

AI and Finance: A Study of Stakeholder Perceptions on Operational and Experiential Evolution

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ABSTRACT

This study explores the transformative impact of artificial intelligence (AI) on the financial sector. The paper aims to understand the perception about AI-driven technologies in reshaping financial operations, decision-making, and customer experiences in the finance arena. The study uses quantitative methodology. The primary data is collected through a structured survey and data is analysed. The respondents belong the age group of 18 to 60 years. The sample consists of data collected from 153 respondents. The secondary data for the study is referred from journal and books on AI and Finance. The research utilizes descriptive analysis to examine the perceptions. The data analysis revealed a mixed level of familiarity with AI among the student fraternity. The discussion underscored that while AI was perceived to offer benefits like enhanced predictive analytics, personalized financial services, and operational efficiency, there would be notable challenges. A significant proportion of respondents expressed concern over cybersecurity risks, disruption of job markets and a lack of familiarity with AI-related regulations in India. Moreover, the analysis shows that AI has yet to gain widespread usage in financial services, indicating both untapped potential and a need for increased public education on AI applications in finance. The study concludes by emphasizing the importance of ethical frameworks and collaborative industry efforts to ensure that AI integration in finance benefits consumers and strengthens financial stability.

Keywords- AI, finance, stakeholder's perception.

I. INTRODUCTION

In the financial sector, artificial intelligence (AI) is changing conventional business models, driving improvements in operational efficiency, risk management and customer service. With significant ramifications for both financial institutions and consumers, artificial intelligence (AI) has emerged as a key component of contemporary finance, capable of automating repetitive processes and providing sophisticated predictive analytics. According to PricewaterhouseCoopers Private

Ltd. PwC, AI is expected to boost the global economy by almost \$15.7 trillion by 2030. As a result of its data-centric nature and requirement for quick high-stakes decisions, the finance industry is one of the industries most affected. Natural language processing (NLP) for automated customer care, machine learning for credit scoring, and deep learning for fraud detection are just a few of the many uses of AI in finance. Financial organizations can now make data-driven judgments that were previously unattainable by using these tools to analyse large datasets in real-time. For instance,

predictive analytics makes it possible to accurately evaluate consumer behaviour, market trends and credit risk all of which are essential for risk reduction and well-informed investment decisions. Chat bots and virtual assistants driven by AI are also improving client engagement, providing personalized financial advice, and enabling round-the-clock support.

However, the adoption of AI in finance is not without challenges. AI-driven financial systems introduce complex regulatory and ethical issues, particularly around data privacy, cybersecurity and algorithmic bias. As AI models often rely on vast and diverse datasets, they are prone to express existing biases, which can impact fairness in areas like credit approval and loan pricing. Another crucial element is regulatory compliance, since financial institutions have to deal with a world where AI laws differ greatly between countries. A 2022 World Economic Forum report states that in order to ensure that AI-driven decisions are morally and fairly made. Responsible AI adoption in finance necessitates a framework that places a high priority on accountability, transparency and justice. The discussions in this paper reveal a range of public perceptions regarding AI in finance, highlighting both optimism and caution. While many see AI as a force for efficiency and innovation, there are concerns about cybersecurity risks and job displacement. For instance, AI's potential to automate roles in finance raises questions about employment dynamics, with some analysts predicting a shift towards new, AI-focused job categories while routine positions may decline. This emphasizes the need for workforce reskilling to prepare professionals for AI-integrated environments. It also underscores the importance of ethical frameworks and transparent governance models to ensure AI's positive impact on financial stability and consumer trust. By exploring both the opportunities and challenges AI presents in finance, this research aims to contribute to the responsible development and deployment of AI within this critical sector.

II. LITERATURE REVIEW

2.1 The Evolution and Impact of Artificial Intelligence in Financial Services and Cybersecurity

The integration of artificial intelligence (AI) in financial services and cybersecurity represents a transformative shift in how financial institutions operate, manage risk, and serve customers. This literature review examines the current state of AI implementation in finance, its economic implications, regulatory challenges, and cybersecurity considerations, drawing from recent academic research and industry analyses.

2.2 Economic Impact and Operational Transformation

The financial sector stands at the cusp of unprecedented technological transformation, with AI playing a pivotal role in reshaping traditional banking and financial services. According to research by Buckley et al. (2021), the post-2008 financial landscape has witnessed

remarkable changes in both the pace of technological advancement and the diversity of market participants. The emergence of Fin Tech start-ups, the digital transformation of developing economies (particularly China), and the growing influence of Big Tech companies in financial services have created a complex ecosystem where AI serves as a crucial differentiator (Buckley et al., 2021).

The economic implications of AI adoption are substantial. PwC projections cited in Buckley et al. (2021) suggest AI will contribute an additional 14% to global GDP, equivalent to US\$15.7 trillion by 2030. This projection aligns with Autonomous Research's findings, referenced by Douglas (2024), which indicate AI could generate an extra \$1 trillion in annual value for banks alone. These economic benefits manifest through various channels, including operational efficiency gains—with Accenture estimating potential IT operational cost savings of 20-25% for banks—and enhanced revenue generation through improved customer service and personalized financial products (Buckley et al., 2021).

2.3 Operational Implementation and Use Cases

Financial institutions are implementing AI across various operational domains, demonstrating its versatility and transformative potential. Buckley et al. (2021) document several notable applications, including:

- **Regulatory Technology (RegTech):** Financial institutions have embraced AI-powered RegTech solutions to address mounting compliance costs and regulatory requirements. Credit Suisse's implementation of voice bots for compliance inquiries and JP Morgan's use of speech recognition technology for commercial loan contract analysis—saving an estimated 360,000 hours of manual labour annually—exemplify this trend (Buckley et al., 2021).
- **Investment and Trading:** AI systems are being deployed for trade execution optimization, as evidenced by JP Morgan's use of AI for achieving optimal trade pricing and UBS's implementation for post-trade allocation requests (Lin, 2019, p.535).
- **Insurance and Risk Assessment:** The adoption of AI extends to insurance operations, with companies like Fukoku Mutual Life Insurance utilizing AI systems for policy pay out calculations and risk assessment (Douglas, 2024, p.4).

2.4 Customer Experience and Service Personalization

Douglas (2024) emphasizes AI's role in transforming customer experience within financial services. The implementation of AI-powered chat bots and virtual assistants has enabled financial institutions to provide continuous, personalized service delivery. This technological advancement has facilitated:

- 24/7 customer support capabilities
- Automated financial advisory services through robot-advisors
- Personalized product recommendations based on customer behaviour analysis

- Enhanced customer engagement through tailored financial solutions

The ability to analyse customer transaction data and identify spending patterns has enabled banks to move beyond traditional service models toward highly personalized financial solutions (Douglas, 2024). This shift represents a fundamental change in how financial institutions interact with and serve their customers.

2.5 Risks and Limitations

Despite its promising applications, AI in finance faces several significant challenges and limitations. Lin (2019) identifies four primary categories of risk:

1. **Virtual Threats:** The increasing reliance on AI systems exposes financial institutions to new forms of cybersecurity risks and technological vulnerabilities.
2. **Data Bias:** AI systems may perpetuate or amplify existing biases present in historical financial data, potentially leading to discriminatory outcomes in lending and investment decisions (Lin, 2019).
3. **Programming Code Limitations:** The fundamental constraints of AI systems lie in their underlying code and ability to fully capture market complexities (Ansari et al., 2022).
4. **Systemic Risks:** The widespread adoption of AI in finance raises concerns about potential systemic vulnerabilities and market stability.

These limitations are particularly relevant in the context of competitive dynamics within the financial sector. Lin (2019) notes that organizations with access to large, proprietary data sets may gain sustainable competitive advantages, potentially leading to market concentration and reduced consumer welfare.

2.6 Cybersecurity Implications

The intersection of AI and cybersecurity presents both opportunities and challenges for financial institutions. Ansari et al. (2022) highlight how AI has revolutionized cybersecurity frameworks while acknowledging its limitations. Key findings include:

- **Enhanced Threat Detection:** Machine learning algorithms demonstrate superior capability in identifying and responding to cyber threats compared to traditional human-led approaches (Ansari et al., 2022).
- **Automation Benefits:** AI-powered systems have made traditional attack methods less effective through automated defence mechanisms.
- **Limitations in Threat Recognition:** AI systems may struggle to distinguish sophisticated threats that closely resemble legitimate communications, highlighting the continued importance of human oversight (Ansari et al., 2022).
- **Dual-Use Nature:** The technology's potential for both defensive and offensive applications complicates its role in cybersecurity strategy.

2.7 Regulatory Considerations and Policy Framework

The regulatory landscape surrounding AI in finance continues to evolve, with policymakers seeking to

balance innovation with risk management. Sinha et al. (2018) emphasize the importance of developing comprehensive regulatory frameworks that address both global standards and local requirements. Their research highlights the critical need for robust data protection legislation that can support AI innovation while safeguarding privacy interests.

The World Economic Forum's 2019 discussion on responsible AI use in financial services, referenced by Buckley et al. (2021), underscores the global focus on developing appropriate governance structures for AI implementation in finance. This attention to governance reflects growing recognition of AI's transformative potential and associated risks.

The literature suggests several key areas for future research and development:

1. The evolution of human roles in an AI-enhanced financial sector (Lin, 2019)
2. The development of more sophisticated risk management frameworks for AI systems (Ansari et al., 2022)
3. The impact of AI on financial inclusion and market accessibility
4. The relationship between AI advancement and monetary policy effectiveness

As Douglas (2024) notes, the transition to an "AI-First" approach in banking will require fundamental changes in how financial institutions operate, serve customers, and manage risks. This transformation will likely continue to generate new research questions and practical challenges for both academics and practitioners.

The literature reveals AI's profound impact on financial services, characterized by significant operational improvements, enhanced customer experiences, and evolving risk landscapes. While the technology offers substantial benefits in terms of efficiency, accuracy, and personalization, it also presents important challenges related to risk management, regulatory compliance, and cybersecurity (Lin, 2019). The successful integration of AI in finance will require careful attention to these challenges while leveraging the technology's transformative potential.

Future research should focus on addressing the identified limitations and risks while exploring new applications that can further enhance the financial sector's efficiency and accessibility. As AI technology continues to evolve, maintaining a balance between innovation and risk management will remain crucial for sustainable development in the financial services industry (Douglas, 2024).

III. RESEARCH OBJECTIVE AND METHODOLOGY

3.1 Research Objective: The objective of the study is to explore the perception about AI-driven technologies in reshaping financial operations, decision-making, and customer experiences in the finance arena

3.2 Research Methodology: This study analysed data collected through a structured survey. The aim of the survey was to understand perceptions about impact of AI on the financial sector. The survey was administered to a total of 153 participants selected using convenience sampling. The sample was constituted by 63 males and 89 females and the age of the respondents ranged from 18 to 60 years. The survey instrument consisted of 18 questions designed to assess:

- Awareness and Perceptions of AI in Finance
- Trust and Confidence on AI in Finance
- Future Expectations of AI in Finance
- Societal Impact of AI in Finance

Data was collected over a 4-week period using an online survey platform. Data was analysed using descriptive statistics to summarize demographic characteristics and survey responses. The research utilized descriptive analysis to examine the perception trend among respondents. Key findings were visualised using various charts to illustrate trends such as correlation between age and awareness of AI. The confidentiality of respondents was maintained throughout the research process ensuring anonymity in data reporting.

IV. DATA ANALYSIS

Analysis of responses received

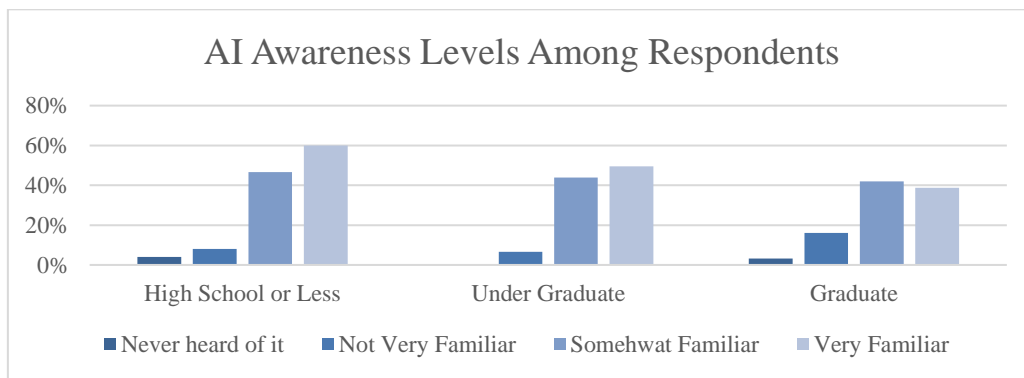


Figure 1.1: AI awareness levels among respondents

According to the data shown in fig. 1.1, a greater proportion of respondents who are "Very Familiar" or "Somewhat Familiar" with AI are undergraduate and high school students than graduates. This points to a rising tendency in younger population's AI literacy. Despite having higher education, graduates appear to know less about AI than undergraduates. This could be because

undergraduates are more exposed to developing technology. One would typically anticipate becoming more familiar with AI as educational attainment rises. This graph, however, demonstrates a countertrend, with undergraduates outperforming graduates in terms of AI awareness, which may be a reflection of how more recent generations have assimilated technology.

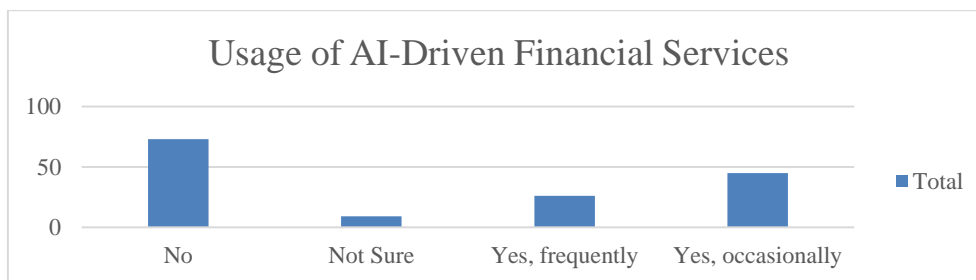


Figure 1.2: Usage of AI-Driven Financial Services

Booke.AI, Domo, and Data rails are AI-driven tools designed to improve business processes, particularly in the realms of data analysis, decision-making, and financial management. Booke.AI appears to focus on streamlining business processes, particularly financial operations and bookkeeping. It automates manual bookkeeping tasks such as data entry, reconciliations, and categorizing expenses. It uses AI to interpret and organize financial data from various sources, such as invoices, receipts, and bank statements. Domo is a business

intelligence platform that helps companies visualize and manage data across their organization. It uses AI to predict trends, automate data workflows, and provide actionable recommendations. Data rails is a financial planning and analysis platform aimed at helping finance teams automate and improve their budgeting, forecasting, and reporting processes. It helps in gathering and consolidating the financial data from multiple sources into a single platform.

According to data from graph 1.2, The majority of respondents (around 50%) have never used AI-driven financial tools, indicating that services like Booke.AI, Domo, and Data rails are either still relatively new or not widely used. This can be a sign of ignorance or reluctance to use AI-powered financial management solutions. However, 30% of respondents who use AI financial tools occasionally point to an increasing awareness, maybe

suggesting that people who are still experimenting with these tools, may have not yet completely incorporated them into their financial routines. The lesser percentage of frequent users (15%) suggests that a particular user subset, likely early adopters or professionals, in industries where these tools are particularly useful, are embracing AI tools in finance more actively.

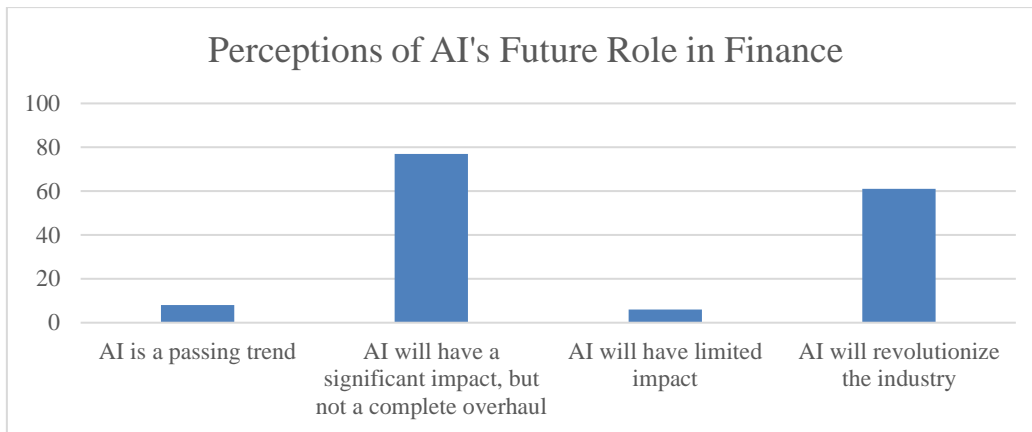


Figure 1.3: Perceptions of AI's Future role in finance

According to the data shown in fig. 1.3, the majority of respondents (about 50%) think AI would significantly affect the financial sector without completely changing it. This shows that there is a high anticipation that AI will significantly alter the financial industry, even though many individuals do not think AI will completely replace conventional procedures. Approximately 40% of respondents believe AI will

revolutionize the industry, suggesting that they perceive AI as a transformative force that has the ability to drastically alter the way the financial sector functions. This group is upbeat about the disruptive potential of AI. Just 5% of those surveyed think AI will have little effect. This implies that a small percentage of people believe AI won't have a big impact on finance.

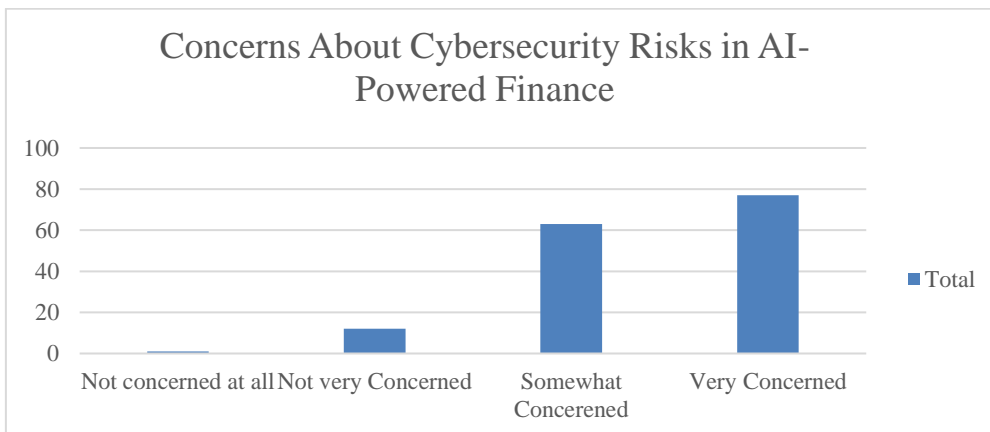


Figure 1.4: Cybersecurity concern in AI-powered finance

According to data shown in fig. 1.4, the largest group of respondents, approximately 50%, falls under the "Very Concerned" category. This shows that the majority of people view cybersecurity risks in AI-powered finance as a serious issue. A significant portion of respondents, around 40%, are "Somewhat Concerned" about cybersecurity risks. This indicates that while these respondents may not view cybersecurity as an immediate

or severe threat, they still acknowledge it as a notable concern. A small group of respondents (10%) fall under the "Not Very Concerned" category, suggesting minimal worry about cybersecurity risks in AI-powered financial systems. Almost no respondents are in the "Not Concerned at All" category, highlighting that virtually everyone surveyed has some level of concern about cybersecurity when it comes to AI-driven finance.

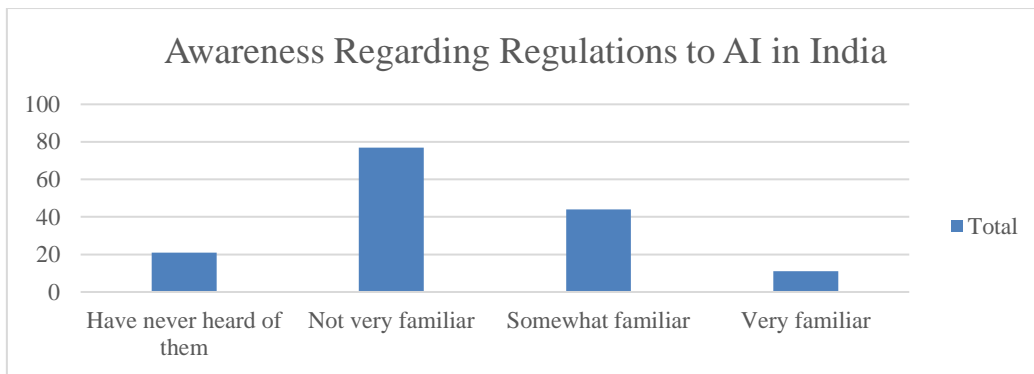


Figure 1.5: Respondents awareness about AI regulation in India

India's regulatory framework for AI and cybersecurity is shaped by foundational laws such as the Digital Personal Data Protection Act, 2023, which ensures responsible data handling and privacy safeguards, and the Information Technology Act, 2000, which governs the prevention of cybercrimes and promotes secure digital ecosystems.

According to data shown in fig. 1.5, the largest group of respondents, around 50%, falls under the "Not very familiar" category. This indicates that most people have limited knowledge of AI regulations and policies in India. About 30% of respondents are "Somewhat familiar" with AI regulations, suggesting that a smaller,

yet notable group is somewhat informed about these policies. A small group (10%) reported "Have never heard of them," indicating that they are completely unaware of any AI regulations in India. Very few respondents (<10%) are "Very familiar" with AI regulations, indicating a limited depth of understanding or engagement with this subject among the general public. The chart shows a significant gap in public awareness regarding AI regulations in India, with the majority either unaware or only slightly familiar with these policies. This may point to a lack of accessible information or limited dissemination of knowledge about AI governance.

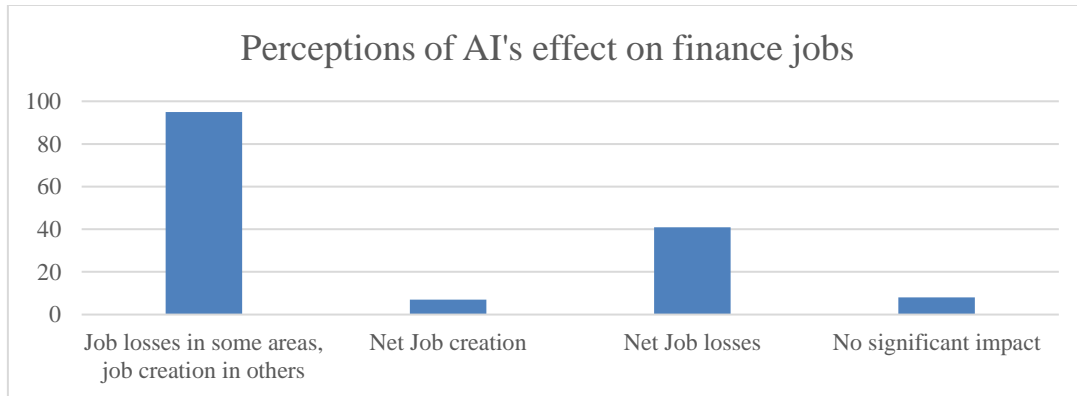


Figure 1.6: Respondents perception on effect of AI on finance related jobs

According to data shown in fig. 1.6, the majority of respondents (almost 65%) believe that AI will lead to job losses in some areas and job creation in others. This suggests an expectation of significant restructuring in the finance job market, where certain roles may diminish or become automated, while new AI-driven roles may emerge. A notable portion of respondents (25%) expect net job losses in the finance sector due to AI, indicating a concern that job reductions might outweigh job creation. Only a small fraction of respondents believes in net job creation, suggesting limited optimism that AI will lead to a total increase in job opportunities in finance. Few respondents see no significant impact of AI on jobs, indicating that most people expect AI to bring about some level of the disruption in the finance market.

V. DISCUSSIONS

5.1 The Need for Public Education on AI

A strong foundational understanding of AI is essential as it increasingly influences various sectors, including finance. Many people, including educated professionals, may not fully grasp how AI is reshaping the financial landscape, which can create barriers to its effective adoption. To address this, there is a need for educational institutions, government bodies, and the financial industry to work together to create accessible resources on AI's applications and implications across sectors. For example, workshops, seminars, and online courses tailored to students and professionals could help in highlighting AI's potential and limitations. Integrating

AI-focused modules within academic curricula, and offering public workshops or webinars, could bridge knowledge gaps. These initiatives would empower individuals to make more informed decisions about engaging with AI-driven tools and better understand the transformative changes in their respective fields, including finance.

5.2 Promoting AI-Driven Financial Services

Despite the capabilities of AI-driven financial tools to enhance decision-making and improve efficiency, these tools remain underutilized by the general public. Promoting the adoption of AI-driven services should focus on practical benefits, such as personalized financial advice, automated budgeting, and improved financial management. Robot-advisors can generate reliable, tailored investment portfolios that adapt to investor behaviour, leading to increased engagement among new investment clients. Financial institutions and technology companies could benefit from launching awareness campaigns that demonstrate real-world applications of AI in finance, showing how it adds value in personal finance management, investment strategies, and risk assessment. Trust is also crucial in driving adoption; people need to feel that AI services are secure, reliable, and transparent, which would assist to allay the unease that many people have about new technologies. AI is also an important component in renewable energy and green finance. It encourages sustainability through improved financial analysis and data-driven investment strategies. AI models, like the algorithms employed in green finance, have proven to be more accurate than traditional methods and help with environmental development. These ingenious approaches can ensure that green financing solutions are more in line with sustainability goals by enhancing investment possibilities. AI is capable of predicting insolvency and financial difficulties.

5.3 The Future of AI in Finance: Upskilling of workforce

By automating routine tasks, enabling predictive analytics, and producing more accurate insights, artificial intelligence (AI) has the ability to significantly improve and streamline the banking sector. It is unlikely to fully replace human intervention, nevertheless, especially in positions requiring empathy, complicated judgment, and ethical considerations. Even as AI takes on more analytical and operational activities, human experience will still be necessary for some decision-making processes and client-facing professions. AI is predicted to provide new jobs that call for highly skilled technical and analytical abilities, even though it may also cause changes in employment structures by possibly substituting some repetitive duties. The workforce needs to be upskilled in order to be ready for this change.

5.4 Addressing Concerns about Cybersecurity in AI-Powered Finance

The handling of enormous volumes of sensitive data by AI-powered financial systems raises serious issues about cybersecurity. Risks to users and financial

institutions are increasing due to cyber-attacks, data breaches, and cyber fraud. In the absence of guarantees that strong security protocols are in place to safeguard their data, users could be hesitant to fully adopt AI-driven financial services. Financial institutions and tech firms must put cybersecurity first in order to allay these worries. They should do this by setting strict security measures in place and keeping the public informed about them. Standard procedures should include real-time threat detection, frequent audits, multi-factor authentication, and advanced encryption. Furthermore, user confidence can be increased through open communication about these procedures.

5.5 Enhancing Awareness of AI Regulations in India

To protect consumers and guarantee ethical use of AI-driven technology, it is crucial to be aware of the regulatory framework around AI. When using AI-powered services, many people might not be aware of their rights or how these laws protect their data. This ignorance may make people more susceptible to dangers like algorithmic bias or data misuse, which could discourage people from utilizing AI in the financial industry. Financial firms and regulatory agencies should endeavor to make AI policy more transparent. This can entail increasing the accessibility of regulatory information via internet resources, informational booklets, and media campaigns. Additionally, financial institutions can actively educate consumers on their legal rights and how rules impact the services they offer.

VI. CONCLUSION & SCOPE FOR FUTURE RESEARCH

This research has revealed critical trends and insights into the transformative role of AI in the finance sector. The study concludes despite the capabilities of AI-driven financial tools to enhance decision-making and improve efficiency, these tools remain underutilized by the general public. A significant gap exists in public awareness regarding AI regulations in India, with the majority either unaware or only slightly familiar with these policies. This points to a lack of accessible information or limited dissemination of knowledge about AI governance. AI is definitely here to take over the routine tasks but AI is also predicted to provide new jobs that call for highly skilled technical and analytical abilities for which workforce upskilling is needed. The findings of this study support further exploration, particularly in areas like ethical AI governance, advanced fraud detection, and the implications of AI-driven workforce changes. There is also a strong case for continued research into regulatory frameworks and public education initiatives to ensure that AI's integration in finance serves both industry growth and consumer protection. Understanding the balanced integration of AI within finance is crucial for achieving a stable and ethical financial landscape, as AI continues to be a pivotal force in reshaping this vital sector of the economy.

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