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*Original Article*

# Future-Ready Finance: Building AI and Machine Learning Competencies among Financial Professionals

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## Abstract

*The rapid advancement of Artificial Intelligence (AI) and Machine Learning (ML) is redefining the skill requirements for finance professionals worldwide. This research article explores how the financial sector – including banking, investment management, fintech, and auditing – is developing AI/ML competencies to remain future-ready. Using a qualitative approach, we draw on contemporary case studies, expert interviews, and theoretical analysis to examine global trends, with particular emphasis on India. We review scholarly literature and industry reports to map the current landscape of AI/ML adoption in finance and the corresponding workforce upskilling initiatives. Key findings indicate a significant skills gap: According to a survey by the CFA Institute, only 3% of investment professionals report being proficient in artificial intelligence and machine learning concepts, despite growing interest and adoption in the sector (CFA, 2023). Case studies of banks and Big Four accounting firms illustrate proactive strategies such as in-house AI academies and large-scale training programs to build relevant expertise. Experts emphasise that developing AI/ML competencies involves not only technical training (e.g., data analytics, programming) but also strengthening soft skills such as critical thinking and adaptability to work effectively alongside intelligent systems. The discussion highlights global best practices and contextualises them for the Indian financial industry, which is poised to benefit from its large tech talent pool if upskilling challenges are addressed. We identify gaps in existing efforts and propose objectives for organisations and policymakers to cultivate an AI-ready financial workforce. In conclusion, being "future-ready" in finance will require continuous learning and strategic investment in human capital, ensuring professionals can leverage AI and ML ethically and efficiently to drive innovation in the financial services sector. This study provides a roadmap to integrate AI/ML into financial functions by investing in workforce upskilling,*


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*embedding analytics into decision-making processes, and driving organisational agility in an increasingly data-driven environment.*

**Keywords:** Artificial Intelligence; Investment management; Machine Learning; Fintech

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## Introduction

AI and machine learning are transforming the financial services landscape, creating both unprecedented opportunities and pressing challenges for the workforce. Financial institutions worldwide are increasingly adopting AI/ML technologies for tasks ranging from automated customer service chatbots to sophisticated risk modelling and investment decision support (Deloitte, 2022; PwC, 2023). A recent global survey found that 78% of business leaders report AI adoption in at least one function of their organization (McKinsey & Company, 2023). In finance specifically, over half of finance teams are actively using AI tools, with common applications including data analysis (55% of teams), predictive modelling (47%), and even generative AI for report drafting (EY, 2024; NASSCOM, 2023). This technological shift is fundamentally changing the skill set required of financial professionals. Traditional skills alone (such as accounting techniques or financial modeling in Excel) are no longer sufficient; companies now prioritize hybrid competencies that blend financial acumen with data science, programming, and the ability to interpret and work with AI outputs (CFA Institute, 2023; IBM, 2021). Indeed, surveys indicate that employers increasingly seek skills such as critical thinking, adaptability, and the ability to use AI tools effectively—even more than certain purely technical skills (World Economic Forum, 2020; OECD, 2022).

Globally, there is a growing recognition that the "future-ready" finance professional must be conversant with AI and ML. The World Economic Forum's Future of Jobs Report (2020) predicted that by 2025, automation and AI would displace about 85 million jobs while creating 97 million new roles, many of which will emerge in data analytics and AI-related fields. In the financial sector, this translates to a significant restructuring of roles—for example, routine tasks in accounting, auditing and transaction processing are increasingly automated, whereas new roles (such as AI specialists in risk management or fintech product developers) are on the rise (Deloitte, 2022; ICAI, 2023). Crucially, the WEF emphasised that the most competitive businesses will be those that reskill and upskill their employees to handle these new technologies (World Economic Forum, 2020). Finance industry leaders echo this view: a Deloitte report notes that organisations investing in AI, analytics and automation are struggling to find and retain talent with the needed digital skills, underscoring an "upskilling imperative" to build a future-ready workforce (Deloitte, 2022). Similarly, a 2025 industry barometer found that while

73% of employers prioritize acquiring AI-skilled talent, the current talent pool is insufficient to meet demand (PwC, 2023). More than half of senior business leaders feel unprepared for AI's rapid advancements, underscoring the urgency of workforce development (McKinsey & Company, 2023).

This global context sets the stage for examining specific domains of finance. In banking, AI is being deployed for fraud detection, credit scoring, and personalised customer service, changing how bankers work (NASSCOM, 2022). Banks that implement AI at scale are concurrently investing in training programs to ensure their staff can effectively use these tools (ICICI Bank, 2023). In investment management, quantitative techniques and AI-driven analytics are becoming integral to portfolio management and trading strategies, yet most portfolio managers and analysts were not originally trained in data science, creating a steep learning curve (CFA Institute, 2023). The burgeoning fintech sector, often at the forefront of AI innovation, requires professionals who can bridge finance and technology—a demand often met by hiring new talent, as well as by retraining existing finance experts in AI skills (RBI Innovation Hub, 2024). In accounting and auditing, AI-based automation and cognitive systems are transforming audits and compliance; accounting firms now seek professionals proficient in data analytics and AI to augment traditional audit skills (ICAI, 2023). Across all these sectors, a common theme is the need for continual learning. A recent study suggested that over 60% of workers will need retraining or upskilling by 2027 due to AI and other technological changes (World Economic Forum, 2023)—a statistic that undoubtedly includes millions of finance professionals. Finance leaders, from CFOs to HR heads, increasingly acknowledge that integrating AI successfully is not just about technology adoption but also about people: without a workforce competent in AI/ML, even the most advanced systems will fail to deliver value (IBM, 2021; Deloitte, 2022).

India provides a particularly insightful context for this global shift. As one of the world's largest and youngest labour markets, India is poised to be both a supplier of AI talent and a major site of AI adoption in finance (MeitY, 2023). The country's government and industry have launched numerous initiatives recognising this potential. In 2018, India released a National Strategy for AI, and more recently, it announced a dedicated fund of ₹1 lakh crore (approximately


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USD 12 billion) to foster AI and deep-tech developments (PIB, 2024). The Indian government has also established Centres of Excellence in AI and is funding programs to integrate AI into sectors such as finance and banking (MeitY, 2023). Industry collaborations are emerging; for example, tech giants are partnering with Indian institutions to train professionals—Google's tie-up with MeitY aims to deliver generative AI skills to one million Indians, and Microsoft's "AI Odyssey" program is set to train 100,000 developers in the latest AI tools (Google India, 2024; Microsoft India, 2024). Within the finance sector, Indian banks and firms are beginning to invest in upskilling their staff. According to a recent report, AI adoption across critical sectors in India reached about 48% in FY 2024, with the fintech sector leading in AI-based risk management and compliance solutions (NASSCOM, 2024). Yet, even with high adoption rates, a skills gap persists: an Indian Express analysis of an Asia-Pacific workforce study warned that without accessible AI skilling initiatives, large segments of workers risk being left behind, and noted a disconnect between current educational training and industry needs in India (Indian Express, 2024). Traditional finance and engineering degrees are not producing all the skills that employers now seek, who are looking beyond academic credentials for practical AI and data capabilities (FICCI, 2023).

In light of these developments, this study focuses on how financial professionals can build AI and ML competencies to remain relevant and excel in a transforming industry. We adopt a global perspective to capture widespread trends and best practices, while paying special attention to the Indian context, where the stakes are high due to the country's size and ambitions in AI. The remainder of this article is structured as follows. First, we present a review of relevant literature and industry findings, covering both international and national (Indian) studies on AI/ML skill development in finance. We then identify the gaps in existing research that our study aims to address. The research objectives and qualitative methodology are described next, explaining how expert insights and case studies are used through a theoretical lens. We then proceed to an in-depth discussion of the findings, organised by major financial sectors (banking, investment, fintech, auditing), and analyse how each approaches the AI/ML upskilling challenge. Finally, we summarise the insights and offer conclusions, including recommendations for practitioners and policymakers to foster a future-ready, AI-competent financial

workforce.

## Review of Literature – National and International

### Global Studies on AI Skills in Finance:

A wealth of international literature underscores the transformative impact of AI on financial sector jobs and the concomitant need for new skills. The World Economic Forum (WEF) Future of Jobs reports (2018, 2020) have been particularly influential. WEF (2020) highlighted that automation and AI were accelerating change across industries, with financial services among those heavily affected. It projected a double disruption: on the one hand, AI would automate millions of jobs (especially routine tasks in data processing and administrative support), and, on the other hand, the fallout from events like the COVID-19 pandemic was accelerating digitalisation. Crucially, WEF noted that by 2025, analytical thinking, creativity, and flexibility would be among the top skills needed across all jobs, and that roles in data and AI would be among the high-growth professions. For workers staying in their roles, nearly 50% will require reskilling within five years, reflecting the pervasiveness of AI's influence. In fact, employers overwhelmingly recognise the need for upskilling – about 66% of employers expected a return on investment in upskilling/reskilling programs within just one year (World Economic Forum, 2020). This finding is important for the finance sector, as it provides justification for banks, investment firms, and others to invest in employees' continuous learning. It aligns with Deloitte's (2022) notion of an "upskilling imperative," which argues that companies must make deliberate, significant investments in learning to ensure employees have the capabilities to work in a data-driven, AI-enabled environment. In essence, the global literature makes it clear that AI is not just an IT issue but a workforce issue: successful AI integration in finance depends on raising the competency of the existing workforce and preparing new entrants with the right mix of skills.

Several industry surveys and reports provide insight into the current AI competency gaps among finance professionals. A notable study by CFA Institute (2023) found that only 3% of investment professionals self-reported proficiency in AI and machine learning, despite nearly two-thirds expressing interest in these areas. This striking statistic from a global survey of charterholders and finance


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practitioners illustrates the breadth of the skills gap in the investment sector. In response, CFA Institute launched a specialised Data Science for Investment Professionals certificate program, emphasising practical training in machine learning techniques, Python and R programming, and applications such as natural language processing for investing. Similarly, in the banking domain, research by Evident Insights (2025) found that nearly 75% of the world's 50 largest banks have implemented AI-specific training programs for employees. These programs often coincide with the rollout of new AI tools – for example, when banks introduce generative AI or advanced analytics into certain workflows, they follow up with phased training for 'super-users' and sandbox environments for staff to experiment safely.

Academic contributions complement these industry findings by exploring theoretical aspects of skill development in the age of AI. Researchers have applied frameworks like the Technology Adoption Model and Human Capital Theory to understand how individuals in finance adapt to new AI tools. Multiple studies note a shift toward hybrid skill sets: finance professionals are expected to combine traditional domain expertise with data literacy and computational thinking (OECD, 2022; IBM, 2021). One cross-industry analysis found that job postings requiring AI competencies have surged nearly 4.5-fold over the last decade, extending well beyond tech jobs into sectors such as banking and insurance (McKinsey & Company, 2023). This corresponds with observations that "finance + AI" is now a viable career path, leading to new roles such as financial data scientists, AI risk analysts, or fintech product managers. However, the literature also warns of challenges in achieving these competencies. A recurring theme is the AI skills gap – defined as the difference between the skills employers need to effectively utilise AI and the skills available in the workforce. According to the WEF's 2020 report, more than 60% of workers would require training by 2025, but only 21% of businesses felt able to access public or institutional support for such reskilling programs (World Economic Forum, 2020). The gap is not only in technical know-how but also in areas such as understanding AI ethics, data privacy, and regulatory compliance – knowledge that is crucial for financial professionals deploying AI in regulated environments. For example, an international survey of investment firms in 2024 found that 85% of employers wanted industry-wide

standards and ethical guidelines for AI, and 70% said workforce training in AI-related regulatory and risk-management skills was now essential (PwC, 2023).

**Literature in the Indian Context:**

National studies and reports within India echo many global themes while emphasising the country's unique opportunities and challenges. India is often cited as having a strong foundation for developing AI expertise due to its large STEM-educated workforce and IT services industry. According to NASSCOM (2022), India currently has the second-largest AI talent pool in the world, with over 416,000 professionals working in AI/ML and big data roles. However, this supply is still not keeping pace with demand – by one estimate, the gap between AI talent supply and demand in India is about 51%, and demand is projected to exceed 1 million professionals by 2026 (NASSCOM, 2023). The Indian government and industry have launched collaborative initiatives to close this gap. A prominent example is FutureSkills Prime, a public-private partnership platform by NASSCOM and the central government, which aims to reskill or upskill around 2 million professionals in emerging technologies (AI, data science, etc.) (MeitY, 2023).

Despite these efforts, research suggests that many Indian financial organisations are still in the early stages of building AI-ready teams. Simultaneously, the paper highlighted a shift towards upskilling and reskilling initiatives to enable existing employees to take on more complex, analytical roles that AI cannot fully handle. The fintech sector in India offers some success stories, as it inherently blends technology with finance. Studies note that India's fintech adoption rate is among the highest globally, and fintech startups often utilise AI for credit scoring, personalised product recommendations, and algorithmic lending (IndiaAI, 2024). According to a Moody's Investor Service study cited on India's official AI platform, 18% of Indian fintech firms reported actively using AI for risk management and compliance by 2024, compared to only 9% of firms across other sectors (IndiaAI, 2024).

We also see professional education responding to this demand. For instance, Indian Institutes of Management (IIMs) and Indian Institutes of Technology (IITs) have introduced fintech and analytics programs, and online platforms offer certifications in "AI in finance." An example is the Swayam NPTEL course on AI for


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Investments, developed by IIT faculty in partnership with finance experts (NPTEL, 2024). In the accounting and auditing field, literature from India's professional bodies (such as ICAI) highlights a similar push. ICAI (2024) has published guidance on automation and AI, encouraging chartered accountants to upskill in areas such as data analytics, information systems auditing, and AI-based accounting systems. A recent report by the Institute of Management Accountants (IMA), in collaboration with an Indian research institute, stated that AI is a game-changer for accounting and finance professionals and urged a mindset shift from routine accounting tasks to a more analytical, AI-enabled advisory role (IMA, 2023). However, the adoption in Indian audit firms is gradual – many mid-tier firms face resource constraints in providing extensive AI training. EY India, for instance, invested heavily in internal training and upskilled 44,000 employees in India on AI tools and concepts as of 2025, before launching an AI Academy to train professionals in client organizations (EY India, 2025).

**Research Gap**

The review of existing literature and industry evidence highlights several gaps that this research seeks to address. Firstly, while numerous reports quantify the skills gap (e.g., percentage of professionals lacking AI skills, number of jobs at risk, etc.) (World Economic Forum, 2020; CFA Institute, 2023), there is a lack of qualitative insight into how financial organisations are actually building AI/ML competencies on the ground. Much of the current literature either takes a high-level survey approach or focuses on the need for training in principle, without delving into detailed examples of successful upskilling strategies or the lived experiences of finance professionals adapting to AI (Deloitte, 2022; EY India, 2025). This creates a gap in understanding the process of competency development: for instance, how do seasoned bankers respond to prompt engineering training, or how do audit teams incorporate AI tools into their workflow, and what challenges do they encounter in practice? Our study addresses this by incorporating real-time case studies and expert interviews, aiming to provide a richer narrative of transformation within financial institutions.

Secondly, there is a gap in comparative analysis across different financial sectors and regions. Existing research is often siloed by sector – for example, studies on AI in banking versus separate studies on AI in investment – or by geography,

such as global surveys versus country-specific reports (McKinsey & Company, 2023; IndiaAI, 2024). This fragmentation means we know relatively little about cross-sectoral learnings or differences. The banking sector might have pioneered certain training programs that could be informative for, say, the insurance or asset management sectors, but literature seldom juxtaposes these experiences. Likewise, global best practices may not be directly translated to emerging markets like India without adaptation, yet few studies explicitly examine how global insights can be localized (NASSCOM, 2023; OECD, 2022). By taking a broad yet integrative scope (covering banking, investment, fintech, and auditing, and examining both international and Indian contexts), this research attempts to bridge that gap.

Another identified gap is the theoretical framing of how financial professionals learn and adopt new technological skills. This is not purely a pedagogical issue nor purely a technical one; it sits at the intersection of organisational change, individual motivation, and evolving professional standards. Existing literature has not fully addressed how theoretical concepts such as lifelong learning, learning organisations, and competency frameworks apply specifically to AI skill-building in finance (OECD, 2022; ICAI, 2024). Our study, by applying a theoretical lens (discussed in the methodology) to interpret interview and case data, seeks to contribute to this conceptual understanding. We examine, for instance, whether having a "digital champion" or internal AI evangelist in an organization makes a discernible difference (a concept drawn from change management theory), or how the presence of external certification programs (like the CFA's AI certificate) influences individual learning behavior – areas that have not been deeply explored in academic literature (CFA Institute, 2023).

In the Indian context, the research gap is even more pronounced in terms of academic studies. Much of what we know about AI skills in Indian finance comes from consulting reports, news articles, or policy papers (MeitY, 2023; Indian Express, 2024). There is a paucity of peer-reviewed research in India that combines empirical data with academic rigour on this topic. Our research helps fill this gap by providing an analysis that is at once practical and scholarly, using India as a significant case within the global picture. We integrate insights from Indian experts and case studies (such as Indian banks and auditing firms) and analyse them


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alongside international experiences (NASSCOM, 2024; ICAI, 2024).

In summary, the key gaps this study addresses are: (1) the need for detailed, qualitative accounts of AI/ML competency development among financial professionals, (2) a comparative perspective that spans sectors and bridges global and local (Indian) contexts, and (3) the application of relevant theoretical frameworks to interpret the upskilling phenomenon in finance. By targeting these gaps, the study aims to advance understanding not just of why AI competencies are important – which is widely acknowledged – but also of how the financial workforce can evolve to meet the demands of an AI-driven future, and what lessons can be learned from those at the forefront of this transformation.

## Objectives

Based on the identified gaps and the overall purpose of this research, the objectives of this study are formulated as follows:

(i) Assess current AI/ML competencies among financial professionals globally and in India across banking, investment, fintech, and auditing, identifying skill gaps and workforce readiness.

(ii) Analyse effective strategies, case studies, and best practices for building AI/ML competencies through training, institutional initiatives, and expert insights.

(iii) Examine challenges, opportunities, and future requirements to bridge AI skill gaps, proposing policy, education, and industry-driven solutions.

## Methodology

This research employs a qualitative methodology to explore the development of Artificial Intelligence (AI) and Machine Learning (ML) competencies among financial professionals. The choice of a qualitative approach is guided by the study's emphasis on gaining an in-depth understanding of behaviours, organisational strategies, and contextual factors rather than quantification. The study focuses on the "how" and "why" behind successful upskilling initiatives and the lived experiences of individuals and institutions, making qualitative inquiry particularly appropriate.

## Research Design

An exploratory, multiple-case study design was adopted, complemented by expert interviews. Four major financial sectors—banking, investment management, fintech, and auditing—were selected as primary cases, in alignment with the study's objective of capturing sector-wide trends. Within each sector, specific institutions and programs were identified as embedded sub-cases to provide concrete and context-rich insights. For example, the banking sector includes cases such as enterprise-wide AI training initiatives at global institutions and AI integration practices at Indian banks, while the auditing sector examines structured upskilling initiatives, such as AI academies, within leading firms. This multi-case design facilitates cross-case comparison, enabling the identification of common patterns and sector-specific variations in competency-building strategies.

**Data Collection**

Data were collected from multiple sources to ensure triangulation and depth of analysis. These include expert interviews with industry professionals, case study documentation, corporate reports, and relevant academic and industry literature. Such triangulation enhances the credibility and richness of the findings.

**Data Analysis**

The study employs a thematic analysis approach to systematically interpret the qualitative data. All collected data—including interview transcripts, case narratives, and secondary sources—were subjected to an iterative coding process. Initially, open coding was conducted to identify key concepts and recurring ideas related to AI/ML adoption, skill requirements, training practices, and organisational challenges. These codes were then refined through axial coding, where related concepts were grouped into broader analytical categories. Subsequently, these categories were synthesised into overarching themes, including the skills gap in AI/ML competencies, organisational upskilling strategies, technological integration within financial functions, and the *future-readiness of the workforce*. The coding and analysis were carried out manually to allow contextual interpretation and flexibility in handling diverse qualitative sources. Cross-case thematic comparison was then performed to identify convergences and divergences across sectors. This systematic thematic coding process ensures analytical rigour, transparency, and replicability, thereby strengthening the validity of the study's findings.


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## Scope and Limitations

The qualitative, exploratory nature of this methodology means our findings are aimed at depth of insight rather than statistical generalizability. The expert interview sample, while diverse, is relatively small and may not capture all perspectives (for instance, additional insights from public-sector banks or regulators could further enrich the view). Additionally, there is a reliance on self-reported data in interviews, which carries a risk of bias or optimism (experts may portray their initiatives favourably). We mitigated this by triangulating with external reports and asking interviewees for concrete examples or metrics. Another limitation is that, as a contemporary real-time study, some programs (especially those launched very recently, e.g., within the last year) may not yet have measurable outcomes, making it challenging to assess long-term effectiveness; in such cases, our analysis relies on interim indicators or expert expectations. Despite these limitations, the methodology is robust for uncovering nuanced processes and providing actionable insights. The combination of case studies and interviews, viewed through a theoretical prism, allows us to paint a rich picture of how AI and ML competencies are being built – and can be built more effectively – in the financial sector.

## Discussion

### Banking Sector

The banking industry has taken a proactive stance toward integrating AI into its workflows, with global institutions such as Bank of America (BoA) showcasing comprehensive upskilling strategies. Through its internal platform, "The Academy," BoA provides AI training to both leadership and frontline employees, emphasising prompt engineering and use case identification. This inclusive approach fosters innovation and demystifies AI, resulting in productive applications such as generative AI tools that summarise client meeting notes, saving substantial employee time. Mid-sized banks such as Grasshopper Bank demonstrate agility by setting concrete AI adoption goals (e.g., saving 2,000 work hours per month). Through all-hands training led by its CTO, employees receive technical and ethical guidance on AI use. Peer learning and feedback loops further deepen engagement. Similarly, IncredibleBank's informal "lunch and learn" sessions and integration of Microsoft Copilot significantly increased AI tool usage.


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Indian private banks like HDFC and ICICI are actively investing in data analytics and machine learning training to modernise traditional departments. Public sector banks, often slower to adopt new technologies, are catching up via partnerships with IITs and IDRBT initiatives. A common thread across banks is the need to address workforce anxiety around AI. Transparent communication and participatory pilot implementations help foster trust and mitigate fears of displacement.

**Investment Management**

Investment firms face a pronounced skills gap in AI. According to the CFA Institute (2022), only 3% of investment professionals feel proficient in AI/ML, prompting programs such as the Data Science for Investment Professionals Certificate. Large firms like BlackRock and JPMorgan employ AI labs to facilitate internal upskilling via cross-functional collaborations. Portfolio managers are increasingly expected to integrate quantitative insights into traditional decision-making (CFA Institute, 2023). Robo-advisory and AI-based analytics tools are altering how advisors operate, necessitating AI literacy rather than deep technical knowledge. Firms deploy gamified learning and simulations to increase employee confidence. Ethical competency is also emphasised, as fiduciary responsibilities require AI outputs to be transparent, explainable, and compliant with regulations (SEBI, 2024). In India, NSE Academy and BSE Institute offer AI-finance courses. Domestic mutual funds are gradually adopting AI for predictive analytics. Task forces and project rotations within firms are helping professionals bridge traditional expertise with new tools. Investment firms emphasize interdisciplinary collaboration and integration, embodying the shift towards the augmented analyst model.

**Fintech Sector**

Fintech firms, typically born-digital, naturally incorporate AI talent into their foundations. However, as they scale, they increasingly employ professionals from traditional finance who must adapt to digital-first environments. Upskilling occurs through project-based learning and experimentation rather than formal courses. Employees often learn AI concepts by participating in cross-functional development projects, such as fraud detection or lending algorithms (EY-DLAI, 2023). Digital lenders in India exemplify the pivot from rule-based to AI-based credit scoring, necessitating structured workshops to upskill credit teams. AI


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integration into compliance (RegTech) has led to novel training models where engineers and compliance officers are cross-trained. AI "demo days" and hackathons are popular in Indian fintechs to democratise access to AI knowledge. Additionally, internal rewards for self-initiated learning (e.g., completing Coursera courses) have proven effective in motivating staff. The sector faces challenges like retaining AI talent and keeping pace with evolving technologies but thrives on adaptability and a learning culture.

**Auditing and Accounting**

The auditing profession is embracing AI to enhance efficiency in tasks such as anomaly detection, transaction processing, and document analysis. Big Four firms have invested heavily in AI adoption. For instance, PwC allocated $1 billion over three years to AI integration and workforce upskilling (PwC, 2023). EY's India operations trained over 44,000 employees via structured AI learning tracks tailored by role, from AI Aspirants to AI Ambassadors. AI literacy is increasingly seen as a core competency, with accountants expected to understand algorithmic outputs, biases, and limitations. Tools like NLP are used for contract scanning in audits, and professionals are trained to validate and cross-check AI outputs. ICAI and AICPA have incorporated AI into updated curricula, stressing the importance of maintaining professional scepticism. In India, the challenge lies in scaling up AI training to over 300,000 ICAI members. Initiatives include incorporating AI into student curriculum and professional workshops. Mid-sized firms often follow the lead of larger ones by adopting embedded AI tools within standard accounting software. A key emerging area is algorithm assurance—auditing the AI itself—necessitating new standards and specialist skills.

**Conclusion and Recommendations**

To ensure the finance workforce remains relevant and competitive in the AI era, financial institutions and stakeholders, globally and in India, must adopt a multipronged approach. Based on our findings, we offer the following recommendations:

**Integrate AI into Finance Education and Certification:**

Universities and professional bodies should embed AI/ML training into finance curricula. This includes hands-on tools such as Python for finance and AI-driven audit software, as well as a theoretical understanding of AI's applications in finan-

cial decision-making (Davenport & Ronanki, 2018). MBA programs could incorporate real-world datasets and ML models, while certification exams such as the CFA or CA should test foundational AI concepts to signal industry expectations (PwC, 2020). Indian regulators and institutions can look to early adopters like Singapore and the UK for best practices (World Economic Forum [WEF], 2023).

**Corporate Investment in Continuous Learning:**

Organisations should treat upskilling as a strategic investment rather than a cost. Research suggests that returns on such investments are often realised within a year (WEF, 2023). Firms can create in-house academies or subsidise external courses. Tiered training frameworks, as developed by EY, can help, while industry bodies such as NASSCOM and FICCI can coordinate shared training resources for smaller firms (NASSCOM, 2022).

**Encourage Hybrid Teams and Mentorship:**

Cross-functional teams – where finance professionals work alongside data scientists – promote knowledge exchange and reduce functional silos (Brynjolfsson & McElheran, 2016). Internal mentorship programs, such as pairing data scientists with analysts, can deepen understanding of AI tools and their applications. Recognising contributors to such internal learning cultures, for example, with "AI mentor" awards, can further motivate staff engagement (IBM, 2022).

**Promote a Culture of Experimentation with Governance:**

Finance professionals gain practical AI competence through experimentation. Creating controlled sandboxes or pilot environments enables employees to test AI tools in real scenarios (Accenture, 2021). However, this must be coupled with risk management protocols to ensure regulatory compliance and data privacy (BIS, 2021). This dual approach helps build confidence while maintaining financial integrity.

**Incorporate Ethics and Compliance in AI Training:**

AI training must address ethical use, bias mitigation, and regulatory issues. Case studies highlighting algorithmic discrimination or audit failures can instil a sense of responsibility (CFA Institute, 2023). Developing AI ethics codes tailored to finance – through joint efforts of industry and regulators – is essential.

**Public-Private Partnerships for AI Upskilling:**

Collaborations between government and industry should be expanded. Initiatives


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like India's Future Skills Prime are promising and should include specialised tracks for finance professionals (Ministry of Electronics and IT, 2022). Governments could incentivise firms that invest in employee AI training via tax benefits or recognition schemes. India's IT sector can also offer scalable AI training solutions to the financial sector.

In summary, becoming "future-ready" in finance requires not just adopting technology, but transforming talent. Finance professionals equipped with AI and ML competencies will be better positioned to deliver insights, drive innovation, and remain competitive. This transformation is a global opportunity. For India, it is also a chance to leapfrog traditional skill-building paradigms and lead through scalable innovation. As our research shows, human-machine collaboration and continuous learning are no longer optional—they are strategic imperatives (McKinsey & Company, 2022).


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