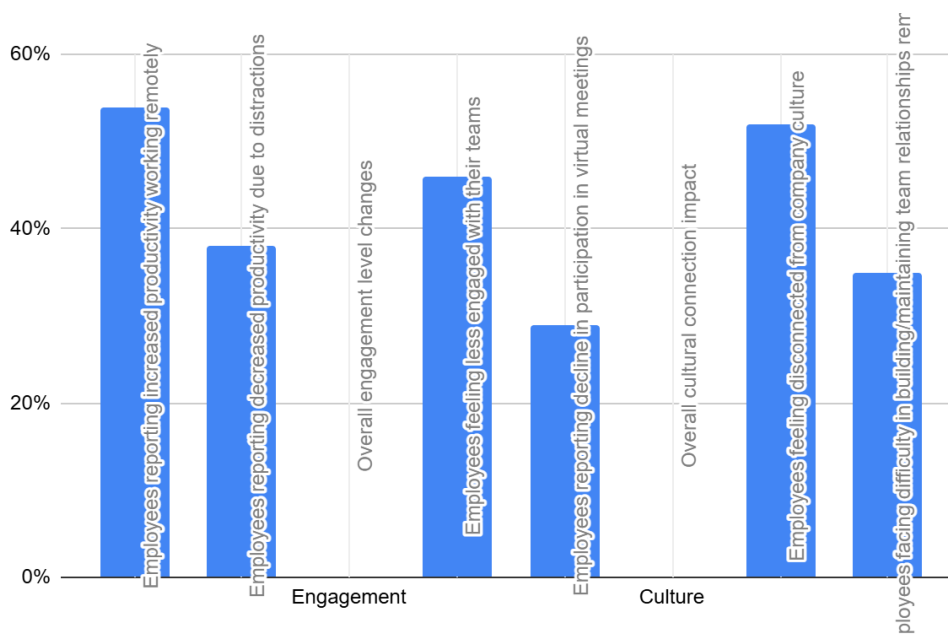
• **Interpretation:**

Despite the benefits of hybrid work, operational and psychological challenges remain. Inadequate digital infrastructure and lack of effective collaboration tools impact productivity and morale. These issues require immediate organizational attention.

3. TABLE NO.3: Analysing Effects on Productivity, Engagement, and Culture

Aspect	Key Findings	Percentage/Statistic
Productivity	Overall impact on productivity in remote/hybrid settings	Mixed: 54% increased, 38% decreased
	Employees reporting increased productivity working remotely	54%
	Employees reporting decreased productivity due to distractions	38%
Engagement	Overall engagement level changes	46% felt less engaged
	Employees feeling less engaged with their teams	46%
	Employees reporting decline in participation in virtual meetings	29%
Culture	Overall cultural connection impact	52% felt disconnected
	Employees feeling disconnected from company culture	52%
	Employees facing difficulty in building/maintaining team relationships remotely	35%

Source :Primary data



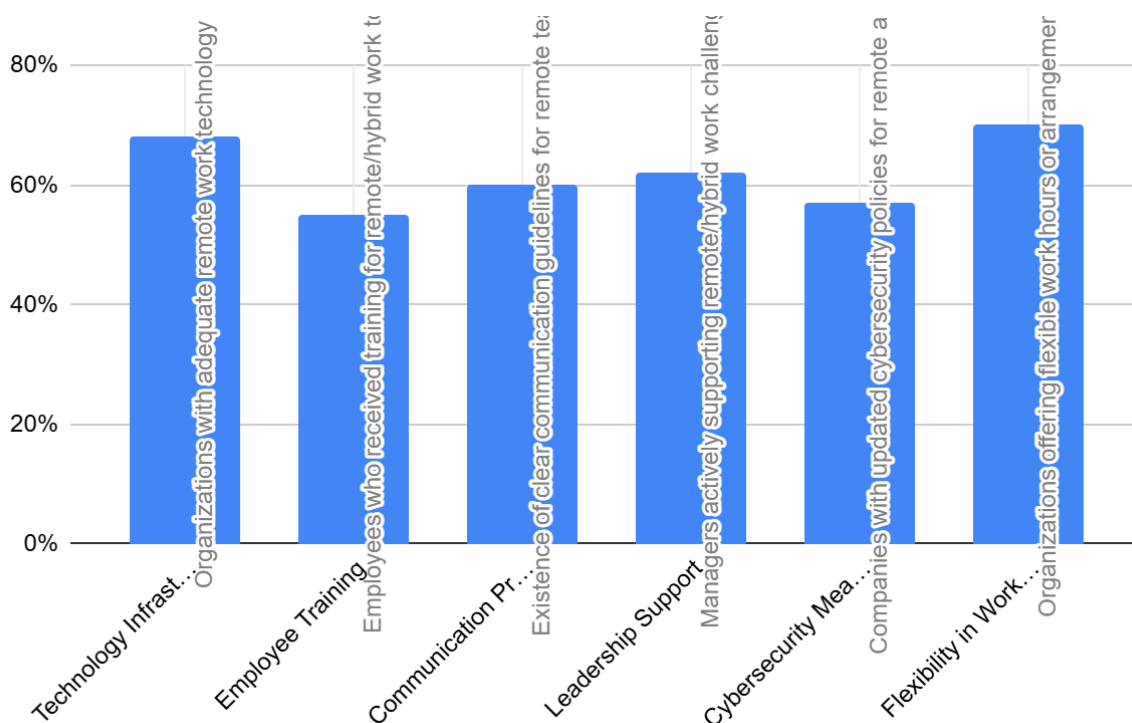
• **Interpretation:**

While remote work supports individual performance and well-being, it can weaken organizational cohesion. Companies must balance flexibility with efforts to preserve shared values and culture through intentional engagement strategies.

4. TABLE NO :4-Evaluating Organizational Preparedness

Preparedness Factor	Key Observations	Percentage
Technology Infrastructure	Organizations with adequate remote work technology	68%
Employee Training	Employees who received training for remote/hybrid work tools	55%
Communication Protocols	Existence of clear communication guidelines for remote teams	60%
Leadership Support	Managers actively supporting remote/hybrid work challenges	62%
Cybersecurity Measures	Companies with updated cybersecurity policies for remote access	57%
Flexibility in Work Policies	Organizations offering flexible work hours or arrangements	70%

Source: Primary data



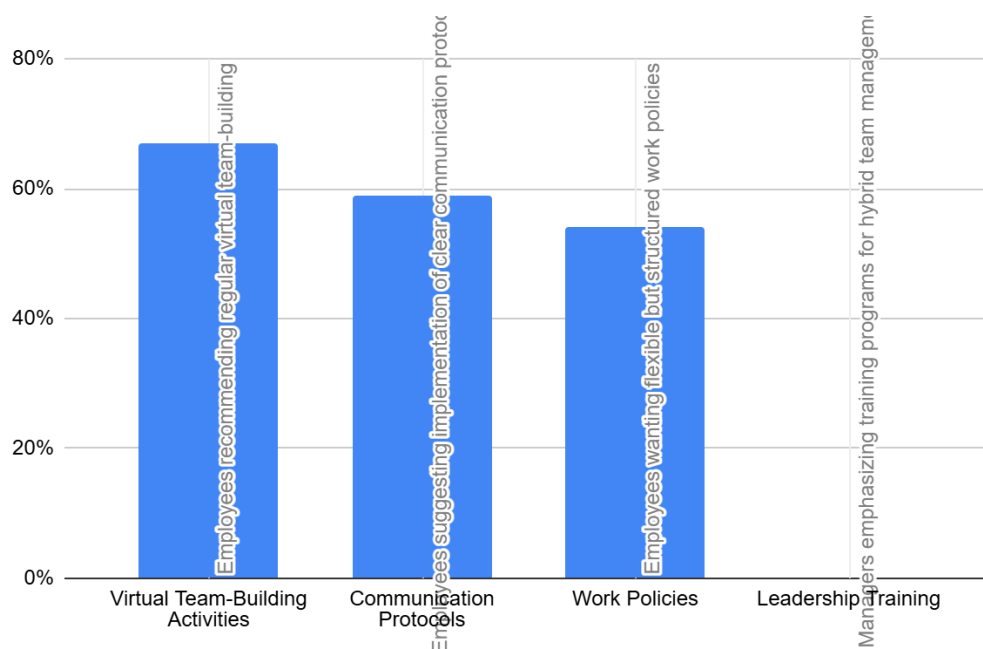
• **Interpretation:**

Many organizations in Chennai District are still in the early stages of developing a comprehensive remote work framework. Lack of readiness in infrastructure, leadership style, and policy indicates a need for more structured planning and investment.

5.TABLE NO.5:Recommending Strategic Approaches for Hybrid Workforce Management

Factor	Employee/Manager Feedback	Percentage/Statistic
Virtual Team-Building Activities	Employees recommending regular virtual team-building	67%
Communication Protocols	Employees suggesting implementation of clear communication protocols	59%
Work Policies	Employees wanting flexible but structured work policies	54%
Leadership Training	Managers emphasizing training programs for hybrid team management	Not quantified

Source : Primary data



- **Interpretation:**

To sustain hybrid work success, organizations must adopt a strategic approach that includes employee input, leadership development, tech infrastructure, and well-defined policies. A human-centered design that aligns with evolving expectations will help future-proof workforce management.

Findings

1. **Infrastructure Challenges**

Inadequate public transportation facilities near major IT hubs like Perungudi have led to significant discomfort for employees commuting to offices. Thousands wait for buses under harsh conditions, highlighting the need for improved infrastructure to support hybrid work models.

2. **Policy Adaptations**

Companies such as Cognizant have mandated in-office attendance for at least three days a week to enhance team collaboration and company culture. This shift reflects a broader trend of balancing remote flexibility with the benefits of in-person interactions.

3. **Employee Preferences and Challenges**

A significant portion of the workforce expresses a preference for remote work, citing benefits like cost savings and flexibility. However, challenges such as communication barriers, feelings of isolation, and blurred work-life boundaries persist.

4. **Technological Support**

Organizations are increasingly investing in digital tools and platforms to facilitate remote work. However, disparities in access to technology and digital literacy among employees can hinder effective implementation.

5. **Training and Development**

There's a growing recognition of the need for training programs that equip leaders with skills to manage hybrid teams effectively. Such initiatives are crucial for maintaining productivity and employee engagement.

Recommendation

Organizations in Chennai should invest in upgrading technology infrastructure and provide comprehensive training to equip leaders for hybrid team management. Clear, flexible work policies balancing remote and in-office requirements are essential to maintain productivity and employee satisfaction. Improving local infrastructure, especially transportation, will ease commuting challenges and support hybrid models. Regular virtual team-building and well-being programs can help reduce feelings of isolation and enhance engagement. Companies must also establish robust communication protocols to ensure seamless collaboration. By focusing on these areas—technology, leadership, policies, infrastructure, and employee support—organizations can effectively prepare for the evolving demands of remote and hybrid workforce management.

Conclusion

The findings indicate that organizations in Chennai are progressively adopting hybrid work models, recognizing the flexibility and productivity benefits they offer. However, significant challenges remain, particularly in areas such as communication, organizational culture, and management systems. Employees often experience difficulties in maintaining seamless collaboration and staying connected with their teams, which can lead to feelings of isolation and reduced engagement. Furthermore, existing management practices and performance tracking systems are not always well-suited for hybrid environments, causing accountability and monitoring issues.

To address these gaps, organizations must engage in strategic planning that emphasizes clear communication protocols, robust digital infrastructure, and employee well-being initiatives. Inclusive policy-making is crucial to ensure that work arrangements accommodate diverse employee needs while aligning with business objectives. Leadership transformation also plays a vital role, requiring managers to develop new skills for effectively

guiding distributed teams, fostering trust, and nurturing a strong company culture despite physical distances.

By prioritizing these areas, Chennai-based organizations can build resilient hybrid work ecosystems that enhance productivity, employee satisfaction, and long-term business success. Embracing change and continuously adapting policies and practices will be key to thriving in the evolving landscape of remote and hybrid workforce management.

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ARTIFICIAL INTELLIGENCE VS ARTIFICIAL GENERAL INTELLIGENCE: SHAPING THE FUTURE OF SOCIAL MEDIA MARKETING STRATEGIES

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Abstracts:

Social media marketing has been completely revolutionized by the quick development of artificial intelligence (AI), which has allowed companies to use data-driven customization, statistical analysis, and automated engagement tactics. Present-day AI applications are still classified as narrow intelligence, with a focus on certain activities like customer segmentation, sentiment analysis, and targeted advertising. But the rise of conversations about AGI, or artificial general intelligence, begs for important issues about how marketing tactics will develop in more digital environments in the future. With an emphasis on their possible benefits, drawbacks, and moral ramifications, this paper compares the ways in which AI and AGI will influence social media marketing in the future. AGI promises adaptive creativity, richer contextual knowledge, and autonomous decision-making that might transform campaign design and consumer contact, while AI offers efficiency, scalability, and precision. This study highlights research gaps, examines governance issues, and suggests future possibilities for proper incorporation of intelligent technologies into social media marketing, drawing on recent work in the fields of marketing, information systems, and AI ethics. The assessment concludes by emphasizing that the move from AI to AGI signifies not just a change in technology but also a revolution in strategy, ethics, and society that will have a significant impact on both customers and marketers.

Keywords:

Artificial General Intelligence (AGI), Social Media Marketing (SMM), Digital Marketing Strategies, Consumer Engagement, Future of Marketing Technologies.

Introduction:

The social media marketing environment has been drastically altered by the emergence of artificial intelligence (AI), which has enabled companies to interact with

consumers in ways that were unthinkable only ten years ago. Marketers can now offer tailored content, optimize ad placements, track consumer sentiment, and improve customer interactions at scale using AI-driven technologies that leverage machine learning, natural language processing, and predictive analytics. Algorithmic intelligence is becoming a key component of contemporary marketing tactics as social media sites like Facebook, Instagram, TikTok, and Twitter depend more and more on it to filter content, forecast user behavior, and increase engagement.

Despite these developments, Artificial Narrow Intelligence—systems built to be very proficient at specific tasks without wider contextual reasoning—is still the dominant paradigm in AI today. Questions about how more flexible, human-like intelligence may change social media marketing are being raised as discussions about AGI (artificial general intelligence) get up steam. AGI, as opposed to limited AI, aims to mimic human-level cognition, allowing computers to learn, adapt, and plan on their own in a variety of situations. Such skills might revolutionize consumer-brand connections in the marketing arena by enabling improved emotional intelligence, real-time cultural sensitivity, and dynamic campaign development.

This assessment examines how AI and AGI will compare in terms of their impact on social media marketing tactics in the future. The paper emphasizes the strategic, moral, and societal ramifications of this technological revolution by examining the existing uses of AI, its drawbacks, and the ambitious but significant potential of AGI. It also looks at regulations, data governance, trust, and transparency, all of which will influence how intelligent systems fit into digital advertising ecosystems. The discussion's ultimate goal is to offer a critical viewpoint that will enable academics, marketers, and policymakers to predict how marketing strategies will change in a time when general intelligence may soon surpass narrow AI.

Definitions:

Artificial intelligence:

The academic community has given artificial intelligence (AI) a variety of definitions, which reflects the field's interdisciplinary character. The computational and decision-making components of intelligent systems are highlighted in Russell and Norvig's (2010) definition of artificial intelligence (AI) as "the study of agents that receive percepts from the environment and perform actions."

According to Korteling et al. (2021), artificial intelligence (AI) is defined as computer systems that carry out activities that have historically required human intellect, such as perception, learning, and decision-making. They emphasize the usefulness of AI in simulating

human cognitive processes. Similar to this, Wang (2019) emphasizes adaptability as a fundamental component of intelligence by framing AI as a system's capacity to adjust to its surroundings and accomplish objectives in the face of uncertainty.

Artificial General Intelligence:

Artificial General Intelligence (AGI), on the other hand, is a more expansive and aspirational idea. According to Goertzel (2014), AGI is synthetic intelligence that can transfer knowledge across a variety of fields and has general cognitive capacities like those of humans. Franklin (2007) highlights its adaptable, all-purpose characteristics, setting it apart from limited, task-specific AI.

This perspective is expanded by Thórisson, Nivel, and Sanz (2012), who define AGI as a system that can independently program its own behaviors to solve issues in a variety of scenarios. Together, these criteria highlight how AGI aims for human-like flexibility, creativity, and cross-domain problem-solving, whereas AI is best at specialized tasks in limited settings. This makes AGI a promising paradigm change in the development of intelligent systems.

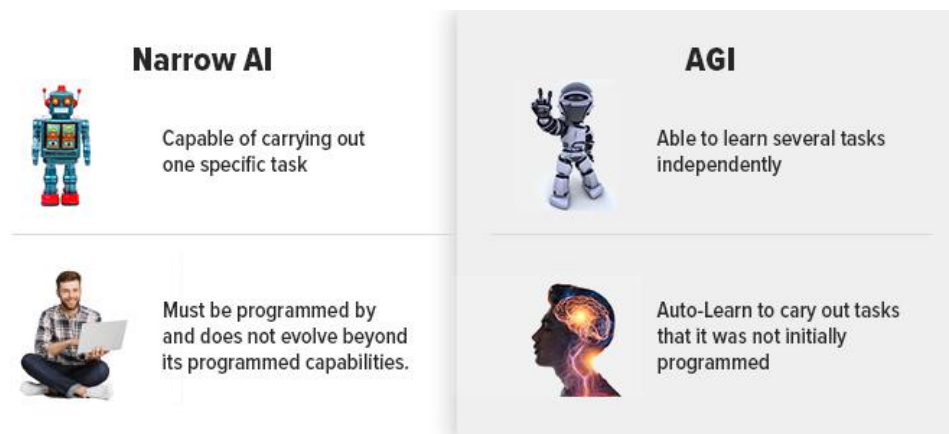


Figure 1.1: Meaning of AI and AGI

Background History of AI and AGI:

Alan Turing (1950) asked the fundamental question, "Can machines think?" which marked the beginning of artificial intelligence (AI), in the middle of the 20th century. and presented the idea of the "Turing Test" as a machine intelligence standard. John McCarthy, Marvin Minsky, Allen Newell, and Herbert Simon envisioned building robots that could carry out tasks requiring human-like intellect during the 1956 Dartmouth Conference, which marked the official beginning of artificial intelligence. There was hope that human cognition might be replicated thanks to early attempts in the 1950s and 1960s that concentrated on rule-based reasoning systems and symbolic AI. However, periods of standstill known as the "AI

winters" were caused by constraints in data and processing capacity. Expert systems and knowledge representation enjoyed a resurgence in the 1980s and 1990s, while artificial intelligence, natural language processing, and neural networks for learning were introduced in the 2000s. These days, artificial intelligence (AI) is used in almost every facet of social media marketing, from predictive analytics and automated chatbots to customized recommendation systems.

The idea of Artificial General intellect (AGI), on the other hand, arose as a more ambitious development of AI with the goal of creating computers with intellect comparable to that of humans but independent of domain. Although the term artificial intelligence (AI) was first used in 1956, the idea of general intelligence in machines was first investigated by theorists like von Neumann and then made public by researchers like Ben Goertzel in the early 2000s, who made a clear distinction between AGI and limited AI.

As research advanced, the community turned its focus from the early AI pioneers' vision of general-purpose computers to the technological viability of tackling particular tasks. Debates over whether systems like GPT-4 display "sparks" of general intelligence have been sparked by the resurgence of AGI in the twenty-first century due to developments in deep learning and large-scale neural architectures (Bubeck et al., 2023). AGI, as opposed to limited AI, seeks to mimic human-like cognitive flexibility, which includes the ability to learn, reason, and adapt in a variety of situations without the need for explicit programming.

AGI is still a concept for the future, even if AI has developed through cycles of breakthroughs and limitations to become a useful tool for certain purposes. It is both a continuation of the early aspirations for machine intelligence and a possible paradigm change, with significant ramifications for sectors like social media marketing, where customer engagement is largely shaped by flexibility, inventiveness, and human-like interaction.

Difference between Artificial Intelligence and Artificial General Intelligence:

Aspect	Artificial Intelligence (AI)	Artificial General Intelligence (AGI)
Scope of Intelligence	Narrow, task-specific; excels at predefined functions such as recommendations or sentiment analysis.	Broad, human-like; capable of general problem-solving across multiple domains.
Learning Capability	Learns from specific datasets; limited transfer of knowledge to unrelated tasks.	Capable of transfer learning and applying knowledge flexibly across diverse contexts.
Adaptability	Performs well under structured, predictable environments; struggles with uncertainty.	Highly adaptive; can function effectively in novel, ambiguous, and dynamic environments.
Creativity & Strategy	Works within programmed boundaries; creativity limited to patterns in training data.	Aims for autonomous creativity, emotional intelligence, and self-directed strategic thinking.
Examples in Marketing	Personalized content, ad targeting, influencer analytics, chatbot automation.	Potential for fully autonomous campaign design, real-time cultural adaptation, and empathetic consumer engagement.
Ethical Challenges	Algorithmic bias, privacy concerns, misinformation, and lack of transparency.	Issues of autonomy, accountability, human-machine relationships, and existential risks.

Literature Review:

1. Artificial Intelligence in Social Media Marketing

In social media marketing, artificial intelligence (AI) has quickly become a disruptive force that is changing how businesses plan, implement, and assess their plans. The proliferation of user-generated content, the exponential expansion of data from various digital

platforms, and the demand for customization in customer interactions are the main factors propelling AI's application in marketing. Artificial Intelligence (AI) combines machine learning, natural language processing, predictive analytics, and computer vision to continually adapt to customer preferences and offer highly focused communication, in contrast to traditional digital tools that function on static principles. Because of its ability to adapt, AI is in a unique position to handle the complexity and dynamic nature of social media ecosystems.

Numerous studies have shown how AI improves marketing operations in terms of accuracy and efficiency. AI is driving "smart marketing," according to Haleem et al. (2022), where computers can forecast customer intent to buy, recognize new demands, and provide customized messages at the appropriate time and channel. According to Mariani et al. (2022), AI recommendation systems, which are utilized by websites like Facebook, YouTube, and TikTok, maximize content exposure by matching user preferences with business goals. This boosts engagement and lowers customer attrition. By connecting audience behavior with influencer profiles, Sarikaya et al. (2025) show how AI-assisted targeting enhances the efficacy of influencer campaigns in the context of social media influencers, resulting in increased click-through rates and teenage consumer confidence.

In order to enhance organizational responsiveness and offer real-time analytics, artificial intelligence (AI) is being strategically included into customer relationship management (CRM) systems. According to Abrokwah-Larbi and Awuku-Larbi (2024), AI marketing has a favorable impact on small and medium-sized businesses' (SMEs') financial performance, customer happiness, and process efficiency, especially in settings with limited resources. These results establish AI as a strategic resource that directly enhances competitive advantage rather than only a tactical instrument. In a similar vein, Dimitrieska et al. (n.d.) contend that AI helps businesses move from reactive to proactive marketing methods, whereby future customer wants are foreseen before they materialize.

The experience and involvement of consumers is the subject of another important body of literature. For example, AI-driven chatbots allow for round-the-clock customer support on social media sites, offering prompt replies and tailored exchanges. This lowers the cost of human resources while increasing customer satisfaction. Brands can handle crises and enhance their reputation by using sentiment analysis technologies to track public opinion in real time. This conversation is expanded by Looi and Kahlor (2024), who look at the growing usage of AI-driven influencers—synthetic personalities created to resemble real influencers—to increase engagement, but with varying degrees of relatability and authenticity.

Despite its advantages, academics warn against relying too much on AI. A persistent worry is algorithmic bias: according to De Bruyn et al. (2020), AI systems frequently reinforce preexisting social injustices by feeding prejudices that are ingrained in training data. Another drawback is transparency; customers frequently don't know how algorithms decide, which might undermine confidence. Additionally, automating customer interactions runs the danger of shallowing brand-consumer relationships' emotional depth, resulting in transactional engagement rather than deep connection. This restriction is especially crucial in social media marketing as customer loyalty depends heavily on emotional resonance and authenticity.

All things considered, research shows that AI may significantly improve social media marketing by increasing efficiency, predictive capacity, and customisation. However, it also draws attention to unsolved issues with prejudice, ethics, authenticity, and transparency. Crucially, AI as it exists now is still a type of restricted intelligence that is limited by its training data and task-specific. Although it works well for automation and customisation, it lacks the general reasoning skills necessary to adjust to a variety of uncertain situations. This restriction opens the door for scholarly debates on artificial general intelligence (AGI) as the next frontier, where marketing systems of the future may make decisions that are adaptable, autonomous, and context-sensitive rather than relying solely on predictive algorithms.

2. Transitioning from AI to AGI: Conceptual Foundations:

Marketing discussions on artificial intelligence (AI) are inextricably linked to larger discussions about AI's possible development into artificial general intelligence (AGI). AGI is a conceptual step toward intelligence that can generalize information, adapt to different situations, and demonstrate autonomy in decision-making, even if AI has already shown promise in limited, task-specific applications like chatbots, recommendation systems, and predictive analytics. This shift from narrow AI to broad AI provides a crucial starting point for analyzing potential future changes to social media marketing tactics.

AGI and AI Definitions:

The narrow intelligence of AI, as it is currently used in social media marketing, makes it ideal for certain tasks like audience segmentation, customer behavior prediction, and content distribution automation. These systems are constrained by the size of their training data and function according to preset parameters.

In contrast, artificial general intelligence (AGI) is thought to have cognitive capacities similar to those of humans, including the ability to think abstractly, learn over time, and function well across domains without task-specific programming (Goertzel, 2014). According

to academics, AGI aims for adaptive intelligence that is capable of strategic thinking and invention, whereas AI displays advanced pattern recognition.

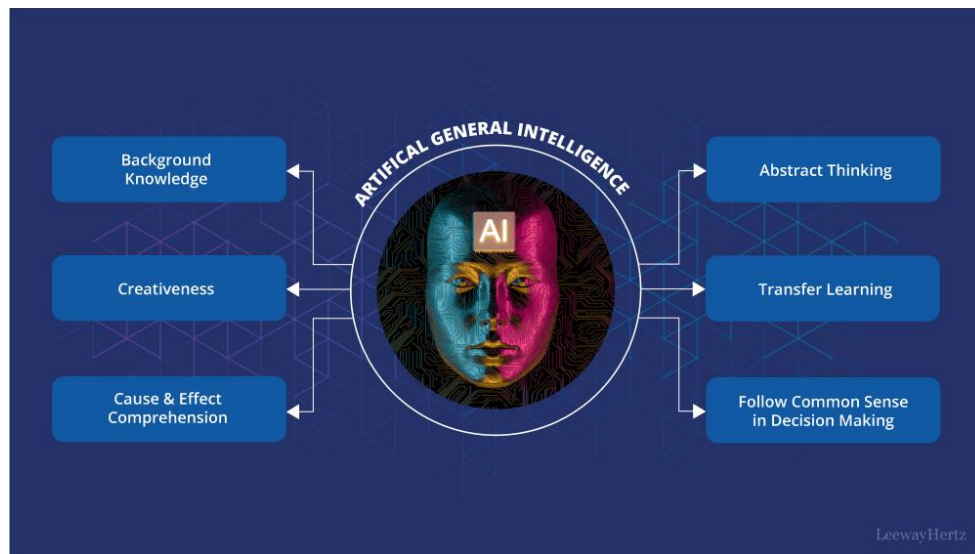


Figure: 1.2 Transition of AI to AGI

AGI Theoretical Models:

AGI is conceptually supported by a number of theoretical concepts. The LIDA (Learning Intelligent Distribution Agent) model, first presented by Franklin and Franklin (2007), provides a framework for the development of AGI by framing cognition as a cycle of observation, memory, learning, and action. According to the Levels of AGI concept put forward by Morris et al. (2025), AGI should be seen in phases, ranging from restricted task intelligence to completely independent general intelligence. This viewpoint is expanded by Latapie et al. (2021), who highlight metamodel-based architectures that enable AGI systems to combine machine learning with symbolic reasoning, facilitating cross-domain adaptation and cumulative learning.

These models are crucial for marketing academics because they change the focus of the conversation from basic automation to strategic intelligence. AGI has the ability to create, assess, and modify marketing plans in real time, taking into consideration cultural nuances, consumer psychology, and changing circumstances, while AI streamlines current procedures.

Scholarly Discussions on Relevance and Feasibility:

Even with theoretical advancements, AGI is still hotly debated in both academia and business. On the one hand, researchers like Goertzel (2014) contend that when processing power, brain designs, and data access converge, AGI is unavoidable. Some others are still doubtful, pointing out how difficult it is to replicate human awareness, creativity, and emotional intelligence. For example, Bennett (2025) highlights that research on AGI runs the

danger of overestimating technological viability while underestimating ethical and societal ramifications.

The argument from a marketing standpoint focuses on the applicability of AGI to corporate strategy as well as its feasibility. Some contend that by enabling completely autonomous systems that can autonomously negotiate, adapt, and strategize, the transition from AI to AGI might completely transform consumer interaction. Others contend that most marketing applications may only require minor advancements in AI, rendering the AGI controversy more theoretical than useful in the near future.

Social Media Marketing Consequences:

Social media marketing is significantly impacted by the shift from AI to AGI. Ads can be personalized by current AI technologies based on past behavior, but they are unable to take into consideration erratic consumer circumstances, such as abrupt changes in cultural attitude, viral trends, or misinterpretations across cultural boundaries. However, an AGI-enabled system could be able to navigate these difficulties and modify messages in real time while taking context into account. For instance, in situations where narrow AI frequently fails, AGI could discern between comedy, irony, or cultural references in user-generated material.

Additionally, AGI may facilitate strategic innovation by producing marketing concepts that include consumer identities, cultural narratives, and brand values to a degree that AI is now unable to do. In this regard, artificial general intelligence (AGI) is not only a more potent instrument but also a radically different type of player in marketing systems, one that is able to make strategic decisions on its own.

Towards new paradigm:

According to the literature, marketing scholarship underwent a paradigm change with the transition from AI to AGI. AGI threatens the entire function of marketers by having the ability to replace human decision-making with autonomous systems, even while AI is integrated into operational procedures. This shift presents obstacles, such as ethical hazards, customer trust, and legal issues, as well as possibilities, such as increased efficiency, customization, and adaptability.

To sum up, the theoretical underpinnings of artificial general intelligence (AGI) offer a framework for imagining how marketing may change from automation to autonomy. The continuous scholarly discussions over the viability of AGI highlight both its possibilities and its limitations. This shift raises the possibility that the future of social media marketing may involve developing methods that can either compete with or live with autonomous, thinking entities rather than focusing on improving algorithms for persuasion.

3. AGI and Consumer-Centric Marketing's Future:

Artificial General Intelligence's (AGI) ability to transform the consumer-brand interaction at the core of marketing is one of its most exciting but disruptive consequences. AGI is predicted to assume more autonomous, reasoning roles, changing not only how consumers are reached but also how they make decisions. This is in contrast to current artificial intelligence (AI) systems, which mainly help marketers influence consumers through personalization and predictive analytics. According to the literature, AGI may serve as a stand-in for customers, radically changing the balance of power between companies, customers, and technology.

From Convincing to Bargaining:

Persuasion is the foundation of traditional marketing methods; via promotion, targeting, and message, businesses aim to influence consumer choices. Through customization, AI makes this even more compelling, but the basic reasoning is still valid. However, algorithm-to-algorithm interaction is made possible by AGI. The AGI Consumer Proxy Model (ACPM), introduced by Metha (2025), views AGI as an autonomous agent that acts on behalf of customers to weigh their alternatives, haggle over costs, and even turn down deceptive advertising. This transforms marketing from a persuasion-based field to one of mutual bargaining, in which intelligent proxies algorithmically safeguard the welfare of consumers.

Significant ramifications for trust and brand loyalty are suggested by the ACPM model. In a future when artificial intelligence (AI) agents make decisions for customers on their own, brand loyalty may be replaced by consumer agents' logical assessments of ethics, pricing, and quality. As a result, businesses may have to fight more for algorithmic approval and less for human attention, which would alter the fundamentals of marketing strategy.

Power Dynamics and Consumer Autonomy:

Important concerns regarding autonomy and agency are brought up by the notion of AGI serving as a consumer proxy. AGI might, on the one hand, empower customers by shielding them from deceptive advertising and guaranteeing open and honest decision-making. However, by limiting possibilities based on preprogrammed characteristics, it may also restrict the options available to consumers. By enabling context-sensitive, adaptive communication, academics like Putanu (n.d.) contend that AGI-enabled conversation systems in marketing might greatly improve customer involvement. But there's also a chance that this will move the decision-making power from human consumers to computer agents, giving rise to what might be called a delegated consumer identity.

Redefining Customer Experience and Personalization:

Currently, AI-driven customization entails customizing advertisements or suggestions according to user history. With the ability to comprehend humor, sarcasm, cultural nuances, or situations in user-generated material, AGI offers a higher degree of contextual customisation. For instance, AGI might examine current life events, emotional states, or social circumstances to make comprehensive, adaptive recommendations, whereas AI would just suggest things based on past purchases. If ethical protections are not in place, this kind of customization runs the risk of going too far in manipulating customers, even though it might increase their enjoyment.

When it comes to the customer experience, AGI could also make it possible for hyper-realistic virtual assistants to go from programmed chatbot engagements to agents who can have lively, sympathetic discussions. From information search to post-purchase assistance, these assistants may oversee the full customer experience, offering smooth and emotionally intelligent interaction. This development has the potential to redefine authenticity in brand communication by obfuscating the distinction between human and computer contact.

Strategic Consequences for Advertisers:

The emergence of AGI suggests a fundamental shift in strategy for marketers. Strategies may need to approach AGI agents as mediators rather than focusing on human perception while creating campaigns. This brings up issues like: How do businesses create goods, services, and advertising campaigns that satisfy AGI's evaluation standards? What moral limits need to be upheld when making appeals to non-human decision-makers? AGI may act as a gatekeeper and a facilitator of customer access in this situation.

Additionally, since customer proxies may examine claims, certifications, and ethical procedures in real time, AGI might encourage businesses to be more open and accountable. AGI systems can quickly identify greenwashing or deceptive advertising, which customers frequently ignore, and force businesses to change to more authentic methods.

Risks and Difficulties:

AGI's incorporation into consumer decision-making carries hazards despite its potential. If corporate interests have an impact on AGI proxies, consumers can lose their autonomy instead of gaining it. When intelligent agents filter customer choices, ethical concerns like algorithmic transparency, data privacy, and fairness become even more important. Furthermore, if AGI is widely used, it may exacerbate power disparities in the marketplace by establishing digital divisions where only more affluent customers have access to sophisticated proxies.

Moving Toward Futures Focused on Consumers:

AGI has the ability to rethink consumer-centric marketing by mediating human-machine decision-making ecosystems rather than influencing human behavior, as the literature makes evident. Even if AI has already made it possible for previously unheard-of levels of efficiency and customisation, AGI foreshadows a future in which marketing strategy, brand loyalty, and consumer agency will all undergo significant change. The transition from emotional branding to logical assessment, from persuasion to negotiation, implies that marketing research and practice need to get ready for a future in which consumers would not be the only ones making decisions about their own consumption paths.

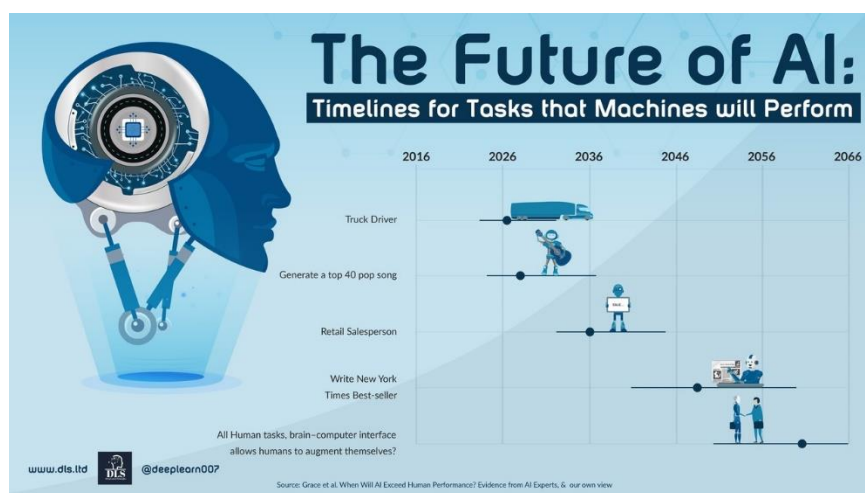


Figure 1.3 The future of AI focused towards consumer

4. AI-Powered Influencers and Online Participation in Transition:

One of the most obvious connections between artificial intelligence (AI) and marketing in the digital age is the emergence of AI-powered influencers and fake online personas. These non-human performers, who can mimic human habits, style, and communication to engage audiences on behalf of businesses, have flourished on social media platforms. Scholars contend that the future trajectory of these systems, especially with the integration of Artificial General Intelligence (AGI), could fundamentally change how consumers experience and interpret authenticity, trust, and engagement in social media marketing, even though current applications primarily rely on narrow AI to automate content creation, style imitation, and interaction.

The Rise of Influencers Driven by AI:

Computer-generated characters created to serve as marketing ambassadors are known as virtual influencers. It is possible to program them to represent particular identities, beliefs, and aesthetics that appeal to target audiences. According to Looi and Kahlor (2024), the use

of digital influencers in campaigns is growing because, in contrast to real influencers, they provide companies with creative freedom, scalability, and a lower risk to their reputation. An AI-generated influencer, for example, is completely controlled and can be made to fit with changing brand narratives, but a human influencer may start controversies that harm a business's reputation.

The literature does, however, show a range of customer reactions. Older audiences frequently view AI influencers as less genuine and emotionally distant, but younger audiences—especially Gen Z—show an openness to engaging with them (Manolică et al., n.d.). This age gap raises strategic concerns about target segmentation and cross-demographic adoption, since virtual influencers may be successful in some areas but unsuccessful in others.

Increasing Roles and Models of Engagement:

Currently, the main functions of AI-powered influencers are engagement simulation and content distribution. They are designed to publish aesthetically pleasing information, respond to comments, and occasionally take on narratives that give them a "life" that is similar to that of humans. However, these influences may develop into independent digital actors with the ability to behave in an unscripted, context-sensitive manner when AGI capabilities are hypothesized. An AGI-driven influencer may interact dynamically, perceiving humor, sarcasm, or cultural subtlety, in contrast to existing programmed replies. This would bridge the authenticity gap that restricts present AI avatars.

To assess the reliability and emotional resonance of synthetic influences, Sambari and Kumar (2025) provide frameworks like the Synthetic Ethics Trust Index (SETI) and the Emotional Realism Index (ERI). These frameworks draw attention to the rising worry that, even while AI influencers could imitate human characteristics, their capacity to form sincere emotional bonds is still constrained in the absence of more sophisticated cognitive structures. These restrictions could be lessened as AGI develops, but there is also a greater chance of customer manipulation and deceit.

Consequences for Brand Genuineness:

Since customers value openness and relatability in their contacts with real influencers, authenticity has always been a key component of influencer marketing. This paradigm is upset by the emergence of influencers powered by AI. On the one hand, virtual identities may be more dependable, consistent, and flexible with regard to brand tactics. However, the fact that they are artificial begs the question of whether or not they are viewed as marketing gimmicks or as "real" things by customers.

According to the literature, companies that use AI influencers need to be mindful of this conflict. Customers who desire human relatability may get resentful if virtual identities are used excessively. However, these influencers may develop specialized audiences interested in innovation, digital aesthetics, and technical novelty if they are openly presented as AI creations. Therefore, incorporating AI-driven personas into hybrid influencer ecosystems—where human and non-human actors complement one another—is more important than replacing human influencers.

Social and Ethical Aspects to Consider:

AI-powered influencers can raise moral questions about cultural stereotypes, identity portrayal, and consumer manipulation. They run the danger of encouraging irrational expectations or bolstering cultural prejudices ingrained in their design since they are wholly created by companies. According to Liu et al. (2023), these apps might make prejudice and factual errors worse, especially if users find it difficult to tell the difference between synthetic and human material.

Concerns exist over disclosure and openness as well. To safeguard the interests of consumers, regulatory agencies are starting to require more precise labeling of material produced by artificial intelligence. Virtual influencers run the danger of misleading audiences, eroding consumer confidence, and maybe breaking advertising ethics if they lack transparency.

Transition Toward AGI-Driven Engagement:

AGI integration has the potential to change AI-driven influencers from programmed avatars into self-governing digital personas that can build dynamic, adaptable connections with customers. Such organizations might debate ideals, have meaningful conversations, and change their identities over time in addition to merely sharing stuff. This would move influencer marketing into the field of relational marketing, which is mediated by intelligent agents, moving it away from its present emphasis on popularity and aesthetics.

But this change also brings some important issues. Ethical concerns around transparency, manipulation, and consumer consent arise if AGI influences are unable to be distinguished from humans. Furthermore, because AGI influencers have the ability to affect consumer behavior at previously unheard-of levels of complexity, the prospect of producing hyper-persuasive digital actors presents regulatory issues.

Final Thoughts:

In the development of social media marketing, the literature presents AI-driven influencers as both a difficulty and an opportunity. They challenge ideas of authenticity and

transparency even as they provide scalability, inventiveness, and alignment with brand strategy. Virtual influencers may develop into independent entities that change engagement into dynamic, context-sensitive, and individualized interactions with the inclusion of AGI. More consumer immersion is promised, but there are also urgent ethical, social, and legal issues brought up. In the end, the shift in influencer marketing from AI to AGI highlights the necessity of crucial frameworks that strike a balance between innovation and responsibility, guaranteeing that future engagement models continue to be both successful and morally sound.

5. Technology Acceptance and Adoption Models:

Model of Technology Acceptance (TAM): The four main components are behavioral intention, attitude toward use, perceived usefulness (PU), and perceived ease of use (PEOU).

AI/AGI Marketing Applications: According to studies (e.g., Wang et al., 2023; Hosseini, 2023), TAM explains AI adoption in e-commerce and online businesses well. PEOU impacts trust and engagement, while PU strongly predicts user attitudes.

Subjective norms, trust, perceived risk, and AI attitude are some of the elements that are included in the Extended TAM (e.g., Ibrahim et al., 2024).

Results: The most reliable predictor of intention to employ AI tools in marketing and digital services is perceived usefulness.

Extended TAM Models: According to Ibrahim et al. (2024), TAM + Big Five Personality Traits: While growth-oriented AI mentality predicts positive adoption attitudes, openness has a beneficial impact on ease of use.

According to Manolică et al. (n.d.), TAM in Generational Contexts:

Gen Z is more gregarious, less privacy-conscious, and adopts more quickly.

Gen Y is wary, emphasizing issues with data security and trust.

According to Massoudi et al. (2024), TAM in E-commerce Contexts: AI-enabled ecommerce platform adoption is mediated by TAM structures, which demonstrate that PU and PEOU directly boost sustained usage.

The Framework of Technology, Organization, and Environment (TOE): extends TAM to corporate environments.

Technological aspects: relative advantage, compatibility, and AI maturity.

Organizational determinants include resources, innovative culture, and leadership support. Environmental influences include consumer pressure, market competitiveness, and the regulatory environment.

S-O-R (Stimulus-Organism-Response) Framework: External elements, such as influencer campaigns, public service announcements, and AI-driven advertisements, constitute the stimulus (S). Organism (O): Emotional and cognitive reactions (perceived risk, perceived personalization, and trust). Response (R): Change in behavior, adoption, or intention to buy.

For instance, S-O-R was applied to healthcare PSAs by Kumar Mishra et al., n.d., demonstrating that emotional reactions and health traits influence behavior. This aligns nicely with AI-driven customer persuasion in marketing (e.g., chatbots, AIVIs).

Comparative Model Insights

TAM: The best way to describe how each person accepts AI.

TOE: Ideal for adoption choices made at the corporate level.

S-O-R: The best method for comprehending the emotional and psychological factors that influence customer behavior.

For instance, merging TAM + TOE for e-marketing adoption is one example of how many studies integrate models to increase explanatory power (Amayreh et al., 2025).

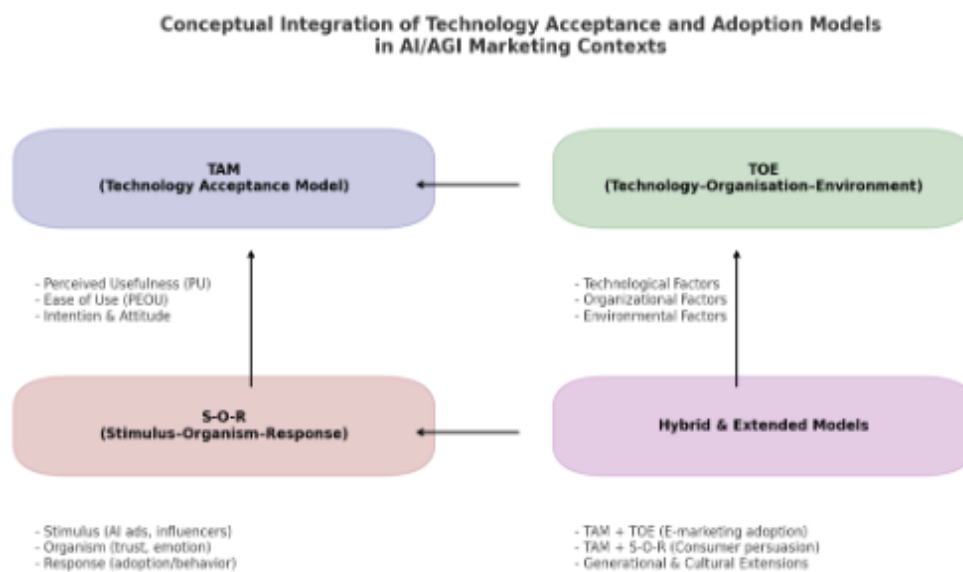


Figure: 1.4 Conceptual integration of technology Acceptance and adoption models in AI & AGI Marketing Contexts

Remarks and Restrictions

Static Nature: TAM does not completely account for changing user attitudes in ongoing AI use because it presupposes linear adoption.

Individual-Centric: Less useful for researching corporate or collective adoption of AI.

Cultural/Generational Gaps: Generalizability is limited by the large differences in adoption trends between demographic groups and geographical areas (Mogaji et al., n.d.).

Trust and Ethics: Classic TAM downplays concerns that are essential to the adoption of AI/AGI, such as data privacy, algorithmic transparency, and justice.

Prospective Research Paths:

Hybrid Models: Integrating S-O-R, TOE, and TAM for comprehensive adoption research.

Testing adoption frameworks in different locations (developed vs. emerging economies) is known as cross-cultural research.

Emotional and Ethical Aspects: Combining frameworks for ethical acceptance with emotional intelligence (EI) (as suggested by Nadeem, 2024).

Contexts for Generative AI: Modifying models to explain why people embrace AI that "creates" rather than merely helps (such as ChatGPT, picture generators, and AIVIs).

Monitoring shifts in adoption over time as users become more accustomed to AI is known as longitudinal research.

Limitations:

- lacks major empirical validation and focuses on conceptually comparing AI and AGI in social media marketing.
- The swift advancement of AI/AGI technology could swiftly make research findings obsolete.
- Real-world insights are limited by the lack of viable AGI applications; theoretical research is necessary.
- Reliant on literature and secondary sources, which could add biases and compromise generalizability.
- Major social media sites (including Facebook, Instagram, and TikTok) are highlighted, but newer platforms aren't adequately discussed.
- Implications for ethics, law, and regulation are examined broadly rather than in-depth for each jurisdiction.
- Predictive accuracy is limited by the complexity and context-dependency of human behavioral reactions to AI/AGI-driven marketing.

Conclusions:

Social media marketing has already been revolutionized by artificial intelligence (AI), which makes it possible for predictive analytics, personalized content, and improved customer interaction. But with its capacity for autonomous decision-making and a more profound comprehension of human behavior, Artificial General Intelligence (AGI) holds the potential to revolutionize marketing tactics. This assessment emphasizes that although AI

adoption is extensive and quantifiable, artificial general intelligence (AGI) is still mostly theoretical and has not yet reached its full potential. To properly utilize these intelligent systems, marketers and researchers must negotiate behavioral, ethical, and technological difficulties. To fully realize the transformative potential of AI and AGI in social media marketing, future research should concentrate on cross-platform adaptability, ethical application, and empirical validation of AGI-driven strategies.

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YOUTH PERSPECTIVE ON ONLINE SHOPPING AND EMERGING BUSINESS OPPORTUNITIES – A STUDY WITH SPECIAL REFERENCE TO TIRUCHENDUR TALUK

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ABSTRACT

The rapid growth of digital technology and e-commerce has significantly transformed consumer behaviour, particularly among the youth. Online shopping has become an integral part of their lifestyle due to convenience, affordability, and access to a wide variety of products and services. This project explores the perceptions, preferences and challenges faced by young consumers in the online shopping system. Furthermore, the study examines emerging business opportunities arising from this shift, including digital entrepreneurship, social media marketing, influencer-driven commerce and innovative service models. By analyzing youth perspectives, the project aims to identifying new avenues for growth in the evolving digital marketplace.

Keywords: Affordability, Convenience, Digital entrepreneurship, Opportunities, Perceptions

INTRODUCTION:

ONLINE SHOPPING

Online shopping refers to the process of buying goods and services over the internet. It has revolutionized the way consumer's shop by providing convenience variety and accessibility. Instead of visiting physical stores. Customers can browse through products on e-commerce websites or mobile apps. Compare prices, read reviews and place orders from the comfort of their homes. Payments can be made using digital methods Such as credit/debit cards. Digital wallets or even cash on delivery in some regions. Major platforms like Amazon, e-Bay. Flip kart and Alibaba have expanded rapidly.

ONLINE BUSINESS

In the present digital era, e-commerce or online business has become one of the fastest growing sectors, reshaping the way people buy, sell and communicate in the business world. E-commerce refers to carrying out business activities such as buying and selling products, providing services, making digital payments and even promotion brands through the internet with the help of smartphones and computers. It offers several advantages like time savings, convenience, variety of choices and wider reach at lower cost, which makes it highly attractive to today's generation.

STATEMENT OF THE PROBLEM

A large number of consumers have started switching from open bazaars to supermarkets, since this type of retail outlet offers convenience, comfort and affordable prices for every day shopping. In response to changing consumer buying tendency, retailers' strategies and using different marketing online platforms in order to ensure their consumers will come back to the store again and again. In this regard, it is important to emphasize of store characteristics which directly influences consumer buying tendency. Another reasons for retailers to design their stores and to use different marketing tools is to give stimulus to consumers to purchase the goods impulsively. The consumers stimulate to buy things. Therefore, the study of the youth perspectives on online shopping and emerging business opportunities with special reference to Tiruchendur taluk.

OBJECTIVES OF THE STUDY

The main objectives of the study are:

- To Identify the Factors influencing online shopping behaviour among the Youth.
- To analyze the perception and trust of youth regarding e-commerce platforms and digital transactions.
- To evaluate the impact of social media for Online shopping and online business.
- To assess the level and awareness about e-commerce and Online business among youth in and around Tiruchendur.
- To explore the challenges faced by Youth in entering the Online business space.

REVIEW OF LITERATURE

Benedict et al (2001) his study on perceptions towards online shopping reveals that perceptions toward online shopping and intention to shop online are not only affected by ease of use, usefulness, and enjoyment, but also by external factors like consumer traits, situational factors, product characteristics, previous online shopping experiences, and trust in online shopping.

Demangeot and Broderick (2040) revealed that perceived ease of use does not affect the behavioral pattern in this case rather influenced by security and privacy issues. No relationship built between the customer and the online shop in the presence of perceived online risk even customer spent hours on the Intouroni & Goh, 2012).

Dholakia and Uusitalo (2000) examined the relationship between age and Internet shopping; found that younger consumers reported more interest in the online shopping. They:

found that younger consumers searched for more products online and they were more likely agree that online shopping is more convenient.

Husenov and Yildirim (4) emphasized that the lack of physical interaction tends to be the critical impediment in online retail sales followed by the privacy of individual information: security of financial transactions over the Internet.

Venkatesh (2000) ported that perceived convenience offered by Internet Vendors has a positive impact on consumers' attitude towards online shopping, as they perceive Internet as a medium that enhances the outcome of their shopping experience in an easy way. Online Shopping holds a great potential for youth marketers. According to Vrechopoulos et al. (2001) youth are the main buyers who used to buy products through online.

METHODOLOGY

This study is based on both primary and secondary sources. The primary data were collected directly from the 140 respondents through a questionnaire. The secondary data were collected from books, journals and websites. The information collected through questionnaire was analysed by using simple percentages, Garret ranking and 't' test.

ANALYSIS AND INTERPRETATION OF DATA

The major findings are

- The Majority 81% of the respondents are female.
- The Majority 80% of the respondents are 18–23 years.
- The Majority 79% of the respondents are undergraduate.
- The Majority 71% of the respondents belong to 3–5 member families.
- The Majority 59% of the respondents are earning below ₹35,000–40,000 as their income per month.
- The Majority 59% of the respondents are from students.
- The Majority 59% of the respondents are using Meesho.
- The Majority 49% of the respondents are using rarely.
- The Majority 54% of the respondents are usually purchasing clothing.
- The Majority 67% of the respondents are spending an amount of below ₹1000.
- The Majority 50% of the respondents are satisfied through moderate offers on online shopping charges.
- The Majority 70% of the respondents are satisfied with products purchased online.
- The Majority 75% of the respondents use cash on delivery as their payment method.
- The Majority 69% of the respondents rate the trust of online shopping as neutral.

- The Majority 53% of the respondents operate e-commerce-based businesses.
- The Majority 57% of the respondents learn information about e-commerce through school/college.
- The Majority 54% of the respondents run online business for less than 2 years.
- The Majority 43% of the respondents prefer social media for online businesses.
- The Majority 29% of the respondents are facing the challenge of technical issues.

Table – 1 Garret Ranking -DISADVANTAGES OF ONLINE SHOPPING

S.NO	DISADVANTAGES	RANK GIVEN BY RESPONDENTS								GARRET'S RANK	
		I	II	III	IV	V	VI	VII	VIII	MEAN VALUE	RANK
1	Extra cost	25	4	2	1	3	5	16	14	50.62	VI
2	No physical product	16	4	5	1	8	10	12	14	47.31	VII
3	Impulse buying inspection	6	22	8	5	4	13	3	9	52.35	V
4	Return/exchange issue	13	22	6	8	15	2	3	1	59.5	I
5	Product mismatch	20	15	3	2	4	9	7	10	54.8	III
6	Internet dependence	8	9	6	2	4	17	11	13	45.3	VIII
7	Fake products	12	20	11	4	5	4	7	7	55.76	II
8	Others	17	5	4	18	3	5	12	6	53	IV

Source: Primary data

The above table shows that “return/exchange issues” was ranked (I). So, it was concluded that “return and exchange value” was the main disadvantage and followed by “fake products” was ranked (II), “product mismatch” was ranked (III), “others” was ranked (IV), “impulse buying inspection” was ranked (V), “extra cost” was ranked (VI), “no physical product” was ranked (VII), “internet dependence” was ranked (VIII).

Table – 2- ‘t’ test- SOCIAL MEDIA PLATFORM USAGE OF BUSINESS

S.No	Statement	Mean	SD	CV	‘t’ Value	Rank
1	Facebook	3.11	1.54	49.19	6.52	III
2	Instagram	3.2	1.38	42.81	7.27	I
3	Twitter	2.93	1.3	44.36	5.98	IV
4	Whatsapp	3.02	1.28	41.72	6.66	II
5	Snapchat	2.8	1.22	43.2	5.48	VI
6	Youtube	3.02	1.55	50.99	5.50	V

Source: Primary data

The above table 2 shows that , Instagram got the least value of co-efficient of variation and it got first position. It was also proved by ‘t’ test at 5% level of significance. Hence, it was concluded that Instagram was the most usage social media platform.

3 SUGGESTIONS

- Some people, not having enough knowledge about shopping through online. So, awareness should be created to the customers about online shopping.
- The sellers in the online shopping should implement the practices follow up action with the customers, as like the cost of offline selling.
- The vendors who are dealing in online shopping should ensure the quality of the goods delivered through online shopping, which will help attract sellers to explain to the existing customers and increase the potential customers for their business.
- Government must take initiatives to promote the business, to encourage people to do their business in online shopping.
- Government should provide easy digital access, including e-commerce facilities to improve entrepreneurship.
- Colleges can offer skill training e- commerce courses.

CONCLUSION

The study clearly shows that youth in Tiruchendur Taluk are increasingly adopting online shopping as a convenient, affordable, and trend-driven mode of purchase. Their choices are shaped by factors such as ease of use, discounts, variety, and peer influence, while

challenges like delivery delays, trust issues, and limited digital literacy remain significant barriers. At the same time, the growing familiarity of youth with digital platforms has created fertile ground for emerging business opportunities, particularly in the areas of hyperlocal delivery, social media-based selling, and digital marketing support for small businesses.

The findings highlight that Tiruchendur's unique socio-economic and cultural background provides both opportunities and challenges: while internet penetration and smartphone use are steadily rising, infrastructural gaps and lack of awareness continue to restrict wider participation. By addressing these limitations through improved connectivity, digital literacy programs, and targeted government support, the youth can not only become informed consumers but also active entrepreneurs in the digital economy.

In conclusion, the youth of Tiruchendur Taluk represent a powerful driving force in shaping the future of e-commerce and small-scale online enterprises. Empowering them with the right skills, resources, and supportive ecosystem will not only enhance their shopping experiences but also unlock sustainable business opportunities, contributing to local economic growth and aligning with India's larger vision of a digital and self-reliant economy.

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DRIVING EMOTIONAL INTELLIGENCE IN THE PERFORMANCE OF BANK EMPLOYEES – IN CHENNAI DIVISION

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Abstract

Emotional intelligence (EI) reflects the ability to perceive, regulate, and manage emotions in oneself and others. Within the banking sector, where teamwork and client interactions are integral, EI is essential for stress management, conflict resolution, and building long-term relationships. This study explores the association between EI and professional outcomes of banking employees in Chennai. Using simple random sampling, 242 participants were surveyed. Findings suggest a positive relationship between length of service and higher EI, indicating that work experience fosters both professional growth and emotional maturity, which in turn enhances organizational effectiveness.

Introduction

The banking industry operates in a highly competitive and dynamic environment where interpersonal interactions play a decisive role. Emotional intelligence (EI), unlike purely technical expertise, equips employees with the ability to understand and regulate emotions in themselves and others. Employees with strong EI are better positioned to adapt to change, resolve disputes, and establish client trust. In the context of ongoing digitalization and evolving customer needs, EI allows professionals to maintain balance, foster innovation, and deliver personalized services. This paper examines how EI strengthens the efficiency, adaptability, and relational capabilities of bank employees in Chennai.

Review of Literature

Previous research consistently underlines the value of emotional intelligence in banking. Makkar and Basu (2019) identified a strong link between EI and workplace behavior, distinguishing between public and private banks. Karthikeyan and Lalwani (2017) emphasized the role of emotions in service industries, urging the development of industry-specific EI models. Sharma and Mahajan (2017) highlighted a positive correlation between EI and organizational citizenship behavior in the State Bank of India. Das and Ali (2014) demonstrated a relationship between EI and job satisfaction, though they found no significant demographic influences. Pahuja and Sahi (2012) argued that employees with high EI are

crucial in modern service environments, particularly in meeting targets and managing client expectations.

Research Gap

Although numerous studies confirm the positive influence of EI on banking outcomes, most rely on general EI frameworks rather than models tailored for the financial services sector. There is a pressing need for long-term studies examining how EI directly influences measurable job outcomes, including customer satisfaction and risk management. This study attempts to address the gap by focusing on bank employees in Chennai

Statement of the Problem

Organizational success depends on an effective and motivated workforce. Recognizing and nurturing emotional intelligence within employees encourages behaviors that extend beyond job descriptions, contributing to departmental and overall success. This study investigates the dimensions of EI among bank employees in Chennai and its effect on their professional performance.

Objectives of the Study

1. To analyze the demographic profile of bank employees in Chennai.
2. To identify the dimensions of emotional intelligence among employees.
3. To examine the influence of EI on employees' professional attributes.

Hypotheses of the Study

H0: Factors influencing emotional intelligence have no significant impact among bank employees in Chennai.

H1: Factors influencing emotional intelligence significantly impact bank employees in Chennai.

Research Methodology

This empirical research is based on a survey method. A sample of 242 employees, drawn from both public and private sector banks in Chennai, was selected through simple random sampling. Data were collected from primary and secondary sources, including journals, books, and online databases. Analytical tools included factor analysis, regression, percentage analysis, and descriptive statistics.

Results and Discussion

Table – 1-DEMOGRAPHS OF BANKING PROFESSIONALS

DEMOGRAPHIC PROFILE			
Demographic Profile (N = 242)	Description	Frequency	Percentage
Age	Below 35 Years	63	26.0
	36 - 45 Years	102	42.1
	46 - 55 Years	51	21.1
	Above 55 Years	26	10.8
Gender	Male	148	61.2
	Female	94	38.8
Marital status	Single	88	36.4
	Married	154	63.6
Education Qualification	UG	127	52.5
	PG	115	47.5
Experience	Below 2 years	35	14.5
	2-5 years	62	25.6
	5-10 years	83	34.3
	10-15 years	48	19.8
	Above 15 years	14	5.8
Organization	Pubic	84	34.7
	Private	158	65.3

Table 1: indicates that majority of the respondents are 36 - 45 years (42.1%), majority of the respondents are male (61.2%), majority of the respondents are married (63.6%), majority of the respondents are UG (52.5%), majority of the respondents are 36 - 45 years (42.1%), majority of the respondents are 5-10 years (34.3%) majority of the respondents are private (65.3%).

Table – 2-Factor analysis of Banking Professionals emotional intelligence

Items	Mean	SD	Communalities	Variance (Eigen Value)	Loadings	Cronbach's Alpha
EMOTIONAL INTELLIGENCE FACTOR (EIF)						
EIBE(21)	3.691	1.211	0.712	16.392 (4.426)	0.793	0.841
EIBE(20)	3.515	1.174	0.659		0.729	
EIBE(23)	4.010	1.075	0.644		0.645	
EIBE(22)	3.959	1.089	0.598		0.628	
EIBE(26)	4.031	1.075	0.562		0.523	
EIBE(07)	4.402	0.986	0.787	15.409 (4.160)	0.799	0.869
EIBE(08)	4.320	1.026	0.799		0.798	
EIBE(06)	4.237	1.018	0.711		0.759	
EIBE(10)	4.361	0.915	0.736		0.716	

EIBE(09)	4.052	1.055	0.751		0.714	
EIBE(02)	3.722	1.152	0.566		0.522	
EIBE(19)	3.907	1.275	0.660	13.200 (3.564)	0.763	0.882
EIBE(15)	4.381	0.809	0.789		0.748	
EIBE(17)	4.175	0.947	0.769		0.636	
EIBE(16)	4.227	0.995	0.755		0.622	
EIBE(24)	4.113	0.978	0.659		0.563	
EIBE(25)	4.093	1.032	0.615		0.489	
EIBE(12)	4.144	1.099	0.816		0.843	
EIBE(11)	4.144	1.061	0.713	0.725		
EIBE(14)	3.814	1.074	0.813	0.716		
EIBE(13)	3.948	1.131	0.746	0.704		
EIBE(03)	4.165	1.087	0.735	0.642	0.761	
EIBE(05)	3.598	1.087	0.579	0.529		
EIBE(27)	4.041	1.020	0.693	0.525		
EIBE(18)	3.711	1.089	0.566	0.519		
EIBE(01)	3.165	1.280	0.792	5.638 (1.522)	0.859	0.547
EIBE(04)	2.784	1.348	0.660	0.617		
Total Variance = 69.947% and Cronbach's Alpha = 0.903 for 27 items						
KMO and Bartlett's Test						
Kaiser-Meyer-Olkin Measure of Sampling Adequacy. = 0.856 (Bartlett's Test of Sphericity Approx. Chi-Square = 1727.131; df = 351; Sig. = 0.000)						

Table 2: reveals that Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.856, Bartlett’s Test of Sphericity with approximate chi square value 1727.131, df = 351 and p = 0.000 are statistically significant at 5 percent level. Therefore, appropriate for exploratory factor analysis and that the 27 items have exhibited the communalities variances from 0.562 to 0.816. In addition, the 27 variables are reduced into 6 predominated groups. It is found that the variable revelations the total variance 69.947%.

Factor analysis by principal component method is applied on twenty-seven variables of “Emotional Intelligence” and the following results are obtained.

From the table it is found the KMO measure of sampling adequacy is 0.856, Bartlett's Test of Sphericity Approx. Chi-Square = 1727.131 are statistically significant @5% level. Therefore, it can be concluded that all the 27 variables are normally distributed and suitable for data reduction process. This leads to a verification of end variances of variables. The significance value calculated is 0.000 which is lesser than table value of 0.050. it is found that the 27 variables. Possess the variance ranging from 0.489 to 0.859. these show that these variables have the variance with in the elements of 48.9% to 85.9%.

The variable loadings are presented as:

The first factors consist of six variables. This factor is called “Self-Factor”. The second factor consist of six factors and is called as “Social Awareness Factor”. The third factors consist of four variables of termed as “Self-Management”. The fourth factors have 5 variables of called as “Emotional Intelligence Factors”. The 5th factor has 4 variables of known as “Service Factor” and the 6th factor has 2 variables of called as “Empathy Factor”

Table - 3
Descriptive statistics

EIBE	Mean	SD	Variance	Skewness	Kurtosis	Kolmogorov-Smirnova		Shapiro-Wilk	
						Statistic (df = 242)	Sig.	Statistic (df = 242)	Sig.
EI	19.206	4.403	19.395	-0.476	-0.427	0.098	0.023	0.943	0.000
SAF	25.092	4.796	23.002	-1.417	2.154	0.183	0.000	0.858	0.000
SF	24.896	4.835	23.385	-1.267	2.031	0.148	0.000	0.882	0.000
SMF	16.051	3.626	13.154	-0.971	0.619	0.144	0.000	0.900	0.000
RF	15.515	3.269	10.690	-1.010	1.180	0.147	0.000	0.924	0.000
EF	5.948	2.181	4.758	-0.062	-0.677	0.138	0.000	0.956	0.003
Lilliefors Significance Correction									

The usefulness of descriptive statistics in the field of emotional intelligence among bank employees research is seen in Table 3. More precisely, lower standard deviations and higher mean values suggest that the data have a regular distribution. The Shapiro-Wilk and Kolmogorov-Smirnova normality test findings demonstrate that the data are normal and suitable for higher-order multivariate analysis. The distribution of emotional intelligence of bank employees is normal in terms of mean, standard deviation, variance, skewness, and kurtosis.

Table - 4 Regression analysis

Dependent Variable	Significant Predictors	Mean (SD)	F-Value	R	R2	Adjusted R2	B (t-Value)	Sig.
EIF		24.896 (4.835)	30.408	0.791	0.626	0.605		
	SAF	19.206 (4.403)					0.437 (4.926)	0.000*
	SF	25.092 (4.796)					0.234 (2.930)	0.004
	SMF	16.051 (3.626)					0.095 (1.153)	0.252
	RF	15.515 (3.269)					0.220 (2.309)	0.023
	EF	5.948 (2.181)					-0.097 (-1.418)	0.160
P Value of >0.05* - (SAF, SF and RF Factor significantly influencing the EIF)								

Table 4 above the values displayed are R = 0.791, R Square = 0.626, and R Square Adjusted = 0.605. This indicates that the dependent factor EIF, which gauges contentment with bank employees, is influenced by the independent factors SAF, SF and RF. The preceding table shows that F = 30.408 and P = 0.000 are statistically significant at the 5% level. Therefore, one may argue that there is enough information on independent factors to support an investigation into college-age Security Factor (SEF). A strong regression fit suggests the existence of individual impact over the dependent components.

Analysis reveals that EI among bank employees in Chennai can be categorized into six dominant dimensions: self-awareness, social awareness, self-management, relational factors, service orientation, and empathy. Factor analysis confirmed the reliability of these dimensions. Regression analysis demonstrated that social awareness, service orientation, and relational factors significantly influence overall EI. Employees with greater tenure reported higher levels of EI, suggesting that experience contributes to emotional maturity and professional growth.

Conclusion

The study concludes that emotional intelligence plays a vital role in enhancing the performance and work-life balance of bank employees. Service orientation and self-management emerged as critical contributors to organizational success, while social awareness was found to significantly shape EI levels. Developing EI not only improves individual performance but also strengthens organizational resilience in the service-driven banking industry. Overall, experience and tenure were positively linked with higher EI, reflecting the importance of continuous personal and professional growth in banking careers.

ABOUT THE EDITOR



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