Impact of Artificial Intelligence on Financial Decision Making – A Study with Reference to Coimbatore City

Dr. A.Y.Kettiramalingam, *Professor, Department of Commerce in Business Process Services, Dr. N.G.P. Arts and Science College, Coimbatore -641048.*

Anushree.B, Student, *Department of Commerce in Business Process Services, Dr. N.G.P. Arts and Science College, Coimbatore -641048.*

Akhil.N, Student, *Department of Commerce in Business Process Services, Dr. N.G.P. Arts and Science College, Coimbatore -641048.*

ABSTRACT

Financial decision-making is a very important factor in the profitability, sustainability, and growth of a business. Even a small mistake in financial decision-making can cause huge financial losses for the business. Artificial Intelligence (AI) helps in avoiding such risks in financial decision-making. In recent years, there has been rapid digitalization in the financial sector in Indian cities. Coimbatore has grown as a major industrial, business, financial, and IT hub in the state of Tamil Nadu. There are a number of banks, non-banking financial companies (NBFCs), microfinance organizations, and fintech organizations in Coimbatore. All these organizations have started to adopt AI technology for better efficiency and customer satisfaction. AI can process huge amounts of financial data at a very fast speed compared to traditional methods. Despite its benefits, there are still security risks, ethical risks, lack of skilled professionals in AI technology, and trust associated with AI technology. Hence, it is very important to study the impact of AI technology in financial decision-making in Coimbatore.

Keywords: Artificial Intelligence (AI), Financial Decision Making, Fintech, Digitalization in Finance, Banking and Financial Services, Investment Analysis, Fraud Detection, Financial Technology Adoption, Coimbatore City.

INTRODUCTION

Artificial intelligence is defined as a term used to describe the ability of computers to perform certain functions that are considered to be part of human intelligence, such as learning, solving problems, decision-making, reasoning, and perception. Artificial intelligence is a branch of computer science that studies and develops algorithms and software that can enable computers to sense their surroundings and react according to their intelligence and learning to accomplish a particular objective.

There exist different subfields of artificial intelligence that are defined by a particular objective and a particular tool used. The conventional objectives of artificial intelligence include learning, reasoning, knowledge representation, planning, natural language processing, perception, and assistance to robotics. In order to attain these objectives, artificial intelligence has employed a wide range of tools and techniques, including search and mathematical optimization, logic, artificial neural networks, and statistical, operations research, and economic methods. Artificial intelligence has also employed knowledge and methods derived from psychology, linguistics, philosophy, and neuroscience.

STATEMENT OF THE PROBLEM

The rapid advancement in Artificial Intelligence (AI) has significantly impacted financial decision-making in banking, investment, insurance, and corporate finance. AI technologies assist in executing processes such as credit rating, risk analysis, and fraud detection more efficiently and effectively than conventional human processes. Nevertheless, the increased adoption of AI technologies in decision-making processes is raising concerns regarding transparency, bias, ethics, and data protection. Moreover, there is a scarcity of research on the effect of AI on the reliability and accountability of financial decisions. In addition, the divergent organizational environments and regulatory frameworks make it difficult to comprehend the general impact of AI on decision-making processes. As such, the study is aimed at investigating the efficiency of AI in financial decision-making processes and its effect on human judgment and organizational performance.

AI IN FINANCIAL DECISION-MAKING

AI is also an important tool in credit analysis and lending decisions. Financial institutions use AI-based credit scoring models to assess the creditworthiness of borrowers by analysing income patterns, transaction history, and repayment behaviour, as well as alternative data sources. In the field of risk management, AI assists organizations in real-time identification and assessment of financial risks. Likewise, AI-based systems are extensively used in fraud detection, as they continuously monitor transactions and detect unusual patterns, thus ensuring minimal financial losses. In conclusion, AI has emerged as a useful tool in financial decision-making, as it improves accuracy, efficiency, and strategic insight. When used responsibly and ethically, AI has the potential to improve financial performance and facilitate sustainable economic growth.

SCOPE OF THE STUDY

➢ The proposed work focuses on the application of artificial intelligence technology for financial decision-making for individuals, organizations, as well as financial institutions within the city of Coimbatore.

➢ The proposed work includes the application of artificial intelligence technology for investment, budget, financial analysis, credit analysis, financial planning, etc.

➢ The proposed work is limited to the selected banks, financial service providers, fintech providers, small-scale industries, medium-scale industries, etc., within the city of Coimbatore.

IMPORTANCE OF THE STUDY

✦ The research paper will aid in identifying the increasing trend of Artificial Intelligence being incorporated into the financial decision-making process of individuals and businesses within the geographical boundaries of Coimbatore City.

✦ Being one of the chief industrial and entrepreneurial hubs, this research paper will aid in identifying the manner in which Artificial Intelligence aids the financial planning, investment, and expansion of businesses within the region.

✦ The research paper will also aid readers in identifying the manner in which Artificial Intelligence aids the accuracy of financial decisions, correcting human error, for banks, businesses, and investors.

OBJECTIVES OF THE STUDY

➢ To examine the extent to which Artificial Intelligence (AI) is adopted in the financial decision-making processes of Indian businesses.

➢ To analyse the impact of AI tools and technologies on the accuracy, speed, and quality of financial decisions.

➢ To evaluate the perceptions of financial professionals regarding the usefulness, challenges, and ethical concerns of using AI in financial decision-making.

➢ To identify sectoral differences in AI adoption and analyse how factors such as firm size, industry type, and technological readiness influence AI-driven financial decisions.

RESEARCH METHODOLOGY

RESEARCH DESIGN: Artificial Intelligence has helped in the improvement of the speed, accuracy, and efficiency of financial decision-making processes. However, some gaps in the research exist in the following areas: most of the research has been limited to the role of technology and the accuracy of the predictions, without much consideration of the role of explainable AI, trust, and transparency in the decision-making process. The role of human expertise in combination with AI systems, as well as the ethical aspects of AI, such as bias, fairness, and accountability, has not been sufficiently tested in real-world environments, as well as the role of FinTech in the decision-making process.

SOURCE OF DATA

Primary Data: The primary data was collected directly from respondents in Coimbatore city. It includes their opinions, experiences, and awareness regarding the use of Artificial Intelligence in financial decision-making.

Secondary Data: Secondary data was collected from books, journals, articles, newspapers, magazines, and web-based sources related to Artificial Intelligence and financial decision-making, including bank and government reports.

TOOLS AND TECHNIQUES USED

✦ Percentage Analysis

✦ Chi-Square Analysis

➕ Rank Analysis

➕ Regression Anaysis

LIMITATIONS OF THE STUDY

➕ When there is limited access to financial information, there could be a reliance on self-report data, which could be prone to response bias.

➕ The progress made in technology in AI could render this study obsolete in a short while because of the new technologies that could emerge.

➕ The inconsistent adoption of AI across different regions and sectors of the Indian economy could limit the generalizability of the study results to all Indian businesses.

TABLE NO.:1

AGE AND AI AWARENESS CROSSTABULATION

Age Group	Highly aware	Moderately aware	Not aware	Slightly aware	Total
21–35 Year	18 (26.9%) [51.4%]	38 (56.7%) [63.3%]	2 (3.0%) [25.0%]	9 (13.4%) [52.9%]	67
36–49 Year	2 (11.8%) [5.7%]	10 (58.8%) [16.7%]	3 (17.6%) [37.5%]	2 (11.8%) [11.8%]	17
50 & above Year	0 (0%) [0%]	0 (0%) [0%]	0 (0%) [0%]	1 (100%) [5.9%]	1
Below 20 Year	15 (42.9%) [42.9%]	12 (34.3%) [20.0%]	3 (8.6%) [37.5%]	5 (14.3%) [29.4%]	35
TOTAL	35	60	8	17	120

Chi-Square Value: 17.515   P-Value: 0.041

H_0: There is no significant association between age and AI awareness.

H_1: There is a significant association between age and AI awareness.

Since the p-value is less than 0.05, the null hypothesis is rejected. Hence, age has a significant association with AI awareness.

INTERPRETATION

Analysis of the cross-tabulation between age and awareness of AI applications in financial services reveals that there are differences between age groups. It is found that the age group between 21 and 35 years has the highest level of moderate awareness with some levels of high awareness. It is also seen that those below 20 years have more levels of high awareness compared to others since they are more exposed to technology. It is noted that those between 36 and 49 years have more moderate awareness with some not being aware of AI applications.

TABLE NO.: 2

ANNUAL INCOME AND AI – BASED FINANCIAL TOOLS CROSSTABULATION

Annual Income	1 to 3 years	6 months to 1 year	Less than 6 months	More than 3 years	Total
₹3,00,000 – ₹6,00,000	4 (6.1%) [30.8%]	28 (42.4%) [59.6%]	33 (50.0%) [56.9%]	1 (1.5%) [50.0%]	66 (100%)
₹6,00,000 – ₹10,00,000	1 (12.5%) [7.7%]	5 (62.5%) [10.6%]	2 (25.0%) [3.4%]	0 (0%) [0%]	8 (100%)
Above ₹10,00,000	1 (50.0%) [7.7%]	1 (50.0%) [2.1%]	0 (0%) [0%]	0 (0%) [0%]	2 (100%)
Below ₹3,00,000	7 (15.9%) [53.8%]	13 (29.5%) [27.7%]	23 (52.3%) [39.7%]	1 (2.3%) [50.0%]	44 (100%)
TOTAL	13	47	58	2	120

Chi-Square Value = **9.997**

Significance Value (p-value) = **0.350.**

H_0: There is no significant association between annual income and the duration of using AI-based financial tools.

H_1: There is a significant association between annual income and the duration of using AI-based financial tools.

INTERPRETATION

The analysis of annual income and duration of using AI-based financial tools shows differences across income groups. Respondents earning ₹3,00,000–₹6,00,000 mainly use AI tools for less than six months and 6 months to 1 year. Those earning below ₹3,00,000 mostly use them for less than six months. Respondents in the ₹6,00,000–₹10,00,000 group show moderate usage within 6 months to 1 year. Overall, the results indicate that most respondents across all income groups are recent users of AI-based financial tools.

TABLE NO.: 3

BENEFITS OF USING AI IN FINANCIAL DECISION MAKING

BENEFITS	TOTAL SCORE	MEAN SCORE	RANK
BETTER INVESTMENT	430	3.58	I
FASTER DECISIONS	400	3.33	II
REDUCED RISK	350	2.91	III
COST SAVINGS	300	2.50	IV
IMPROVED BUDGETING	260	2.16	V

(SOURCE: PRIMARY DATA)

INTERPRETATION

The ranking analysis shows that Better Investment received the first rank with the highest mean score, indicating that AI improves investment decisions. Faster Decisions and Reduced Risk secured the second and third ranks, showing AI helps in quick decision-making and risk identification. Cost Savings and Improved Budgeting received lower ranks, indicating they are considered less significant benefits.

TABLE NO.: 4

AI USEAGE FREQUENCY AND FINANCIAL DECISION CONFIDENCE

MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.207	0.043	0.035	0.388

Predictor: AI Awareness

Dependent Variable: Usage of AI-powered Financial Tools

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.794	1	0.794	5.261	0.024
Residual	17.798	118	0.151		
TOTAL	**18.592**	**119**			

COEFFICIENTS

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	1.002	0.090	-	11.125	0.000
AI Awareness	0.097	0.042	0.207	2.293	0.024

INTERPRETATION

The above table explains the relationship between AI usage frequency and financial decision confidence. The R value of 0.207 indicates a low but positive correlation between AI awareness and the usage of AI-powered financial tools. The R Square value of 0.043 shows that 4.3% of the variation in usage is explained by AI awareness. The ANOVA result (F = 5.261, Sig. = 0.024) indicates that the model is statistically significant at the 5% level. This means AI awareness has a significant impact on the usage of AI-based financial tools. The coefficient value (B = 0.097) shows a positive relationship between AI awareness and tool usage. The significant p-value (0.024 < 0.05) confirms that AI awareness is an important predictor. Therefore, increasing awareness about AI can improve the adoption and confidence in using AI-powered financial tools for decision-making.

FINDINGS OF THE STUDY

- The majority of respondents (55.8%) belong to the age group of 21–35 years, indicating strong participation from young adults in the study.
- The majority of respondents (55%) earn below ₹3,00,000 annually, while 27.5% earn between ₹3,00,000–₹6,00,000, indicating that the sample mainly represents lower-income groups.
- The majority of respondents (64.2%) are somewhat familiar with Artificial Intelligence, while 23.3% are very familiar, showing moderate awareness of AI technology.
- The majority of respondents (80.8%) use AI-powered financial tools, indicating a high level of adoption of AI technologies in financial activities.
- The majority of respondents (39.2%) have been using AI-based financial tools for 6 months to 1 year, followed by 36.7% who have used them for 1 to 3 years, indicating that many users are relatively recent adopters.
- The main benefit experienced by respondents is faster financial decision-making (44.2%), followed by better investment decisions (34.2%), showing that AI improves speed and efficiency in financial decisions.
- The main finding from Chi-square analysis shows a significant relationship between age & AI awareness ($p = 0.041$) & also between occupation & AI tool usage ($p = 0.000$).
- The main finding from regression analysis indicates a positive relationship between AI awareness and the usage of AI-powered financial tools, with $R = 0.207$ and $R^2 = 0.043$, showing that increased awareness slightly improves AI adoption in financial decision-making.

SUGGESTION OF THE STUDY

- Financial institutions and educational organizations should conduct workshops and training programs to improve awareness and digital financial literacy about AI-based financial tools.
- Organizations should provide basic training for less familiar groups and encourage advanced usage among younger and tech-savvy users to improve the usage of AI.
- Strong cybersecurity mechanisms, data protection policies, and transparent AI algorithms should be implemented to avoid privacy risks and improve user trust.
- Educational institutions, financial organizations, and government bodies should promote knowledge about AI and provide exposure to AI-based financial tools to improve their usage in decision-making processes.

CONCLUSION

In this study, the impact of Artificial Intelligence (AI) on financial decision-making is evaluated in terms of respondents' opinions, their level of awareness, and their usage of AI. It is found that AI is playing a vital role in modern financial systems. Many respondents have accepted and started using AI tools in investing, risk analysis, and planning their finance. It is also found that younger people and undergraduates are more likely to use AI systems. This indicates that people's knowledge of technology also plays a vital role in using AI systems. It is also found that respondents are only somewhat aware of AI systems. So, it is clear that there is a need to create more awareness among people regarding AI systems. It is found that AI systems have a high potential to improve decision-making in finance.