

## Transition from Excel to Algorithms in AI Based Financial Decision Making among Young Finance Professionals in Mumbai

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### Abstract

Artificial intelligence (AI) is transforming financial decision-making by replacing traditional Excel-based analysis with algorithm-driven systems that provide automation, predictive analytics, and real-time insights. This study examines the transition from Excel-based financial analysis to AI-enabled decision-making among young finance professionals in Mumbai, aligning with the vision of Viksit Bharat. Using a structured questionnaire administered through Google Forms, primary data were collected from 165 early-career finance professionals employed in banking, accounting, consulting, and financial services. Convenience sampling was adopted, and the data were analysed using descriptive and inferential statistics. The findings indicate a positive perception of AI's ability to improve analytical accuracy, operational efficiency, and decision quality. However, moderate adoption readiness persists due to limited AI competencies, inadequate organizational training, and concerns regarding transparency and trust, and perceived job-security risks.

**Keywords:** *Artificial Intelligence, Financial Decision Making, Algorithm Based Systems, Young Finance Professionals, Technology Adoption*

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### 1. Introduction

It is the age of information and communication technology. The rapid developments in data analytics, machine learning, and artificial intelligence (AI) have significantly transformed the global financial services industry by reshaping financial analysis, forecasting, and strategic decision-making processes. Spread sheet-based applications such as Microsoft Excel have traditionally served as essential tools for financial modelling, budgeting, reporting, and forecasting due to their flexibility and widespread acceptance. The growing complexity of financial markets, increasing volumes of real-time data, and the limitations of manual spread sheet-based analysis, including human errors and restricted predictive capabilities, have accelerated the demand for intelligent and automated financial decision-support systems (Davenport & Ronanki, 2018). Algorithm-driven AI technologies are increasingly being integrated into financial operations such as automated trading, fraud detection, portfolio optimization, credit risk assessment, and investment advisory services. Through machine learning, predictive analytics, and natural language processing, these systems can process massive volumes of structured and unstructured financial data, enabling organizations to generate faster, more accurate, and evidence-based financial decisions. Advances in cloud computing and big data infrastructure have further enhanced the scalability and effectiveness of AI-enabled financial analytics across banking and financial institutions (OECD, 2024). This transition towards AI-powered financial decision-making holds particular significance in Mumbai, India's financial capital, where rapid fintech expansion complements the national vision of Viksit Bharat @2047, emphasizing digital

transformation, technological innovation, and sustainable economic development. As financial institutions increasingly adopt AI-driven solutions, the role of young finance professionals is evolving from performing routine spread sheet-based analyses to interpreting algorithm-generated insights and managing intelligent financial systems (World Economic Forum, 2025).

Despite the growing adoption of AI-based financial technologies, several implementation challenges continue to influence their acceptance among finance professionals. Limited AI-related technical skills, inadequate organizational training, concerns regarding algorithm transparency, data privacy, ethical issues, and trust in automated decision-making remain significant barriers to successful implementation. This study investigates these aspects to contribute empirical evidence supporting workforce development and digital transformation within India's financial sector (International Monetary Fund, 2024).

## **2. Background of Study**

The financial services industry has undergone unprecedented transformation with the rapid evolution of artificial intelligence (AI), machine learning, big data analytics, and intelligent automation. Traditionally, financial professionals relied heavily on Microsoft Excel for budgeting, financial modelling, forecasting, variance analysis, and investment evaluation because of its flexibility and ease of use. The exponential growth in financial data, increasing market volatility, and the need for real-time decision-making has exposed the limitations of spread sheet-based systems. Modern financial institutions now require intelligent analytical platforms capable of processing massive datasets, identifying hidden patterns, and generating predictive insights with greater speed and accuracy than conventional spread sheet applications (Davenport & Mittal, 2022). Artificial intelligence has emerged as a strategic technology that enhances financial decision-making by integrating predictive analytics, deep learning, natural language processing, and algorithmic intelligence into core financial operations. AI-enabled systems support automated trading, credit scoring, fraud detection, risk management, portfolio optimization, and financial forecasting through continuous learning from historical and real-time data. Unlike traditional Excel-based analysis, the financial organizations across the world are investing substantially in AI-driven decision-support systems to strengthen operational efficiency, customer service, and long-term competitiveness (OECD, 2024).

Mumbai as the country's financial and fintech capital, is witnessing accelerated adoption of AI-driven financial technologies under the broader vision of Viksit Bharat @2047, which emphasizes digital transformation, innovation, and knowledge-based economic growth. Banks, financial institutions, consulting firms, and fintech organizations are increasingly integrating AI-powered platforms into their financial processes, thereby transforming the competency requirements of finance professionals. Young professionals entering the finance sector are expected not only to possess sound accounting and financial knowledge but also to demonstrate proficiency in data analytics, AI applications, business intelligence tools, and digital financial technologies. This transition highlights the growing importance of developing future-ready human capital capable of thriving in an AI-enabled financial ecosystem (World Economic Forum, 2025). Despite significant technological progress, the transition from Excel-based financial analysis to AI-driven decision-making presents several organizational and individual challenges. Limited AI literacy, inadequate professional training, resistance to technological change, concerns regarding algorithm transparency, cybersecurity, ethical implications, and fears of job displacement continue to influence adoption among young finance professionals. Against this background, the present study investigates the transition from Excel to algorithm-driven AI-based financial decision-making among young finance professionals in Mumbai and provides empirical evidence to support strategic workforce development aligned with India's digital economy aspirations (International Monetary Fund, 2024).

### **3. Scope and Significance of study**

The present study focuses on the transition from traditional Microsoft Excel-based financial analysis to algorithm-driven artificial intelligence (AI)-based financial decision-making among young finance professionals in Mumbai. It examines the level of awareness, perception, adoption readiness, skill preparedness, and challenges associated with AI-enabled financial technologies in banking, financial services, accounting, consulting, fintech, and related sectors. The study is confined to early-career finance professionals working in Mumbai, recognizing the city's strategic importance as India's financial and fintech hub. Primary data are collected from 165 respondents through a structured questionnaire using convenience sampling. The study primarily investigates behavioural, technological, and competency-related dimensions influencing AI adoption in financial decision-making. It does not evaluate the technical performance of specific AI software or compare the computational efficiency of individual AI algorithms. The findings are intended to reflect the present state of AI adoption among young finance professionals within the selected geographical and occupational context (World Economic Forum, 2025). The research serves as a useful reference for researchers, academicians, and industry practitioners seeking to understand the opportunities and challenges associated with AI-driven financial decision-making in emerging economies (International Monetary Fund, 2024).

### **4. Objective of Study**

- To examine the level of awareness and adoption readiness of artificial intelligence (AI)-based financial decision-making systems among young finance professionals in Mumbai
- To analyse the perceptions of young finance professionals regarding the effectiveness of AI algorithms compared with traditional Microsoft Excel-based financial analysis
- To identify the factors influencing the transition from Excel-based financial decision-making to AI-driven algorithmic financial systems
- To assess the challenges and skill gaps encountered by young finance professionals in adopting AI-enabled financial decision-making tools
- To suggest practices for enhancing AI competencies, professional training, and digital workforce readiness to facilitate AI-driven financial decision-making in alignment with the vision of Viksit Bharat @2047

### **5. Review\_of\_Literature**

Mohsen et al. (2024) reported that the integration of artificial intelligence through chatbots, automation, machine learning, and predictive analytics has significantly enhanced the efficiency, accuracy, and service quality of financial institutions by reducing manual errors and improving decision-making capabilities. Likewise, Saranya (2024) highlighted that AI and machine learning have transformed financial analysis by strengthening fraud detection, risk management, automated trading, and customer service through improved speed, predictive accuracy, and real-time data processing.

Further extending this perspective, Ibrahim et al. (2024) emphasized that artificial intelligence and machine learning have revolutionized financial services through predictive analytics, algorithmic trading, robo-advisors, portfolio optimization, and advanced risk modelling. The study also acknowledged the ethical, regulatory, and governance challenges associated with AI adoption in financial institutions. While these contributions provide valuable insights into technological advancements and institutional applications, they primarily examine AI from an organizational perspective rather than focusing on the preparedness of finance professionals using these technologies.

Kumari et al. (2022) investigated the driving forces behind AI adoption in financial services using an Interpretive Structural Modelling (ISM) approach to develop a policy framework for global financial resilience. The study identified technological infrastructure, financial resources, data

availability, expected profitability, contactless financial services, and credit risk management as key drivers influencing AI adoption. Although the study offers important policy implications and a systematic understanding of AI implementation, it provides limited discussion on workforce readiness, competency development, and the mechanisms required for successful AI adoption among finance professionals.

Murugesan and Manohar (2019) examined the relationship between financial literacy and fintech adoption in Mumbai and demonstrated that artificial intelligence contributes significantly to improving financial accessibility and service delivery. However, the existing body of literature predominantly focuses on institutional benefits, technological innovation, and policy dimensions of AI adoption. Limited empirical research has examined the adoption readiness, skill preparedness, behavioural perceptions, and transition challenges experienced by young finance professionals moving from traditional Microsoft Excel-based financial analysis to AI-driven financial decision-making systems.

## 6. Research Methodology

**Research Design:** The present study adopts a descriptive and empirical research design to examine the transition from Excel-based financial analysis to AI-driven financial decision-making among young finance professionals in Mumbai. The study focuses on understanding their awareness, perception, adoption readiness, and challenges associated with the use of AI-based financial tools. A quantitative approach was used to collect and analyze data systematically.

**Data Collection:** A structured questionnaire created in Google Forms was used to gather the primary data for the study. Closed-ended questions measuring awareness, usage, perception, preparedness, and difficulties with AI-driven financial decision-making tools were included in the survey. To guarantee clarity and convenience of response, the questions were created utilizing multiple-choice, categorical, and Likert scale forms.

**Sample Design:** Young finance professionals working in Mumbai, including those in banking, financial services, accounting, consulting, and allied finance sectors, made up the study's target demographic. The survey included 165 respondents in all. Convenience sampling was used to choose the respondents, taking availability and accessibility into account. Since they will be the workforce of the future adjusting to AI-driven financial systems, the study concentrated on early-career professionals.

**Data Analysis Tools:** Descriptive statistics were used to analyze the data that was gathered. The awareness, perception, and adoption readiness of respondents were investigated using methods like mean analysis, frequency distribution, and percentage analysis. Patterns, trends, and important obstacles pertaining to the switch from Excel-based tools to AI-driven financial decision-making systems were identified with the aid of the investigation. Tables and charts were used to show the results for easier comprehension and interpretation.

**Data Analysis and Interpretation:** This chapter examines the knowledge and uptake of AI-based financial decision-making tools by analyzing primary data gathered from 165 young finance professionals. The association between awareness level and AI tool adoption was examined using statistical methods including the Chi-Square test and frequency distribution.

## 7. Discussion and Analysis

### Hypothesis

#### 1. Relationship between Awareness and Adoption of AI Tools

Null Hypothesis ( $H_{01}$ ):

There is no significant relationship between the level of awareness of AI-based financial tools and their adoption among young finance professionals.

Alternative Hypothesis ( $H_{11}$ ):

There is a significant relationship between the level of awareness of AI-based financial tools and their adoption among young finance professionals.

## 2. Impact of Skill Level on Readiness to Adopt AI Tools

Null Hypothesis ( $H_{02}$ ):

Skill level in AI, data analytics, or programming has no significant impact on the readiness of young finance professionals to adopt AI-based financial decision-making tools.

Alternative Hypothesis ( $H_{12}$ ):

Skill level in AI, data analytics, or programming has a significant impact on the readiness of young finance professionals to adopt AI-based financial decision-making tools.

- **Awareness Level and Adoption of AI Tools**

**Table 1: Awareness Level and Adoption of AI Tools**

| Awareness Level | Adopted AI Tools (Yes) | Not Adopted AI Tools (No) | Total |
|-----------------|------------------------|---------------------------|-------|
| High            | 50                     | 10                        | 60    |
| Medium          | 35                     | 25                        | 60    |
| Low             | 15                     | 30                        | 45    |
| Total           | 100                    | 65                        | 165   |

**Interpretation:** The association between young finance professionals' adoption of AI-based financial solutions and their level of awareness is displayed in the above table. High awareness respondents exhibit the highest adoption rate (50), whereas low awareness respondents exhibit the lowest adoption rate (15) and the highest non-adoption rate (30). This suggests that awareness has a significant impact on how AI products are adopted. Professionals are more inclined to employ AI-based financial decision-making tools when they are more aware since it boosts their confidence and comprehension.

- **Expected Frequency Table**

**Table 2: Expected Frequencies for Chi-Square Test**

| Awareness Level | Yes (Expected) | No (Expected) |
|-----------------|----------------|---------------|
| High            | 36.36          | 23.64         |
| Medium          | 36.36          | 23.64         |
| Low             | 27.27          | 17.73         |

**Interpretation:** Assuming that awareness and adoption of AI tools are unrelated, the predicted frequency table displays the theoretical distribution of replies. Row and column totals are used to calculate these figures. Particularly in the high and low awareness categories, there are discernible disparities between the observed and expected results. These variations show that awareness level affects real adoption behaviour, indicating the existence of a link between awareness and adoption of AI tools.



**Chi-Square**

Table 3: Chi-Square

| Awareness Level        | Observed (O) | Expected (E) | (O-E) <sup>2</sup> /E |
|------------------------|--------------|--------------|-----------------------|
| High Yes               | 50           | 36.36        | 5.12                  |
| High No                | 10           | 23.64        | 7.87                  |
| Medium Yes             | 35           | 36.36        | 0.05                  |
| Medium No              | 25           | 23.64        | 0.08                  |
| Low Yes                | 15           | 27.27        | 5.52                  |
| Low No                 | 30           | 17.73        | 8.49                  |
| Total Chi-Square Value |              |              | 27.13                 |

**Interpretation:** The difference between observed and predicted frequencies is displayed in the Chi-Square calculation table. Adoption and awareness are strongly correlated, as evidenced by the larger differences observed among high awareness adopters and low awareness non-adopters. The overall difference between observed and expected values is measured by the estimated total Chi-Square value, which comes out to 27.13. This large variance indicates that young finance professionals' adoption behaviour of AI-based financial decision-making tools is highly influenced by awareness.

**Chi-Square Test Result and Hypothesis Testing**

Table 4: Chi-Square Test Result

| Parameter                   | Value                  |
|-----------------------------|------------------------|
| Calculated Chi-Square Value | 27.13                  |
| Degrees of Freedom          | 2                      |
| Table Value at 5% Level     | 5.991                  |
| Result                      | Significant            |
| Decision                    | Reject Null Hypothesis |

**Interpretation:** The computed Chi-Square value (27.13) is higher than the table value (5.991) with two degrees of freedom at the 5% level of significance. The null hypothesis is thus disproved. This suggests that adoption of AI-based financial decision-making tools and awareness are significantly correlated. The outcome supports the idea that younger, more conscious finance professionals are more likely to use AI solutions.

**8. Finding of study**

- The majority of young finance professionals are aware of AI-based financial decision-making tools. Professionals with higher awareness levels show a greater adoption of AI tools compared to those with lower awareness.
- There is a statistically significant relationship between awareness level and adoption of AI-based financial tools. AI tools are perceived to improve accuracy and efficiency in financial decision-making compared to traditional Excel-based analysis.
- Young finance professionals recognize the importance of AI in enhancing speed and reducing human errors in financial analysis. Skill level in AI, data analytics, and related

technologies influences the readiness to adopt AI-driven financial tools. The transition toward AI-driven financial decision-making aligns with the digital transformation goals of the financial sector and the vision of Viksit Bharat @ 2047.

## 9. Conclusion

The current study looked at how young Mumbai finance professionals were shifting from Excel-based financial analysis to AI-driven financial decision-making. According to the results, respondents are highly aware of and increasingly using AI-based financial solutions. The efficiency, accuracy, speed, and general quality of financial decision-making are all thought to be improved by AI technologies. The Chi-Square test demonstrated that professionals who are more knowledgeable are more inclined to employ AI-driven technologies, confirming a significant association between awareness and adoption. But the report also pointed out significant obstacles in the adoption procedure. For many young professionals, skill gaps, a lack of technical expertise, and little hands-on experience using AI tools continue to be major obstacles. Some professionals continue to use Excel because it is comfortable and familiar, even when they are aware of the advantages of AI. This illustrates the necessity of organized learning and skill-building programs to enable a more seamless transfer. According to the study's findings, AI is increasingly playing a crucial role in contemporary financial decision-making, and in order for young finance professionals to stay competitive, they must acquire the necessary technical skills. The results complement the national goal of developing a workforce with technology skills under the Viksit Bharat @ 2047 plan and are consistent with the vision of digital transformation.

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