

## **AI-driven disruption in finance : Redefining work roles and economic opportunities in the banking system**

Ajay Singh \*

*School of Business and Management*

*Christ University (Deemed to be university)*

*Bengaluru*

*Karnataka*

*India*

Arvinder Kaur <sup>†</sup>

*School of Business and Management*

*Christ University (Deemed to be university)*

*Bengaluru*

*Karnataka*

*India*

Pawan Kumar <sup>§</sup>

*Department of Management*

*Graphic Era (Deemed to be university) University*

*Dehradun*

*Uttarakhand*

*India*

V. Hemanth Kumar <sup>‡</sup>

*School of Commerce & Economics*

*Presidency University*

*Bengaluru*

*Karnataka*

*India*

---

\* ORCID-ID: 0009-0001-7067-7047

† ORCID-ID: 0000-0001-7360-5674

§ ORCID-ID: 0000-0003-4892-6374

‡ ORCID-ID: 0000-0002-5836-7943

---

\* E-mail: [dr.ajaysingh2012@gmail.com](mailto:dr.ajaysingh2012@gmail.com) (Corresponding Author)

† E-mail: [arvinderkaurcs@gmail.com](mailto:arvinderkaurcs@gmail.com)

§ E-mail: [pawan2006@gmail.com](mailto:pawan2006@gmail.com)

‡ E-mail: [hemanth.kumar@presidencyuniversity.in](mailto:hemanth.kumar@presidencyuniversity.in)

## Abstract

AI adoption in the banking sector designates a transformative change where machine learning and AI mechanisms conventionally recognize work roles and business opportunities in the financial industry through automating operations and optimizing decision-making processes. AI enhances roles by which workforce structure can be recalibrated, skills can be improved, and government policies navigate the rapidly growing financial ecosystem. This research is an effort to find out the AI disruption in the financial sector through a structured survey of 200 professionals in the banking sector.

---

*Subject Classification:* 68T07, 91G15, 62P20.

*Keywords:* Banking opportunities. Financial technology, Transformation, Machine learning and work roles.

## I. Introduction

The spectacle of **AI-driven disruption in banks operation** exemplify a pattern shifted towards automation wherein the profoundly AI integration and machine learning techniques is driving a complete redesigning of work force assignments within the financial sector , fundamentally reshaping tasks operation and work roles by substituting labors from the human in regular work with automation and concurrently leads new opportunities in financial sector with the adoption of AI-augmented techniques [1]. Optimized decision-making mechanism, methodologies, and data centric financial mechanism in this manner reshaping the dynamics in labor market and economic development courses in an outstanding and diverse style [2].

Ai-driven disruption in banks expresses to the diverse and profound disruption within the banking sectors, [3], described by the prevalent use of sophisticated (ML) machine learning and artificial intelligence (AI) systems, which are thoroughly disassembling and reengineering conventional standards for operations, reshaping the delineates of economic intermediation, risk assessment and management of assets [4]. whereas at the same time catalyzing an irreparable shift in the workers by automating transactional and cognitive functions, optimizing strategic decision-making system, and unleash new financial possibilities that redefine and challenge customary paradigms of corporate governance, value creation, and competitive advantage [5].

**Reshaping banking potential and work roles in the Banks summarizes the broad and systemic gradation of working networks and the coming out of emerged financial models within banking**

**organizations, forced by the inevitable outcome of technological advancement** [6]. Specifically, automation and artificial intelligence are substituting engendering distinctive routes ,customary job roles, and transforming requirement of skills, for economic development by designing AI-oriented roles [7]. while at the same time challenging prevailed labor directives and allowing a reimagnied symbiosis between machine intelligence and human know-how in determining the future path of the financial ecosystem [8].

## II. Review of literature

AI integration in banking systems is changing organizational practices, employment patterns, and economic prospects, which have established what can be referred to as AI disruption. [9]confirm that using AI in banking leads to correcting traditional roles, where cognitive and transactional work, for example, loan origination, customer support, and transactions, are automated. This disruption leads to a new form of work roles where traditional jobs are replaced, and AI-enforced roles emerge, opening up new kinds of positions in the industry that define the required skills [10]. Risk management processes in banking have been enhanced to a greater extent by the impact of artificial intelligence. Those risk management systems endowed with artificial intelligence supplement the decision-making processes with better fraud identification, credit rating, and real-time risk evaluation [11]. In this way, applying AI tools can help financial institutions reduce risks more efficiently and use big data to make the institutions more effective and more. Also, the use of AI in aspects like customer relations through the application of chatbots and account services results in better satisfaction with specific banking needs by providing the right solutions as well as enhanced human-artificial interface in the delivery of services [12]. When it comes to banking, AI is slowly and gradually changing the traditional processes and the roles of employees in the workplace [13]. It was important to show that the transition to AI affects the positions assigned to the workers and opens new economic horizons that did not exist before. Such changes are forcing institutions that deal with finance to reconsider the workforce demographics and the approaches they use to govern the people. This is because AI has brought about new jobs requiring skilled training in data science, AI, or machine learning, as stated by [14]. However, automation also has negative effects in that it can replace employees with repetitive objectives such as input, data entry, and customer relations [15].

As much as efficiency is gained from the use of AI in automation, it leads to job losses or offsets, whereby AI systems replace employees in traditional job positions. According to [16], developing efficient strategies for effectively managing workforce transitions regarding AI integration for banking requires competencies for reskilling and upskilling [17]. It is evident that with the advancement of AI happening constantly in the banking sector, organizations need to embrace technology and be sensitive about how its usage affects society, especially through displacements and the need for skills development, as postulated by [11].

### III. Variables of the study

#### Dependent variable:

- **Work roles in banks operation: Job originations,** job dislodgment, tranformation in required skills, changes in prevailing roles are the components of Work roles in the banking system which describes to the complicated and evolving range of professional commitments and functional assignments within banking organizations, surrounding the connection between the mechanized system and human expertise. Such methodologies are rapidly redesigning the pervasive integration of automation, artificial intelligence, and data-driven decision-making era, conventionally changing the workforce's traditional design, skills requirements, and functional hierarchies.

#### Independent Variables:

- **Implementation of AI-driven automation:** it comprises the loans services, customer services, and management of dealings and transactions. It is concerned with adoption of automation based algorithmic technologies and AI design within banking operations, facilitating the automated comprehensive operations such as origin of debts, customer oriented services with interactions, and services of underwriting, processing of data related to workflows and transactional authentications, thereby stimulate an exceptional amplification of operational efficiency, redesigning of traditional labor paradigms and lessening of labor-intensive involvement in banking sector.
- **AI-based risk management systems:** It includes mechanism of AI in scoring of credit assessment of risk and fraud detection. It covers

the sophisticated applications of algorithmically-driven AI designs and ML structures to automatically arrange the assessment, identification and mitigation of diverse credit risks, as well as but not limited to fraud detection, credit scoring, and comprehensive management and measurement of risks through real time data analytic and predictive analytics. Evaluation of Risk with these techniques obviously recalibrate mechanism of risk monitoring and scalability, augmenting the adaptability and precision of decision-making procedures within financial ecosystems.

- **Integration of AI in customer interaction:** This includes personal banking services, chat bots, and awareness for AI-driven financial system. It necessitates the refined drive in of AI technologies, encompasses conversational mediator like venues of personal banking, chat bots and perception towards AI-driven analytics, into the customer-oriented services and engagement system adopted in banking organizations. Revolutionizing the way customer needs are projected, handled, and fulfilled through real time solutions, hyper-personalized, enabling improved operational efficiency, satisfaction of clients, and the seamless intersection of human and automated service delivery tools.

#### IV. Research Gap

This investigation fails to adequately explore how AI-driven banking automation affects work roles and economic opportunities in regard to job displacement, skill adaptation, and governance adaptation. Thus, details on the relations between AI and workforce and economic system changes in this period of disruptive technology are required.

#### V. Research methodology

The research uses quantitative statistics and regression analysis to assess banking work role transformations from AI automation by collecting and analyzing primary and secondary sources through structured surveys and empirical data correlation tests. The research used 200 banking professionals from multiple institutions whose data was collected systematically to analyze AI implementation levels, job role transformations, skill gaps, and career modifications to demonstrate high validity and reliability in AI analytics, hypothesis testing, and analytical precision for understanding financial sector change amidst AI disruption.

## VI. Data Analysis

**Table 1**  
**Model Summary<sup>2</sup>**

| 'Model'                                                  | 'R'                 | R <sup>2</sup> | Adjusted R <sup>2</sup> | 'Std. Error' |
|----------------------------------------------------------|---------------------|----------------|-------------------------|--------------|
| 1                                                        | '0.846 <sup>a</sup> | '0.717'        | '0.712'                 | '1.22732'    |
| a. 'Predictors': (Constant), "AI_Integration_in_Banking" |                     |                |                         |              |
| b. 'Dependent Variable': "Redefined_Work_Roles"          |                     |                |                         |              |

Table 1 shows that regression analysis examines the association between AI integration and redefined work roles. The coefficient of correlation indicates a strong positive relationship among the variables. R-squares' value advocates that the research model explains approximately 71.7% of the variability in the redefined work roles. Values of adjusted R-squared report the number of observations and provide a more precise measurement—the average deviation of the observed values reflected by the standard error of the estimate.

**Table 2**  
**ANOVA<sup>a</sup>**

| 'Model'                                                  |              | "Sum of Squares" | Df    | "Mean Square" | 'F'     | 'Sig.'              |
|----------------------------------------------------------|--------------|------------------|-------|---------------|---------|---------------------|
| 1                                                        | 'Regression' | '5.105'          | 1     | '5.105'       | '3.389' | '0.047 <sup>b</sup> |
|                                                          | 'Residual'   | '298.250'        | '198' | '1.506'       |         |                     |
|                                                          | 'Total'      | '303.355'        | '199' |               |         |                     |
| a. 'Dependent Variable': "Redefined_Work_Roles"          |              |                  |       |               |         |                     |
| b. 'Predictors': (Constant), "AI_Integration_in_Banking" |              |                  |       |               |         |                     |

Table 2 represents the regression model's statistical significance. The sum of squares shows the variability caused by the observed values and AI integration, whereas unexplored variability is displayed by the sum of squares. The significant value of F statistics at the 5% significance level advocates that the results are significant and that AI integration in the banking system significantly impacts redefined work roles.

**Table 3**  
**Coefficients<sup>a</sup>**

|                                                 | 'Model'<br>B                        | 'Unstandardized<br>Coefficients' |         | 'Standardized<br>Coefficients' | t       | 'Sig.'  |
|-------------------------------------------------|-------------------------------------|----------------------------------|---------|--------------------------------|---------|---------|
|                                                 |                                     | 'Std.<br>Error'                  | 'Beta'  |                                |         |         |
| 1                                               | 'Constant'                          | '3.362'                          | '0.429' |                                | '7.838' | '0.000' |
|                                                 | 'AI_<br>Integration_<br>in_Banking' | '0.178'                          | '0.097' | '0.130'                        | '1.841' | '0.047' |
| a. 'Dependent Variable': 'Redefined_Work_Roles' |                                     |                                  |         |                                |         |         |

Table 3 underscores the association between redefined work roles and AI integration. The coefficient signifies the basic level of redefined work roles when AI integration in banks shows that the adoption of AI directly affects the work roles. The beta coefficient in the table reflects the moderate effect of AI adoption on work roles. The t-test at a level of 5% advocates that AI integration significantly impacts redefined work roles.

## VII. Managerial implications

The study's implications for managerial decisions highlight the financial sector's importance in redesigning its human capital and operational structure in artificial intelligence disruption. It negotiates a well-refined recalibration of a human capital system that optimally incorporates algorithm systems with human experience to explore the challenges of an emerging banking landscape, promoting the risk management system, operational efficiency, and sustainable benefits through the adoption of AI in activities and redesigning of conventional jobs in a dynamically uncertain and tech-oriented dynamic ecosystem.

## VIII. Conclusion

The study reveals a robust connection between adopting artificial intelligence and work roles. R square values indicate a strong power of relationship, and the observation estimation confirmed a positive relationship. The model proves that AI has statistically significant influences on work roles in banking sector operations. Moreover, the beta values and coefficient show a significant influence, which the t-test proves

at the significance level of 5%. Residual values verified no outlier impact and validated that the model was fit. In finding the inevitable expansion of AI (artificial intelligence) within the banking system, pouring an intensive transformation in the conventional banking sector requires an elaborate and unified confluence of innovative algorithmic frameworks with human cognitive capabilities to not only redesign operational framework and engender unexplored financial possibilities but also to governance formats, recalibrate labor market dynamics, and competitive schemes, thereby charting a transformative revolution of unparalleled magnitude that redefines the foundational principles of productivity, institutional resilience and risk assessment in a advanced technological data oriented banking ecosystem.

## References

- [1] B. E. Ocran, R. Minkah, and K. Doku-Amponsah, "A reduced-bias weighted least squares estimation of the extreme value index," *Journal of Statistics and Management Systems*, vol. 27, no. 8, pp. 1499–1523 (2024), doi: 10.47974/JSMS-981.
- [2] J. P. Joseph, "The role of emotional regulations and risk appetite on investment decision," *Journal of Statistics and Management Systems*, vol. 27, no. 8, pp. 1615–1634 (2024), doi: 10.47974/JSMS-1222.
- [3] M. R. Laxmi, R. Clonia, R. Singh, N. K. Gupta, S. M. Adhav, and S. Suneetha, "Comparative Analysis of Machine Learning and Its Powered Technologies Applications in the Banking Sector," Institute of Electrical and Electronics Engineers Inc., pp. 2415–2420 (2023). doi: 10.1109/IC3I59117.2023.10397904.
- [4] O. Bayram, I. Talay, and M. Feridun, "Can Fintech Promote Sustainable Finance? Policy Lessons from the Case of Turkey," *Sustainability (Switzerland)*, vol. 14, no. 19 (2022), doi: 10.3390/su141912414.
- [5] V. Jain, R. Tiwari, R. Mehrotra, N. S. Bohra, A. Misra, and D. C. Pandey, "Role of Technology for Credit Risk Management: A Bibliometric Review," in *2023 IEEE International Conference on Blockchain and Distributed Systems Security, ICBDS 2023*, Institute of Electrical and Electronics Engineers Inc. (2023). doi: 10.1109/ICBDS58040.2023.10346300.

- [6] S. Alagarsamy and S. Mehroliya, "Exploring chatbot trust: Antecedents and behavioural outcomes," *Heliyon*, vol. 9, no. 5 (2023), doi: 10.1016/j.heliyon.2023.e16074.
- [7] K. S. Momaya, A. S. K. Bodduri, P. Pandey, R. M. Sonar, and V. K. Vallaturu, "Fintech platforms and competitiveness: Exploring role of mot as a differentiator for firms of indian origin (fios)," in *Towards the Digital World and Industry X.0 - Proceedings of the 29th International Conference of the International Association for Management of Technology, IAMOT 2020*, P. M. W. Pretorius L., Ed., University of Pretoria, pp. 1192–1206 (2020).
- [8] M. Bhatnagar, E. Özen, S. Taneja, S. Grima, and R. Rupeika-Apoga, "The Dynamic Connectedness between Risk and Return in the Fintech Market of India: Evidence Using the GARCH-M Approach," *Risks*, vol. 10, no. 11, p. 209 (2022), doi: 10.3390/risks10110209.
- [9] E. E. Elfars, "Exploring the impact of AI awareness on AI anxiety: the moderating role of perceived organizational support," *Management and Sustainability* (2025), doi: 10.1108/MSAR-01-2025-0008.
- [10] D. Mahat, S. K. Shrestha, D. Neupane, T. B. Karki, and P. Dongol, "Green human resource management and sustainable workplace: Artificial Intelligence as mediating variable," *Edelweiss Applied Science and Technology*, vol. 9, no. 6, pp. 656–667 (2025), doi: 10.55214/25768484.v9i6.7863.
- [11] L. T. Hien and P. T. Tam, "Applied Data Science for Exploring Human Resource Management Affecting the Competitiveness of Commercial Banks in Vietnam," *Journal of Applied Data Sciences*, vol. 6, no. 2, pp. 1351–1366 (2025), doi: 10.47738/jads.v6i2.710.
- [12] M. A. Khalil, M. K. Hadid, R. Padmanabhan, A. Elomri, and L. Kerbache, "An integrated Artificial Intelligence and optimization model for operational efficiency and risk reduction in Letter of Credit examination process," *Decision Analytics Journal*, vol. 14 (2025), doi: 10.1016/j.dajour.2025.100552.

- [13] S. Tiwari, P. Agarwal, and R. Singh, "The impact of digital transformation on workforce engagement in Indian banking sector," *Journal of Information & Optimization Sciences*, vol. 44, no. 1, pp. 171–178 (2023), doi: 10.47974/JIOS-1305.
- [14] C. Singh, "Is generative AI (artificial intelligence) the next advent in the evolution of finance and navigating financial crime and regulation?," *J Financ Crime*, vol. 32, no. 3, pp. 751–759 (2025), doi: 10.1108/JFC-07-2024-0232.
- [15] O. P. Manta, V. Vasile, and E. Rusu, "Banking Transformation Through FinTech and the Integration of Artificial Intelligence in Payments," *FinTech*, vol. 4, no. 2 (2025), doi: 10.3390/fintech4020013.
- [16] J. Zhang and R. Jamil, "Assessing the Complex Interplay of China's Fertility Policy Adjustments and Female Employment Dynamics: An In-depth Analysis of the Digitalized HRM Landscape in the Age of AI and Big Data," *Journal of Information Systems Engineering and Management*, vol. 9, no. 1 (2024), doi: 10.55267/iadt.07.14508.
- [17] A. K. Arora and M. Tyagi, "Advances in Global Business, Economics, Finance and Social Sciences," *Journal of Statistics & Management Systems*, vol. 26, no. 3, pp. i–vii (2023), doi: 10.47974/JSMS-26-3-FOREWORD.

*Received February, 2025*