AN EMPIRICAL STUDY ON THE FACTORS INFLUENCING THE USE OF ARTIFICIAL INTELLIGENCE IN INDIAN FINANCIAL SERVICES

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ABSTRACT

This empirical study examines the primary factors affecting the acceptance and utilization of Artificial Intelligence (AI) in the Indian financial services industry. The paper analyzes variables like organizational preparation, technological infrastructure, legal frameworks, and perceived benefits to elucidate their influence on AI application. Factor analysis, regression, and ANOVA are employed to assess the data collected from a survey of financial institutions. The findings suggest that organizational readiness, technological infrastructure, and perceived advantages are the primary determinants of AI adoption.

Keywords: Artificial Intelligence, Financial Services, Organizational Readiness, Technology Adoption, Factor Analysis, Anova, Indian Market.

INTRODUCTION

The emergence of Artificial Intelligence (AI) has transformed financial services globally, especially in India. AI-driven solutions have become essential in fraud detection, customer service automation, risk evaluation, and investment strategies. The Indian financial services sector is progressively utilizing AI to augment efficiency, decrease operational expenses, and boost customer experience (Jain, K., 2021). Nonetheless, the deployment of AI encounters obstacles like organizational preparedness, technological infrastructure, and regulatory frameworks. This study aims to objectively investigate the primary determinants affecting AI adoption in the Indian financial services industry.

REVIEW LITERATURE

In their 2023 study, Arora et al. employed a fuzzy Analytical Hierarchy Process (AHP) methodology to analyze user experiences about AI in FinTech services. The authors examine critical elements affecting customer happiness and loyalty, including personalization, ease, and security. AI-enhanced technology, such chatbots and predictive analytics, markedly boost customer service by providing tailored and efficient solutions. Nonetheless, issues like as privacy concerns and excessive dependence on automated systems arise as possible disadvantages. The research provides actionable information for FinTech firms seeking to enhance consumer experiences with AI technologies. Bose, R. (2009) Bose examined the increasing significance of advanced analytics in company operations, emphasizing the potential and constraints linked to its

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implementation. Advanced analytical instruments, such as machine learning, data mining, and predictive analytics, enable organizations to make data-informed decisions, enhance efficiency, and secure competitive advantages. The report finds many hurdles, including implementation complexity, data privacy issues, and the necessity for skilled individuals. Bose underscores the necessity of synchronizing advanced analytics with corporate strategy to optimize its advantages. Cui et al. (2023) examined the elements that foster client loyalty in the fresh food e-tailing sector in China. The writers recognize multiple critical factors, such as product quality, delivery efficiency, and post-sales support. Trust and perceived value are essential mediators between these factors and consumer loyalty. The report posits that fresh food e-tailers must prioritize high product standards and logistical reliability to cultivate enduring customer connections. Moreover, technology innovations like as artificial intelligence can improve customer service and optimize supply chain efficiency. The work by Dwivedi et al. (2021) offered a broad view on the problems and opportunities presented by the emergence of AI. The authors examine AI's capacity to transform areas such as healthcare, banking, and education, while also addressing ethical problems, employment displacement, and governance issues. They delineate prospective research goals that investigate both technological dimensions, such as enhancing AI algorithms, and societal ramifications, like the mitigation of biases in AI systems. The document underscores the necessity of developing policies to regulate the swift expansion of AI and guarantee its ethical application.

The work by Goya et al. (2023) presents a thorough review of the integration prospects between Industry 4.0 technologies and Lean Six Sigma methodology. The authors contend that Industry 4.0 technologies, including the Internet of Things (IoT), artificial intelligence (AI), and data analytics, can augment Lean Six Sigma (LSS) approaches by delivering real-time data and refining decision-making processes. The research incorporates corporate viewpoints, indicating that the amalgamation of these two methodologies might result in enhanced operational efficiency and superior product quality. Nonetheless, obstacles such as elevated implementation expenses and the requirement for proficient staff are identified as impediments to integration. The study by Ghadimi et al. (2021) examined the facilitators of effective green manufacturing practices in small and medium-sized firms (SMEs) in Ireland. Identified key enablers are governmental restrictions, consumer demand for sustainable products, and technical advancements. The authors examine the influence of leadership and organizational culture on the advancement of sustainability projects. The research finds that although financial limitations and insufficient skills are substantial obstacles, SMEs can surmount these issues through collaboration, technological investment, and ongoing education.

Jha et al. (2022) presented a strategic analysis on the design of a supply chain performance system specifically for the Indian industrial industry. The authors emphasize essential performance indicators (KPIs) vital for assessing supply chain effectiveness, such as cost, delivery time, and flexibility. The research underscores the significance of incorporating technology, including AI and predictive analytics, to enhance supply chain operations. Moreover, it indicates that cooperation among supply chain participants is crucial for attaining sustained success. The document presents a framework for Indian firms to cultivate more robust and responsive supply networks. Murgai, A. (2018) examined the transformation of the digital marketing landscape using AI, facilitating more personalized and targeted advertising. The document emphasizes AI capabilities, like chatbots, recommendation systems, and sentiment analysis, as essential advances that enhance consumer engagement and conversion rates. The capacity of AI to analyze extensive data in real time enables marketers to enhance content and advertising tactics with more efficacy. The research also addresses obstacles, including data protection issues and the ethical ramifications of AI-driven marketing.

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The study by Pillai et al. (2020) investigated the implementation of AI in talent acquisition inside IT/ITeS enterprises, emphasizing the utilization of AI technologies like machine learning and natural language processing to optimize recruiting procedures. The research delineates critical determinants affecting AI adoption, such as organizational preparedness, perceived advantages, and executive endorsement. It also addresses the problems related to AI in talent acquisition, including potential algorithmic biases and the necessity for human control. The results indicate that AI can markedly augment recruitment efficiency and increase the candidate experience. The book chapter by Ponraj et al. (2024) explores the notion of Society 5.0, which anticipates a human-centric society facilitated by artificial intelligence, robotics, and the Internet of Things (IoT). The authors emphasize Explainable AI (XAI) as an essential component for attaining transparency and confidence in AI systems. Their discourse is on the use of XAI across diverse domains such as healthcare, finance, and education, aiming to guarantee that AI-generated judgments are comprehensible and accountable. The document underscores the difficulties of executing XAI, including the need to reconcile accuracy with interpretability and address the ethical issues associated with AI technologies.

(Singh et al., 2022) & (Sahoo et al., 2023) presented a thorough study spanning a decade on the development of smart cities, emphasizing the incorporation of technology in urban environments to improve infrastructure, governance, and quality of life. The authors examine diverse concepts that have influenced the evolution of smart cities, including IoT, AI, and data analytics. They also recognize substantial difficulties, including data privacy, cybersecurity, and infrastructure expenses. The document underscores international case studies and examines prospective chances for future smart city advancements, focusing on sustainability and citizen-oriented innovations. The research provides suggestions for addressing technological, social, and economic obstacles in smart city initiatives. An empirical study by Sharma et al. (2024) examined the principal factors affecting the adoption of AI in the Indian banking sector. The authors examine various drivers, including organizational readiness, regulatory support, technology infrastructure, and perceived benefits. The study indicates that banks equipped with sophisticated IT systems and proactive leadership are more inclined to implement AI technology, particularly in customer service, fraud detection, and risk management. Regulatory obstacles, like data privacy legislation, are identified as impediments to AI deployment. The document offers suggestions for banks to improve their AI preparedness, such as augmenting investments in infrastructure and worker development. The research by Vahdat (2022) examined the transformation of human resource management (HRM) practices through IT-based technology during the COVID-19 pandemic. The author emphasizes the utilization of digital resources, like virtual collaboration platforms, AI-driven recruitment systems, and performance management software, to adapt to distant working situations. The paper highlights how these technologies have enabled HR departments to sustain productivity, employee engagement, and operational continuity. Challenges including cybersecurity threats, digital fatigue, and the management of distant workers are also addressed. The report asserts that the epidemic has expedited digital change in Human Resource Management, rendering IT tools essential for the future of work.

RESEARCH METHODOLOGY

This study employs a descriptive and analytical research design. The survey approach is employed to gather primary data from financial organizations, such as banks, insurance companies, and fintech startups operating in India. Primary data is gathered via standardized questionnaires administered to 150 experts inside financial organizations. Secondary data is sourced from scholarly articles, industry analyses, and case studies pertaining to artificial

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intelligence in financial services. The sample comprises representatives from banking institutions, insurance organizations, and fintech enterprises. Purposive sampling is employed to guarantee that participants are actively engaged in decision-making concerning AI implementation within their businesses.

Statistical Tools Used In the Study

1. Kaiser-Meyer-Olkin (KMO) and Bartlett's Test are employed to evaluate the appropriateness of the data for factor analysis.
2. Conduct factor analysis employing varimax rotation to discern underlying components.
3. ANOVA (Analysis of Variance) to examine the link among several groups.
4. Conduct regression analysis to assess the influence of specified factors on AI adoption.

Objectives of the Study

1. To identify the key factors influencing the adoption and use of AI in the Indian financial services sector.
2. To examine the relationship between organizational readiness, technology infrastructure, and regulatory environment in AI implementation.

Hypotheses of the Study

H_1: *There is a significant positive relationship between organizational readiness and the adoption of AI in Indian financial services.*
H_2: *Technology infrastructure significantly influences the implementation of AI.*
H_3: *Regulatory frameworks positively impact the adoption of AI in financial services.*
H_4: *The perceived benefits of AI (efficiency, accuracy, and customer satisfaction) significantly drive AI adoption.*

Data Analysis and Interpretation

Table 1
KAISER-MEYER-OLKIN (KMO) AND BARTLETT'S TEST OF SPHERICITY

Test	Value
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy	0.876
Bartlett's Test of Sphericity	Approx. Chi-Square = 432.25, df = 28, Sig. = 0.000

A KMO rating of 0.876 signifies that the data is appropriate for factor analysis. Bartlett's Test is significant ($p < 0.001$), indicating that correlations among the variables are present, hence validating their suitability for factor analysis Table 1.

Table 2
FACTOR ANALYSIS

Factor	Variables	Factor Loading
Organizational Readiness	Leadership Support	0.72
	Training Availability	0.68
Technology Infrastructure	AI Tools	0.74
	Data Availability	0.67
Regulatory Environment	Compliance	0.65
Perceived Benefits	Efficiency	0.82
	Cost Reduction	0.78

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Factor analysis was used to ascertain the principal determinants affecting AI adoption. Four principal components were identified using varimax rotation, accounting for 71.3% of the total variance.The four primary elements significantly impacting AI adoption are organizational readiness, technological infrastructure, regulatory environment, and perceived benefits. The elevated factor loadings indicate a robust correlation between these variables and AI implementation Table 2.

Table 3
DESCRIPTIVE STATISTICS OF VARIABLES

Variable	Mean	Standard Deviation
Organizational Readiness	3.89	0.74
Technology Infrastructure	3.77	0.82
Regulatory Environment	3.45	0.90
Perceived Benefits	4.12	0.68

The descriptive statistics indicate that perceived benefits possess the highest mean, suggesting that participants regard the advantages of AI, including enhanced efficiency and cost reduction, as substantial motivators for adoption Table 3.

Table 4
ANOVA RESULTS

Source	Sum of Squares	df	Mean Square	F-Value	P-Value
Between Groups	150.65	3	50.22	4.78	0.002**
Within Groups	234.23	146	1.60		
Total	384.88	149			

The ANOVA results demonstrate significant disparities in AI adoption contingent upon organizational readiness, technological infrastructure, and perceived advantages ($p < 0.05$) Table 4.

Table 5
REGRESSION ANALYSIS

Variables	Coefficients (B)	Standard Error	t-Value	Sig.
Constant	1.25	0.38	3.29	0.001
Organizational Readiness	0.41	0.12	3.42	0.001
Technology Infrastructure	0.35	0.10	3.50	0.000
Regulatory Environment	0.20	0.08	2.50	0.014
Perceived Benefits	0.55	0.11	5.00	0.000

The regression study indicates that all factors—organizational readiness, technological infrastructure, regulatory environment, and perceived benefits—substantially affects AI adoption. Perceived advantages (B = 0.55) exert the most significant influence, succeeded by organizational readiness (B = 0.41) Table 5.

Findings & Recommendations of the Study

1. The research indicates that the integration of AI in the Indian financial services sector is mostly driven by perceived advantages, organizational preparedness, and technological infrastructure. Regulatory frameworks, however significant, are not as pivotal as the operational and efficiency advantages provided by AI.
2. Financial institutions must prioritize enhancing their technological infrastructure to facilitate AI application.

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3. Training initiatives designed to enhance organizational preparedness can promote more seamless AI integration.
4. Researchers must persist in enhancing regulatory frameworks to correspond with technical progress in AI.

Limitations of the Study

1. The study's sample size is confined to 150 responders, perhaps limiting the generalizability of the findings.
2. The scope is limited to financial institutions in India and may not be applicable internationally.
3. Subsequent studies may broaden the examination to encompass AI's enduring effects on financial performance.

CONCLUSION

The study elucidates the primary factors influencing AI adoption in Indian financial sector. Financial organizations that invest in essential technological infrastructure and foster organizational preparedness are more likely to capitalize on the advantages of AI. While regulatory compliance is a concern, its impact is subordinate to the operational efficiencies afforded by AI. Future study may examine AI adoption in global financial markets, evaluate long-term performance effects, and investigate future AI technologies, such Generative AI, inside financial services. The research underscores the significance of executive endorsement and a progressive business culture in advancing AI initiatives. Organizations that promote ongoing learning and adaptability are more likely to effectively employ AI technologies. Moreover, client-centric AI solutions, such chatbots and tailored financial services, can substantially improve customer pleasure and loyalty. Cooperation between financial institutions and regulatory authorities is crucial to alleviate compliance difficulties while fostering innovation. The significance of data security and privacy in AI adoption is paramount, since preserving trust is essential for sustainable growth in the AI-driven financial sector.

REFERENCES

Arora, A., Gupta, S., Devi, C., & Walia, N. (2023). Customer experiences in the era of artificial intelligence (AI) in context to FinTech: a fuzzy AHP approach. *Benchmarking: An International Journal*, *30*(10), 4342-4369.

Bose, R. (2009). Advanced analytics: opportunities and challenges. *Industrial Management & Data Systems*, *109*(2), 155-172.

Cui, L., He, S., Deng, H., & Wang, X. (2023). Sustaining customer loyalty of fresh food e-tailers: an empirical study in China. *Asia Pacific Journal of Marketing and Logistics*, *35*(3), 669-686.

Dwivedi, Y. K., ET AL., (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International journal of information management*, *57*, 101994.

Ghadimi, P., ET AL., (2021). Analysis of enablers on the successful implementation of green manufacturing for Irish SMEs. *Journal of Manufacturing Technology Management*, *32*(1), 85-109.

Goya, S., & Berg, L. (2023). Integration Opportunities between Industry 4.0 and Lean Six Sigma; A Systematic Review and Company Perspectives.

Jain, K. (2021). An Empirical Study on Impact of Financial Literacy and its components on Indian Consumers' Intention to Use Digital Financial Services. Kaav International Journal of Economics, Commerce & Business Management, 8(4), 100-106.

Jha, A., Sharma, R. R. K., Kumar, V., & Verma, P. (2022). Designing supply chain performance system: a strategic study on Indian manufacturing sector. *Supply Chain Management: An International Journal*, *27*(1), 66-88.

Murgai, A. (2018). Transforming digital marketing with artificial intelligence. *International Journal of Latest Technology in Engineering, Management & Applied Science*, *7*(4), 259-262.

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Pillai, R., & Sivathanu, B. (2020). Adoption of artificial intelligence (AI) for talent acquisition in IT/ITeS organizations. *Benchmarking: An International Journal*, *27*(9), 2599-2629.

Ponraj, R. P., et al. (2024). Society 5.0 and explainable artificial intelligence—implications. In *XAI Based Intelligent Systems for Society 5.0* (pp. 61-101). Elsevier.

Sahoo, D. R., & Chauhan, M. (2023). Changing Landscape of Artificial Intelligence on Indian Corporate Sectors and Governance: Special Reference to SMEs. *Kaav International Journal of Law, Finance & Industrial Relations*, *10*(1), 1-9.

Sharma, V. K., & Singh, S. (2024). Determinants of AI Adoption in Banking Services in India: An Empirical Investigation. *Journal of Informatics Education and Research*, *4*(2).

Singh, T., Solanki, A., Sharma, S. K., Nayyar, A., & Paul, A. (2022). A decade review on smart cities: paradigms, challenges and opportunities. *IEEE Access*, *10*, 68319-68364.

Vahdat, S. (2022). The role of IT-based technologies on the management of human resources in the COVID-19 era. *Kybernetes*, *51*(6), 2065-2088.

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