How MBA Graduates with AI-based Strategic and Research Skills are only Relevant to the Future Business World

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ABSTRACT

Purpose: *This exploratory research case study aims to examine how AI-based strategic and research skills can enhance the future relevance of MBA graduates in an increasingly AI-driven business environment. The study investigates the role of these competencies in improving employability, executive readiness, research productivity, innovation capability, and entrepreneurial success. It also proposes a comprehensive framework for transforming traditional MBA education into a future-oriented, AI-enabled management learning model.*
Methodology: *This exploratory research case study utilizes data gathered from various credible sources, including academic databases, Google Scholar, institutional websites, and AI-enabled GPT platforms. The collected information is systematically examined and interpreted using appropriate analytical frameworks aligned with the objectives of the study. This approach facilitates a comprehensive evaluation of the research problem and supports the development of meaningful insights and conclusions.*
Results/Analysis: *The analysis indicates that MBA graduates equipped with AI-based strategic and research skills are likely to achieve higher employability, stronger executive readiness, greater research productivity, and enhanced entrepreneurial capabilities. The study reveals that competencies such as AI-assisted decision-making, predictive analytics, strategic intelligence, innovation management, and AI-enabled research significantly improve future career relevance in an AI-driven business environment. The findings further suggest that transforming MBA curricula through AI-integrated learning, research-oriented education, and industry-linked innovation can create future-ready management professionals.*
Originality/Value: *This research offers a novel perspective by integrating AI-based strategic skills and AI-based research skills into a unified MBA competency framework for future employability, executive readiness, and entrepreneurship. The study contributes original value by proposing AI-enabled curriculum transformation, publication-oriented learning, and the Reverse Placement Model as innovative approaches for developing future-ready MBA graduates in an AI-driven business world.*
Type of Paper: *Exploratory Research Analysis.*
Keywords: MBA graduates, Artificial Intelligence in Management Education, AI-based Strategic Skills, AI-based Strategic Skills, Future business world, MBA Curriculum Transformation, AI-enhanced Employability, AI-driven Entrepreneurship.

1. INTRODUCTION :

1.1 Background of MBA Education:

Master of Business Administration (MBA) education has traditionally been designed to develop managerial, leadership, analytical, and decision-making competencies required for business organizations. Since its emergence in the early twentieth century, MBA programmes have evolved from functional business training in accounting, finance, marketing, and operations management to multidisciplinary programmes emphasizing strategic management, innovation, entrepreneurship, and global leadership. The increasing globalization of business and the emergence of knowledge-based economies have continuously reshaped the objectives and pedagogical approaches of management education. Business schools have progressively adopted experiential learning, case-study methods,

industry internships, and competency-based education to improve graduate employability and organizational relevance.

The rapid advancement of digital technologies and artificial intelligence (AI) is creating another paradigm shift in management education. The traditional objective of acquiring information and managerial knowledge is increasingly being replaced by the ability to generate knowledge, solve complex problems, conduct research, and create innovations using AI-enabled tools. According to Aithal and Aithal (2023) [1], AI-based Generative Pre-trained Transformers (GPTs) are transforming higher education by shifting emphasis from information acquisition to research-oriented competency development and innovation generation (Aithal & Aithal (2023). [2]).

Furthermore, institutions of higher education are increasingly expected to prepare graduates for data-driven organizations where intelligent systems support decision-making, customer engagement, forecasting, and strategic planning. Recent studies argue that higher education institutions must redesign curricula to integrate AI literacy, digital intelligence, and analytical reasoning as core competencies for future employability (Portocarrero Ramos (2025). [3]; Cheng (2025). [4]).

The future relevance of MBA education therefore depends on its ability to integrate AI-enabled strategic thinking, research capabilities, innovation competencies, and entrepreneurial skills into management learning processes. Such transformation is essential for producing future-ready graduates capable of creating value in increasingly intelligent and automated business environments.

1.2 Evolution of Business Management Skills:

Business management skills have evolved significantly in response to technological, economic, and societal transformations. During the industrial era, managerial competence primarily focused on administrative efficiency, supervision, operational control, and productivity enhancement. Scientific management principles emphasized standardization, planning, and process optimization as essential managerial functions. Subsequently, human relations and behavioural approaches highlighted leadership, motivation, communication, teamwork, and organizational culture as critical competencies for effective management (Wut et al. (2025). [5]).

The globalization era expanded managerial expectations by requiring strategic thinking, international business knowledge, cross-cultural communication, innovation management, and stakeholder engagement. Managers became increasingly responsible for navigating uncertainty, responding to market disruptions, and creating sustainable competitive advantages. Digital transformation further accelerated this evolution by introducing business intelligence, analytics, enterprise systems, digital marketing, and e-commerce into organizational operations (Bone et al. (2025). [6].

The current AI-driven era is redefining managerial competencies once again. Contemporary managers are expected to integrate human intelligence with machine intelligence to generate superior organizational outcomes. AI literacy, predictive analytics, strategic foresight, digital leadership, prompt engineering, ethical AI governance, and research-driven decision-making are emerging as critical management competencies. Recent studies indicate that AI literacy, critical thinking, and ethical AI practices are among the most important skills required for effective engagement with generative AI technologies in educational and professional settings (Krause (2025). [7]).

In addition, labour market evidence increasingly demonstrates a shift from qualification-based recruitment toward skill-based hiring, particularly in AI-related occupations. Employers are placing greater value on demonstrable competencies in analytics, AI applications, and problem-solving than on formal academic credentials alone. Therefore, future MBA graduates must develop AI-enhanced strategic and research skills that enable them to work effectively alongside intelligent systems while maintaining creativity, innovation, ethical judgment, and human-centric leadership capabilities (Gill et al. (2024). [8]).

1.3 Impact of Artificial Intelligence on Employment:

Artificial Intelligence is widely recognized as one of the most transformative technologies affecting employment, organizational structures, and workforce requirements. AI-powered systems are increasingly capable of performing routine cognitive tasks, data processing activities, customer interactions, forecasting operations, and decision-support functions that were previously handled by human workers. Automation technologies have improved efficiency, productivity, and scalability across

multiple industries, thereby transforming the nature of work and the competencies required for professional success (Petropoulos (2018). [9]; Shaukat et al. (2020). [10]).

While AI creates substantial opportunities for innovation and economic growth, it also raises concerns regarding workforce displacement and skill obsolescence. Many routine managerial and administrative functions are becoming automated through machine learning algorithms, robotic process automation, and intelligent software systems. Consequently, traditional management roles that depend primarily on information processing and routine decision-making may experience declining demand in the future. However, AI is simultaneously creating new employment opportunities in areas such as AI strategy, business analytics, digital transformation, innovation management, AI governance, and technology consulting (Masriadi (2023). [11]; Aithal & Prabhu (2024). [12]).

Recent empirical evidence suggests that AI skills are emerging as a significant determinant of graduate employability. University graduates possessing AI competencies demonstrate stronger employment prospects and greater adaptability to evolving labour market requirements. Formal integration of AI-related skills into higher education curricula is increasingly considered essential for improving career readiness and long-term employability (Aithal (2023). [13]; Aithal (2025). [14]).

Furthermore, studies indicate that employability skills mediate the relationship between AI knowledge and graduate quality, suggesting that technological literacy alone is insufficient without complementary competencies such as analytical reasoning, communication, innovation, and strategic thinking. As AI continues to reshape industries and occupations, MBA graduates must develop advanced strategic and research capabilities that complement intelligent systems rather than compete with them. Such competencies will become essential for sustaining employability, career advancement, and entrepreneurial success in the future business world (Aithal (2023). [15]; Rahmatian & Sharajsharifi (2022). [16]).

1.4 Need for AI-based Strategic and Research Competencies:

The emergence of Artificial Intelligence (AI) has fundamentally transformed the nature of managerial work, creating an urgent need for MBA graduates to acquire AI-based strategic and research competencies. Traditional managerial functions such as planning, forecasting, performance evaluation, market analysis, and decision-making are increasingly supported by AI-powered systems capable of processing large datasets and generating predictive insights. Consequently, future managers must possess the ability to collaborate with intelligent technologies while exercising human judgment, creativity, and ethical reasoning. Recent studies emphasize that AI literacy is becoming a foundational competency for professionals across industries, requiring individuals to understand, evaluate, and strategically utilize AI tools for organizational benefit (Wut et al. (2025). [5]; Portocarrero Ramos (2025). [3]).

AI-based strategic competencies enable managers to transform data into actionable intelligence. Such competencies include predictive analytics, competitive intelligence, strategic foresight, scenario planning, business model innovation, and AI-assisted decision-making. Organizations increasingly rely on data-driven strategies to maintain competitiveness in dynamic markets, thereby demanding managers who can integrate AI-generated insights into strategic planning processes. According to Aithal and Aithal (2023). [x], higher education institutions must move beyond information dissemination and cultivate capabilities that enable students to leverage AI for innovation, problem-solving, and strategic value creation. Similarly, Katsamakas, Pavlov, and Saklad (2024) [17] argue that AI is redefining organizational decision-making and necessitating new educational approaches that prepare graduates for technology-enabled leadership roles.

Research competencies are equally important in the AI era. Organizations increasingly require managers who can identify problems, gather evidence, analyse data, evaluate alternatives, and formulate evidence-based solutions. AI-powered research tools significantly enhance literature review, data collection, data analysis, predictive modelling, and knowledge creation processes. The integration of AI into business research enables managers to generate insights more efficiently while maintaining analytical rigor. Aithal and Aithal (2024) [18] highlight that AI-based systems are transforming research methodologies and enabling students to engage in scholarly publication, innovation studies, patent analysis, and business intelligence activities at unprecedented levels.

Furthermore, AI-based strategic and research competencies contribute directly to employability, executive readiness, and entrepreneurial success. Modern employers increasingly seek graduates who

can utilize AI technologies for problem-solving, innovation, consulting, and business transformation. Research-oriented managers are also better positioned to identify emerging opportunities, evaluate technologies, and create new ventures in knowledge-driven economies. Therefore, the integration of AI-based strategic and research skills into MBA curricula is no longer optional but essential for ensuring future career relevance and organizational effectiveness (Gill et al. (2023). [8]; Portocarrero Ramos (2025). [3]).

1.5 Problem Statement:

Artificial Intelligence is rapidly transforming the global business landscape by automating routine cognitive tasks, enhancing decision-making processes, and creating new organizational structures. Despite these technological developments, a substantial proportion of MBA programmes continue to emphasize traditional management education models that focus primarily on theoretical knowledge, functional specialization, and placement-oriented learning. Such approaches may not adequately prepare graduates for AI-enabled organizations where data-driven decision-making, strategic intelligence, innovation management, and research competencies are increasingly valued.

Many MBA graduates possess strong conceptual understanding of management disciplines but demonstrate limited proficiency in applying AI technologies for strategic analysis, business research, innovation development, and entrepreneurial opportunity identification. Employers frequently report skill gaps in areas such as analytics, digital intelligence, critical thinking, research capability, and technology integration. As AI systems become increasingly capable of performing routine managerial tasks, graduates who lack advanced strategic and research competencies may face declining employability and reduced career advancement opportunities (Wut et al. (2025). [5]; Bone et al. (2023). [6]). Moreover, conventional MBA programmes often prioritize placement outcomes over knowledge creation, scholarly publication, and innovation capability. Consequently, students may graduate without developing strong research portfolios, professional visibility, or entrepreneurial competencies. This situation creates a mismatch between educational outputs and industry expectations, particularly in sectors characterized by rapid technological change and knowledge-intensive competition (Katsamakas et al. (2024). [17]).

Another challenge concerns the absence of structured frameworks for integrating AI into management education. While many institutions have introduced isolated courses in analytics or digital transformation, comprehensive models linking AI literacy, strategic thinking, research capability, employability, and entrepreneurship remain underdeveloped. This gap limits the effectiveness of current educational interventions and reduces their long-term impact on graduate success.

Accordingly, the central problem addressed by this study is: **How can MBA education be transformed through AI-based strategic and research competencies to enhance employability, executive readiness, research productivity, and entrepreneurial success in the future business world?**

1.6 Research Gap:

A review of contemporary literature reveals substantial scholarly attention devoted to artificial intelligence, digital transformation, employability skills, higher education innovation, and future workforce requirements. Numerous studies have examined the impact of AI on organizational performance, operational efficiency, workforce transformation, and educational practices. Similarly, research has investigated digital learning, competency-based education, and technology-enabled pedagogies within higher education institutions (Kamalov et al. (2023). [19]; Katsamakas et al. (2024). [17]).

However, relatively few studies have specifically examined the integration of **AI-based strategic skills** and **AI-based research skills** as core components of MBA education. Existing research frequently addresses AI literacy, analytics education, or digital transformation independently, without establishing comprehensive frameworks linking these competencies to employability, executive career development, research productivity, innovation capability, and entrepreneurship. The literature therefore lacks an integrated perspective on how AI competencies can reshape management education and managerial career trajectories.

Furthermore, limited research has explored publication-oriented learning models within MBA programmes. While scholarly publication is widely recognized as a mechanism for knowledge creation and professional development, few studies have investigated how AI-assisted research can be

systematically incorporated into management education to enhance student visibility, industry recognition, and career opportunities. Similarly, research examining AI-enabled approaches to industry analysis, company analysis, CEO analysis, product analysis, startup evaluation, and patent analysis as educational tools remains scarce (Aithal & Aithal (2024). [18]).

Another notable gap concerns the concept of **Reverse Placement**, wherein students build research portfolios, publish scholarly work, establish professional visibility, and attract employment opportunities through demonstrated expertise. Existing employability literature predominantly focuses on conventional recruitment and placement mechanisms, with limited attention given to research-driven professional branding and AI-enabled career pathways [20].

The literature also lacks empirical and conceptual studies that explain the relationships among AI literacy, strategic competencies, research skills, publication productivity, professional visibility, employability, executive career success, and entrepreneurial readiness. Therefore, there is a need for exploratory research that develops comprehensive frameworks and case-study evidence demonstrating how AI-based strategic and research competencies can transform MBA education and enhance future relevance in an AI-driven economy (Aithal & Aithal (2023). [2]; Portocarrero Ramos (2025). [3]).

1.7 Significance of the Study:

This study is significant from educational, managerial, industrial, and societal perspectives. First, it contributes to the emerging literature on AI-enabled management education by proposing a comprehensive framework that integrates strategic intelligence, research competency, innovation capability, and entrepreneurship readiness within MBA programmes. The study expands existing discussions on employability by emphasizing the role of AI-assisted knowledge creation and research productivity in professional development.

Second, the study provides practical guidance for business schools seeking to redesign curricula in response to AI-driven workforce transformation. The proposed framework demonstrates how AI tools can be systematically integrated into teaching, learning, research, publication, and entrepreneurial development processes. Such innovations can improve graduate employability, institutional reputation, and industry relevance.

Third, the study offers valuable insights for employers by identifying future-ready competencies that enable graduates to contribute effectively in AI-enabled organizations. Finally, the study contributes to societal development by promoting knowledge-based entrepreneurship, innovation ecosystems, and lifelong learning models that support sustainable economic growth.

1.8 Scope of the Study:

The study focuses on the emerging role of AI-based strategic and research competencies in enhancing the future relevance of MBA graduates. It examines curriculum transformation, competency development, employability enhancement, research productivity, publication-oriented learning, innovation management, and entrepreneurship development within the context of management education.

The scope includes the application of AI technologies across primary, secondary, tertiary, and quaternary sectors of the economy. Particular emphasis is placed on strategic decision-making, research capability, industry analysis, company analysis, CEO analysis, patent analysis, startup evaluation, and knowledge entrepreneurship. The study also investigates the Reverse Placement Model as an alternative pathway for securing executive positions and entrepreneurial opportunities.

As an exploratory study, the paper primarily develops conceptual frameworks, theoretical models, and case-based insights that may be empirically validated in future research.

1.9 Structure of the Paper:

The paper is organized into multiple interconnected sections designed to examine the future relevance of MBA graduates in an AI-driven business environment. Following the Introduction, the Review of Literature synthesizes existing research on MBA education, AI adoption, employability, strategic management, research competencies, entrepreneurship, and educational innovation.

Subsequent sections develop the conceptual foundations of AI-based strategic and research skills, analyse the current status of MBA education, examine future technological trends, and identify limitations of conventional management education. The paper then presents the proposed competency

framework, innovative learning models, publication-oriented educational approaches, Reverse Placement Model, and entrepreneurship development strategies.

The study further incorporates structural analyses including SWOC Analysis, ABCD Analysis, and Impact Analysis to evaluate the strengths, opportunities, limitations, and implications of the proposed model. Finally, the paper presents recommendations for business schools, discusses theoretical and practical contributions, identifies limitations, and concludes with future directions for research and curriculum innovation.

2. REVIEW OF LITERATURE :

2.1 Traditional MBA Education:

Traditional MBA education has historically aimed to prepare graduates for managerial, administrative, leadership, and strategic roles by offering functional knowledge in finance, marketing, human resource management, operations, accounting, economics, and strategy (Armstrong & Fukami (2009). [21]). However, the relevance of conventional MBA education has been repeatedly questioned by scholars. Pfeffer and Fong argued that business schools show limited evidence of producing superior managerial performance, career success, or organizational effectiveness through MBA education alone (Pfeffer & Fong (2004). [22]). Similarly, Bennis and O'Toole criticized business schools for becoming overly research-oriented and insufficiently practice-oriented, arguing that many MBA programmes failed to impart useful managerial skills, ethical judgment, and leadership capability (Bennis & O'toole (2005). [23]).

A major criticism of traditional MBA education is the gap between curriculum content and real managerial competencies. Rubin and Dierdorff found that the competencies managers considered most important were often least represented in required MBA curricula, indicating a serious misalignment between business school education and managerial practice (Rubin & Dierdorff (2009). [24]). Pfeffer and Fong further noted that the business school model increasingly became market-oriented, reputation-driven, and credential-focused rather than profession-oriented (Pfeffer & Fong (2004). [22]). This suggests that conventional MBA education may produce graduates with conceptual knowledge but insufficient practical, behavioural, analytical, and strategic capabilities.

Recent studies have continued this debate by examining whether MBA curricula have become more relevant to contemporary business needs. Amblee's work on a more relevant MBA suggests that across-the-curriculum delivery of competencies can improve alignment between MBA education and managerial requirements [25]. However, the traditional MBA model still remains heavily classroom-centred and discipline-based, whereas the future business world increasingly requires interdisciplinary, technology-enabled, data-driven, and innovation-oriented capabilities. Therefore, conventional MBA education must shift from knowledge delivery to competency formation, research productivity, AI-assisted decision-making, innovation development, and entrepreneurial readiness.

2.2 AI and Future of Work:

Artificial Intelligence is transforming the future of work by changing the nature of tasks, occupations, skills, and employment structures. Frey and Osborne's widely cited study estimated the susceptibility of jobs to computerisation and argued that occupations involving routine and predictable tasks face greater automation risk (Frey & Osborne (2017). [26]). Acemoglu and Restrepo provided empirical evidence that industrial robots can reduce employment and wages in affected labour markets, showing that automation can have significant labour displacement effects (Acemoglu & Restrepo (2019). [27]). These studies indicate that AI and automation may reduce demand for routine managerial and administrative roles while increasing demand for higher-order cognitive, analytical, creative, and strategic work.

At the same time, AI does not simply replace entire occupations; rather, it transforms tasks within occupations. Brynjolfsson, Mitchell, and Rock argued that machine learning affects work at the task level and that most occupations include at least some tasks suitable for machine learning (Brynjolfsson et al. (2018). [28]). Felten, Raj, and Seamans developed the AI Occupational Exposure measure and showed that exposure to AI varies by occupation, industry, and geography, suggesting that knowledge-intensive and managerial occupations may be significantly reshaped by AI rather than uniformly eliminated (Felten (2021). [29]).

For MBA graduates, this means that future employability will depend less on possession of a management degree alone and more on the ability to use AI for decision support, business analytics, strategic planning, research, innovation, and entrepreneurship. AI-enabled work will require managers who can interpret algorithmic outputs, ask relevant strategic questions, evaluate risks, manage ethical issues, and combine human judgment with machine intelligence. Therefore, MBA education must prepare graduates for human–AI collaboration rather than only traditional managerial roles. This makes AI-based strategic and research skills essential for future managerial relevance.

Table 1: Literature Review on MBA curriculum

Reference	Focus Area	Key Findings	Relevance to Present Study
Pfeffer & Fong (2002). [30]	Effectiveness of business schools	MBA education has limited proven impact on managerial success.	Supports critique of traditional MBA education.
Bennis & O'Toole (2005). [23]	Business school relevance	Business schools became too academic and less practice-oriented.	Justifies need for practical AI-based curriculum innovation.
Rubin & Dierdorff (2009). [24]	MBA curriculum alignment	Critical managerial competencies are underrepresented in MBA curricula.	Supports competency gap argument.
Amblee (2023). [31]	Relevant MBA curriculum	Across-the-curriculum competency delivery can improve MBA relevance.	Supports integrated AI skill development.
Frey & Osborne (2017). [26]	Automation and employment	Routine jobs are more vulnerable to computerisation.	Supports employability threat for conventional graduates.
Acemoglu & Restrepo (2020). [32]	Robots and labour markets	Robots may reduce employment and wages in exposed labour markets.	Supports automation-risk argument.
Brynjolfsson, Mitchell & Rock (2018). [33]	Machine learning and occupations	AI affects tasks within occupations rather than only whole jobs.	Supports need for task-level AI skills.
Felten, Raj & Seamans (2021). [29]	AI occupational exposure	AI exposure differs across occupations, industries, and regions.	Supports need for sector-specific AI competencies.

2.3 AI in Strategic Decision Making:

Artificial Intelligence has become an important enabler of strategic decision-making because it allows organizations to process large volumes of structured and unstructured data, identify weak signals, generate predictive insights, evaluate alternative strategies, and support managerial judgment. Traditional strategic decision-making relied heavily on managerial experience, intuition, environmental scanning, and analytical tools such as SWOT, PESTLE, value chain analysis, and Porter's Five Forces. However, AI-enabled systems now strengthen strategic analysis by improving information search, pattern recognition, forecasting, competitor intelligence, and scenario evaluation. Csaszar, Ketkar, and Kim (2024) [34] show that large language models can generate and evaluate strategies at a level comparable to entrepreneurs and investors, suggesting that AI can influence the core cognitive processes of strategic decision-making such as search, representation, and aggregation.

The literature indicates that AI improves strategic decision quality by reducing information overload and enabling faster evaluation of complex alternatives. AI technologies help managers interpret market signals, customer behaviour, financial trends, operational risks, and technological shifts. This is particularly important in turbulent environments where decision speed and accuracy influence competitive advantage. Felten, Raj, and Seamans (2021) [29] developed a framework for measuring

occupational and industry exposure to AI, showing that AI affects knowledge-intensive and managerial activities, not only routine operational work. This implies that strategic managers need AI capabilities to remain effective in increasingly algorithmic business environments.

AI also enhances strategic decision-making by supporting evidence-based entrepreneurship and investment decisions. In entrepreneurial contexts, AI can assist in opportunity recognition, market entry decisions, startup evaluation, business model validation, and investor assessment. Csaszar et al. (2024) [34] provide empirical evidence from accelerator and startup competition settings that AI can support both strategy generation and evaluation. This is highly relevant for MBA graduates because future executive roles will require the ability to use AI not merely as a productivity tool but as a strategic partner in opportunity evaluation, competitive positioning, and innovation planning.

At the same time, AI-supported strategic decision-making raises important challenges. Algorithmic opacity, bias, poor data quality, over-reliance on automated recommendations, lack of contextual sensitivity, and ethical risks can reduce the quality of decisions. Strategic decisions often involve uncertainty, ambiguity, politics, stakeholder values, and long-term consequences that cannot be fully captured by algorithmic outputs. Therefore, human judgment remains central. The most effective model is not AI replacing managers but AI augmenting strategic reasoning. In this context, MBA graduates must develop AI-based strategic skills such as prompt engineering, strategic foresight, predictive analytics, scenario modelling, critical interpretation of AI outputs, and ethical decision governance.

Thus, the literature suggests that AI is transforming strategic decision-making from intuition-dominant and experience-based processes toward hybrid human–AI decision systems. For MBA education, this means strategic management courses should include AI-based environmental scanning, AI-assisted competitive analysis, AI-generated scenario planning, AI-supported business model evaluation, and critical evaluation of algorithmic recommendations. Graduates who acquire these competencies will be more capable of handling future executive responsibilities than those trained only in conventional strategy tools.

2.4 AI in Business Research:

AI is also transforming business research by changing how researchers identify problems, review literature, collect data, analyse evidence, generate insights, and disseminate findings. Business research traditionally depended on manual literature review, survey design, interviews, case studies, statistical analysis, and theoretical interpretation. With the rise of AI, researchers can now use machine learning, natural language processing, text mining, predictive analytics, bibliometric tools, and generative AI to improve the speed, scale, and depth of research. Cao et al. (2024) [35] conducted a comprehensive review of AI research from 2010 to 2023 across 25 leading business journals and found exponential growth in AI-related business research, confirming AI's central role in modern business scholarship.

Business research increasingly uses AI for literature mapping, topic modelling, sentiment analysis, consumer behaviour analysis, market forecasting, fraud detection, supply chain analytics, financial prediction, human resource analytics, and strategic intelligence. Nguyen, Sidorova, and Torres (2022) [36] reviewed AI in business and proposed a research agenda showing that AI is now relevant across multiple business domains, including decision-making, marketing, operations, information systems, and organizational transformation. Patra (2023) [37] also analysed the academic landscape of AI and business management using bibliometric methods, indicating the expanding research interest in AI applications across management disciplines.

Generative AI tools such as ChatGPT have further expanded the possibilities of business research. They can support idea generation, research question formulation, literature synthesis, academic writing, coding assistance, interview protocol design, and preliminary data interpretation. Aithal and Aithal (2023) [2] examined the application of ChatGPT in higher education and research, arguing that AI-based GPTs can support advanced research, scholarly publication, and academic productivity while also creating risks related to accuracy, originality, and academic integrity. Dempere et al. (2023) [38] similarly studied ChatGPT's impact on higher education and highlighted both its academic usefulness and ethical implications.

For MBA graduates, AI in business research has special relevance because it enables publication-oriented learning and evidence-based managerial analysis. Students can use AI-assisted research methods to conduct industry analysis, company analysis, product/service analysis, CEO analysis, patent analysis, startup analysis, and policy analysis. These activities enhance research productivity, analytical

confidence, professional visibility, and employability. AI-based research tools can help MBA students move from being passive consumers of knowledge to active producers of business knowledge. This is especially important in the proposed article because AI-based research skills are treated as a foundation for employability, reverse placement, consulting capability, and entrepreneurship readiness.

However, the literature also emphasizes that AI cannot replace scholarly judgment. AI-generated research outputs may contain hallucinated citations, biased interpretations, weak methodology, or unsupported claims. Therefore, researchers must verify sources, check data quality, apply ethical standards, and maintain originality. AI should be used as a research assistant rather than as an independent author. Consequently, MBA curricula should train students in AI-supported research design, AI-assisted literature review, data analytics, citation verification, research ethics, publication standards, and responsible use of generative AI.

In summary, AI in business research provides MBA graduates with a powerful mechanism for developing analytical, strategic, and scholarly competencies. It supports faster knowledge creation, deeper business analysis, and improved publication productivity. Yet, its value depends on responsible use, critical thinking, methodological rigour, and ethical academic practice.

2.5 Literature Review on AI in Business Research:

Table 2: Literature Review related to AI in Business Research

Reference	Focus Area	Key Findings	Relevance to Present Study
Csaszar, Ketkar & Kim (2024). [34]	AI and strategic decision-making	AI can generate and evaluate strategies comparable to entrepreneurs and investors.	Supports AI-based strategic skill development for MBA graduates.
Felten, Raj & Seamans (2021). [29]	Occupational and industry exposure to AI	AI exposure affects knowledge-intensive and managerial occupations.	Shows need for AI capability in future executive roles.
Nguyen, Sidorova & Torres (2022). [36]	AI in business research	AI is relevant across business domains and requires a future research agenda.	Supports AI as a foundation for business research training.
Cao et al. (2024). [35]	AI in business research	Reviewed AI studies from 2010–2023 in 25 leading business journals.	Establishes AI as a rapidly growing field in business scholarship.
Patra (2023). [37]	AI and business management bibliometrics	AI-business research is expanding across Scopus and Web of Science.	Supports need for AI-focused management research capability.
Aithal & Aithal (2023). [2]	ChatGPT in higher education and research	GPT tools can support advanced research and scholarly publication.	Directly supports AI-based research skills for MBA students.
Dempere et al. (2023). [38]	ChatGPT and higher education	AI chatbots affect teaching, learning, academic productivity, and ethics.	Supports responsible AI use in research-based MBA learning.
Bharadiya, Thomas & Ahmed (2023). [39]	AI in business and industry	AI supports productivity, competitive advantage, and business transformation.	Supports AI adoption across business research and strategy.

2.6 AI-driven Innovation and Entrepreneurship:

Artificial Intelligence has emerged as a major driver of innovation and entrepreneurship because it enables firms and individuals to discover opportunities, create new business models, automate processes, improve decision-making, personalize customer experiences, and scale operations more efficiently. Traditional entrepreneurship literature emphasized opportunity recognition, resource mobilization, risk-taking, innovation, and value creation. In the AI era, these entrepreneurial processes

are increasingly supported by intelligent technologies that assist entrepreneurs in market analysis, customer segmentation, product development, pricing, forecasting, and operational optimization. Giuggioli and Pellegrini (2023) [40] describe AI as an enabler of the entrepreneurial process, arguing that it supports opportunity identification, decision-making, firm performance, entrepreneurial education, and research.

AI-driven innovation also reshapes business models by enabling firms to build value propositions around data, algorithms, platforms, automation, and personalization. Mishra and Tripathi (2021) [41] argue that AI-enabled business models integrate data flows, digital platforms, analytics, and machine learning to generate new forms of business value. Similarly, recent studies on AI-enabled business model innovation show that firms use AI to develop intelligent connectivity, intelligent development, and intelligent governance capabilities, which support competitive advantage and business transformation. These insights are highly relevant for MBA graduates because future managers and entrepreneurs must understand how AI can be embedded into business models rather than used only as a productivity tool.

The literature further shows that AI enhances entrepreneurial decision-making by reducing uncertainty and improving access to business intelligence. Al-Mamary (2025) [42] found that AI capabilities improve entrepreneurial venture success by strengthening decision-making, automation, customer experience, innovation, risk mitigation, and competitive advantage. AI tools can support entrepreneurs in evaluating market attractiveness, forecasting customer demand, testing business assumptions, identifying competitor strategies, and assessing financial viability. For MBA graduates, this means AI competence can directly support both employment and self-employment pathways by enabling them to become AI-assisted entrepreneurs, consultants, analysts, and innovation managers.

AI is also important in entrepreneurship education. Zhang (2025) [43] proposes that integrating AI into innovation and entrepreneurship education can improve teaching strategies, personalize learning, and cultivate entrepreneurial skills among university students. This supports the argument that MBA programmes should move beyond conventional entrepreneurship courses and introduce AI-based opportunity analysis, startup analytics, AI business model design, AI-assisted market validation, and digital venture creation. Such learning experiences can help students identify opportunities in online and offline businesses and prepare them for knowledge entrepreneurship.

However, AI-driven entrepreneurship also presents challenges. Entrepreneurs must address data privacy, algorithmic bias, cybersecurity risks, ethical use of AI, regulatory uncertainty, technological dependence, and unequal access to AI infrastructure. Studies on AI and business innovation emphasize that while AI can reshape strategy, operations, and value creation, it also requires responsible governance and human oversight. Therefore, MBA graduates require not only AI tool-usage skills but also AI governance, ethical reasoning, business model evaluation, innovation strategy, and risk assessment capabilities. The literature therefore supports the need for AI-based entrepreneurship education that integrates innovation, strategy, research, ethics, and business creation.

2.7 Future Employability Skills:

Future employability increasingly depends on a graduate's ability to combine disciplinary knowledge with digital capability, AI literacy, analytical thinking, adaptability, communication, creativity, ethical judgment, and lifelong learning. Earlier employability frameworks emphasized generic skills such as teamwork, communication, problem-solving, leadership, initiative, and self-management. In the AI era, these traditional employability skills remain important, but they must be complemented by technological intelligence and the ability to work with intelligent systems. Portocarrero Ramos (2025) [3] found that university graduates with advanced AI skills are more likely to obtain employment related to their field of study, indicating that AI capability is becoming a measurable employability advantage.

Digital competence is also becoming central to employability. Đorđević et al. (2025) [44] show that digital skills, including information and data literacy, communication and collaboration, problem-solving, digital content creation, and safety skills, influence employability outcomes. These findings are important for MBA graduates because business roles increasingly involve digital tools, dashboards, analytics platforms, AI assistants, enterprise systems, and virtual collaboration environments. Graduates lacking digital fluency may find it difficult to perform effectively in AI-integrated organizations.

The future employability literature also emphasizes adaptability and skill-based hiring. As AI transforms jobs at the task level, employers increasingly value demonstrable skills rather than formal

qualifications alone. Bone, Ehlinger, and Stephany (2023) [6] argue that hiring trends in AI and green jobs increasingly favour skill-based evidence over degree-based signalling. This means MBA graduates must demonstrate practical capability through projects, AI-supported analyses, research publications, internships, consulting assignments, digital portfolios, and innovation outputs. In this context, the "reverse placement" model becomes relevant because it allows graduates to create professional visibility through demonstrated expertise rather than depending only on campus recruitment.

AI-enabled employability also requires higher-order human skills. As routine analytical and administrative tasks become automated, human value shifts toward critical thinking, ethical judgment, creativity, social intelligence, leadership, contextual understanding, and interdisciplinary problem-solving. UNESCO's work on AI and skills development highlights that AI changes not only technical training needs but also broader competencies required for future work, including adaptability, lifelong learning, and responsible technology use (UNESCO (2021). [46]). Similarly, recent work on graduate employability in the AI and globalization era emphasizes digital literacy, adaptability, cross-cultural competence, ethical technology use, and curriculum-industry alignment (Sozon et al. (2026). [47]).

For MBA graduates, future employability will therefore depend on a combination of five skill clusters: AI and digital skills, strategic and analytical skills, research and evidence-based decision-making skills, innovation and entrepreneurial skills, and human-centred leadership skills. AI-based research publications, industry analysis, company analysis, product/service analysis, CEO analysis, patent analysis, and startup analysis can serve as evidence of these skills. Thus, the literature supports the claim that MBA graduates with AI-based strategic and research skills will be better positioned for executive employment, consulting roles, entrepreneurial ventures, and future business leadership.

Table 3: Literature Review on AI in Employability

Reference	Focus Area	Key Findings	Relevance to Present Study
Giuggioli & Pellegrini (2023). [40]	AI and entrepreneurship	AI supports opportunity identification, decision-making, performance, education, and research.	Supports AI-based entrepreneurship skill development among MBA graduates.
Mishra & Tripathi (2021). [41]	AI business models	AI and ML reshape digital platform business models and enterprise value creation.	Supports AI-enabled business model innovation.
Zhang (2025). [43]	AI in innovation and entrepreneurship education	AI integration improves teaching strategies, personalization, and entrepreneurial skill formation.	Supports curriculum innovation in MBA entrepreneurship education.
Al-Mamary (2025). [42]	AI capabilities and venture success	AI improves entrepreneurial success through decision-making, automation, innovation, and competitive advantage.	Supports AI-based startup readiness for MBA graduates.
Machucho (2025). [45]	AI and business innovation	AI transforms strategy, operations, value creation, and innovation across industries.	Supports AI-driven innovation as a future business competency.
Portocarrero Ramos (2025). [3]	AI skills and employability	Advanced AI skills are associated with better graduate employability outcomes.	Supports AI literacy as employability advantage.

Reference	Focus Area	Key Findings	Relevance to Present Study
Đorđević et al. (2025). [44]	Digital skills and employability	Digital skills improve employability through literacy, collaboration, problem-solving, content creation, and safety.	Supports digital competence as core MBA graduate skill.
Bone, Ehlinger & Stephany (2025). [6]	Skill-based hiring	AI and green jobs increasingly emphasize demonstrable skills over degrees.	Supports research portfolio and reverse placement model.
UNESCO (2021). [46]	AI and skills development	AI changes skill needs and requires adaptation in education and training.	Supports curriculum reform for future workforce readiness.
Sozon et al. (2026). [47]	AI, globalization, and graduate employability	Digital literacy, adaptability, cross-cultural skills, and ethical AI use shape employability.	Supports holistic future employability framework.

2.8 Digital Transformation and Leadership:

Digital transformation has become a strategic imperative for organizations seeking competitiveness, innovation, operational efficiency, and customer-centric value creation. It involves the integration of digital technologies into organizational processes, business models, products, services, and managerial practices. Unlike earlier technological changes, digital transformation affects the entire organization and requires leaders who can navigate uncertainty, foster innovation, and manage technology-enabled change. Kane et al. (2015) [48] observed that successful digital transformation depends not merely on technology adoption but on leadership capability, organizational culture, and strategic vision. Organizations with digitally mature leadership demonstrate greater adaptability and innovation performance than those focusing solely on technological investments.

The literature suggests that leadership in the digital era differs significantly from traditional management approaches. Digital leaders must possess strategic foresight, technological literacy, change management capability, innovation orientation, and stakeholder engagement skills. Westerman, Bonnet, and McAfee (2014) [49] argued that digitally transformed organizations combine digital capability with strong leadership to achieve superior business performance. Consequently, leadership is increasingly viewed as the primary enabler of digital transformation rather than a secondary support function.

Artificial Intelligence further expands the scope of digital leadership. AI-powered systems influence decision-making, customer engagement, workforce management, innovation processes, and organizational learning. Raisch and Krakowski (2021) [50] proposed that organizations increasingly operate through hybrid intelligence systems where humans and AI collaborate in decision-making and value creation. This transformation requires leaders who understand both technological capabilities and human behavioural dynamics. Therefore, MBA graduates aspiring to leadership positions must develop competencies in AI governance, ethical AI implementation, data-driven decision-making, and digital strategy.

Recent studies emphasize the growing importance of digital leadership competencies in higher education and management development. Sousa and Rocha (2019) [51] found that digital skills, adaptability, collaboration, and continuous learning significantly influence leadership effectiveness in digitally transformed organizations. Similarly, Avolio, Sosik, Kahai, and Baker (2014). [52] highlighted that technology-mediated leadership requires new approaches to communication, influence, trust-building, and organizational coordination. These findings indicate that future leaders must effectively integrate technology with human capabilities to achieve organizational objectives.

For MBA graduates, digital transformation leadership requires proficiency in AI tools, analytics platforms, digital business models, innovation ecosystems, and strategic technology management. Leadership development programmes should therefore integrate AI literacy, digital strategy, organizational transformation, change leadership, and ethical technology governance. Such

competencies are essential for managing future organizations where human intelligence and machine intelligence coexist and jointly create value.

2.9 Industry 5.0 and AI:

Industry 5.0 represents the next stage of industrial evolution beyond Industry 4.0, emphasizing human-centricity, sustainability, resilience, and intelligent collaboration between humans and machines. While Industry 4.0 focused primarily on automation, cyber-physical systems, Internet of Things (IoT), big data analytics, and smart manufacturing, Industry 5.0 seeks to balance technological advancement with human creativity, well-being, and social responsibility. European Commission reports define Industry 5.0 as a paradigm that places human needs and societal values at the centre of technological innovation. Artificial Intelligence serves as a foundational technology within Industry 5.0 because it enables intelligent automation, predictive analytics, autonomous systems, personalized manufacturing, and real-time decision-making. Xu, Lu, Vogel-Heuser, and Wang (2021) [53] argued that Industry 5.0 extends Industry 4.0 by integrating human creativity and intelligence with advanced technologies such as AI, robotics, and digital twins. This integration allows organizations to achieve both operational efficiency and human-centred innovation.

The literature identifies several dimensions of Industry 5.0 that are particularly relevant to future MBA graduates. First, human–machine collaboration becomes a critical managerial concern. Rather than replacing workers, AI systems augment human capabilities by supporting decision-making, problem-solving, and innovation. Nahavandi (2019) [54] emphasized that collaborative robotics and AI-enabled systems are transforming workplace structures and requiring new management approaches. Managers must therefore understand how to design, supervise, and optimize human–AI collaboration.

Second, sustainability is a central objective of Industry 5.0. AI technologies contribute to sustainable manufacturing, energy optimization, resource efficiency, waste reduction, and circular economy practices. Longo, Padovano, and Umbrello (2020) [55] argued that Industry 5.0 encourages organizations to use technology for societal and environmental benefit rather than purely economic gain (European Commission (2021). [56]). Consequently, future managers must integrate sustainability considerations into technology adoption and strategic planning processes.

Third, resilience has become increasingly important following global disruptions such as pandemics, geopolitical instability, and supply chain crises. AI enhances organizational resilience by improving forecasting, risk management, scenario planning, and adaptive decision-making. Industry 5.0 therefore requires managers capable of leveraging AI technologies to build flexible and resilient organizations (Breque, De Nul & Petridis (2021). [57]).

The implications for MBA education are significant. Graduates must understand not only AI technologies but also their social, ethical, environmental, and strategic implications. Future curricula should incorporate Industry 5.0 concepts, AI-enabled sustainability, human–machine collaboration, digital ecosystems, intelligent manufacturing, and responsible innovation. Such competencies will enable MBA graduates to lead organizations operating within increasingly complex and technology-intensive environments.

In summary, the Industry 5.0 literature suggests that future managers must move beyond technology adoption toward human-centred technological leadership. AI becomes not merely an operational tool but a strategic resource for enhancing innovation, sustainability, resilience, and societal value creation.

Table 4: Literature Review on AI in Industry 5.0

Reference	Focus Area	Key Findings	Relevance to Present Study
Kane et al. (2015). [48]	Digital transformation	Digital maturity depends more on leadership than technology.	Supports need for AI-enabled leadership competencies.
Westerman, Bonnet & McAfee (2014). [49]	Digital leadership	Organizations combining leadership and digital capability outperform competitors.	Supports strategic leadership development in MBA education.

Reference	Focus Area	Key Findings	Relevance to Present Study
Raisch & Krakowski (2021). [50]	Human-AI collaboration	Organizations increasingly operate through hybrid intelligence systems.	Supports AI-based strategic decision-making competencies.
Sousa & Rocha (2019). [51]	Digital leadership skills	Digital skills and adaptability improve leadership effectiveness.	Supports digital transformation competencies for MBA graduates.
Avolio et al. (2014). [52]	Technology-mediated leadership	Leadership approaches must evolve with digital technologies.	Supports future executive competency development.
Xu et al. (2021). [53]	Industry 5.0	Human creativity and AI integration define Industry 5.0.	Supports human-AI collaboration skills.
Nahavandi (2019). [54]	Collaborative robotics and AI	Human-machine interaction transforms workplaces.	Supports managerial readiness for AI-enabled organizations.
Longo, Padovano & Umbrello (2020). [55]	Human-centred manufacturing	Industry 5.0 promotes sustainability and human well-being.	Supports sustainable management education.
European Commission (2021). [56]	Industry 5.0 framework	Human-centric, sustainable, and resilient industrial transformation.	Supports curriculum innovation for future business leadership.
Breque, De Nul & Petridis (2021). [57]	Industry 5.0 vision	Industry 5.0 balances technological advancement with societal goals.	Supports strategic and ethical AI education.

2.10 AI-based Executive Competencies:

The emergence of Artificial Intelligence is redefining executive roles and creating demand for a new generation of managerial competencies. Traditional executive competencies focused on leadership, communication, strategic planning, financial management, human resource management, and organizational control. While these competencies remain important, executives operating in AI-enabled organizations must additionally possess technological literacy, data-driven decision-making capability, AI governance knowledge, digital transformation leadership, and innovation management skills. The World Economic Forum (2023) [58] identified analytical thinking, creative thinking, AI and big data skills, resilience, leadership, and technological literacy as among the most important future workforce competencies. These findings indicate that future executives must combine traditional management skills with AI-enabled strategic capabilities.

The literature suggests that AI-based executive competencies can be classified into several interrelated categories. First, AI literacy enables executives to understand the capabilities, limitations, opportunities, and risks associated with AI technologies. Executives are not expected to become AI programmers but must possess sufficient understanding to make informed strategic decisions regarding AI adoption, investment, governance, and organizational transformation. Wut et al. (2025) [5] found that AI literacy positively influences graduate employability and professional readiness, indicating its importance as a managerial competency.

Second, strategic intelligence is becoming increasingly important in AI-enabled environments. Strategic intelligence involves environmental scanning, competitive intelligence, predictive analytics, scenario planning, and strategic foresight. AI systems provide executives with access to vast amounts of information, but effective utilization requires the ability to interpret insights and convert them into organizational strategies. Raisch and Krakowski (2021) [50] argued that managers must learn to operate within hybrid intelligence systems where human judgment and machine intelligence jointly contribute

to organizational decision-making. Consequently, executives must develop competencies in AI-supported strategic analysis and evidence-based decision-making.

Third, AI-based research competencies are becoming essential executive capabilities. Organizations increasingly depend on research-driven strategies, data analytics, market intelligence, consumer insights, innovation forecasting, and technology assessment. Executives who can conduct AI-assisted research, evaluate evidence, and generate actionable insights possess significant competitive advantages. Aithal and Aithal (2024) [18] emphasized that AI-based GPTs can support research, publication, innovation, and knowledge creation, thereby expanding the role of research competencies in managerial success.

Fourth, innovation and entrepreneurship competencies are gaining prominence in executive roles. AI technologies facilitate opportunity identification, product development, process innovation, business model innovation, and startup creation. Executives must therefore possess the ability to leverage AI for innovation management and entrepreneurial value creation. Studies on AI-enabled entrepreneurship indicate that innovation capability, adaptability, and technological awareness significantly influence entrepreneurial success (Giuggioli & Pellegrini (2023). [40]).

Fifth, ethical and governance competencies are becoming critical. AI introduces concerns related to bias, privacy, transparency, accountability, cybersecurity, and regulatory compliance. Executives must therefore understand responsible AI governance and ensure that AI applications align with organizational values and societal expectations. Longo et al. (2020) [55] emphasized that future leaders must balance technological advancement with ethical responsibility and sustainability considerations.

The literature collectively suggests that future executives will be distinguished not merely by managerial experience but by their ability to combine strategic thinking, research capability, innovation orientation, digital leadership, AI literacy, and ethical governance. MBA programmes must therefore redesign leadership development frameworks to incorporate these competencies and prepare graduates for AI-driven executive careers.

2.11 Research Gap Identification:

The literature reviewed in previous Section demonstrates substantial scholarly interest in MBA education, employability, AI adoption, digital transformation, entrepreneurship, strategic decision-making, leadership, and Industry 5.0. Numerous studies have independently examined the impact of AI on employment, business processes, innovation, education, and organizational performance. Similarly, extensive research has explored management education reform, digital leadership, entrepreneurial capability development, and future workforce requirements.

However, several important gaps remain in the existing literature.

Gap 1: Lack of Integrated MBA Competency Framework:

Existing studies largely examine AI literacy, digital skills, employability, strategic decision-making, research capability, or entrepreneurship as separate constructs. There is limited research integrating these variables into a unified framework specifically designed for MBA education. Current literature lacks comprehensive models explaining how AI-based strategic skills and AI-based research skills collectively influence employability, executive readiness, and entrepreneurial success.

Gap 2: Limited Research on AI-based Research Competencies:

Although AI adoption in business research has received increasing attention, few studies have examined AI-based research competencies as a core component of management education. Existing research focuses primarily on AI tools and research productivity rather than developing structured pedagogical frameworks for teaching AI-assisted research methods to MBA students.

Gap 3: Absence of Publication-Oriented Learning Models:

The literature contains very limited discussion of publication-oriented MBA education. Existing studies focus on classroom learning, internships, case studies, and experiential projects, but rarely investigate how students can use AI to conduct industry analysis, company analysis, product analysis, CEO analysis, patent analysis, and startup analysis leading to scholarly publications. This represents a significant gap because publication-based learning can simultaneously improve research capability, professional visibility, and employability.

Gap 4: Lack of Reverse Placement Studies:

The concept of Reverse Placement remains largely unexplored in management education literature. Most employability research assumes traditional placement models in which employers recruit students

through campus processes. Very few studies examine how research portfolios, publications, digital visibility, AI-supported expertise, and knowledge leadership can attract employers toward graduates. The Reverse Placement Model therefore represents a novel contribution to MBA education research.

Gap 5: Limited Case Studies of AI-integrated MBA Curriculum Innovation:

While studies discuss AI in higher education, there is a shortage of detailed institutional case studies documenting the implementation of AI-based strategic and research skills within MBA programmes. Specifically, limited evidence exists regarding how business schools can systematically integrate AI-enabled learning, research, publication, innovation, entrepreneurship, and employability into a coherent curriculum model.

Gap 6: Insufficient Focus on Industry 5.0-oriented Management Education:

Industry 5.0 emphasizes human-centricity, sustainability, resilience, and human–AI collaboration. However, MBA education literature has not yet fully explored how management curricula should be redesigned to prepare graduates for Industry 5.0 environments. Research is particularly lacking regarding AI-supported leadership, sustainability-oriented innovation, ethical AI governance, and collaborative intelligence competencies.

Gap 7: Lack of Empirical Models Linking AI Skills and Career Outcomes:

Although studies indicate that AI skills influence employability, few studies propose and test comprehensive models linking AI literacy, strategic intelligence, research capability, publication productivity, professional visibility, employability, executive career success, and entrepreneurial readiness. The present study seeks to address this gap through the proposed conceptual framework.

Consolidated Research Gap Statement:

Based on the reviewed literature, there is a clear need for a comprehensive exploratory study that investigates how AI-based strategic and research skills can transform MBA graduates into future-ready professionals. Existing research lacks integrated frameworks connecting AI literacy, strategic intelligence, research productivity, publication-oriented learning, professional visibility, employability, reverse placement, executive readiness, and entrepreneurship. Therefore, this study proposes a novel AI-based MBA competency model and examines its relevance for the future business world.

Table 5: Consolidated Literature Review Matrix

Theme	Major Authors	Key Findings	Research Gap
Traditional MBA Education	Pfeffer & Fong (2002). [22]; Bennis & O'Toole (2005). [23]; Rubin & Dierdorff (2009). [24]	MBA curricula often misaligned with managerial competencies.	Need AI-integrated curriculum frameworks.
AI and Future of Work	Frey & Osborne (2017). [26]; Acemoglu & Restrepo (2020). [27]; Brynjolfsson et al. (2018). [28]	AI changes jobs and skill requirements.	Limited MBA-specific employability models.
AI in Strategic Decision Making	Csaszar et al. (2024). [34]; Raisch & Krakowski (2021). [50]	AI supports strategic analysis and decision-making.	Limited executive competency frameworks.
AI in Business Research	Cao et al. (2024) [35]; Nguyen et al. (2022) [36]; Aithal & Aithal (2023) [2]	AI improves research productivity and analytics.	Lack of structured MBA research-skill models.
AI-driven Innovation & Entrepreneurship	Giuggioli & Pellegrini (2023) [40]; Mishra & Tripathi (2021) [41]	AI supports innovation and entrepreneurial success.	Need curriculum-based entrepreneurship models.
Future Employability Skills	Portocarrero Ramos (2025) [3]; Wut et al. (2025) [5]	AI skills improve employability.	Need integrated employability frameworks.

Theme	Major Authors	Key Findings	Research Gap
Digital Transformation & Leadership	Kane et al. (2015) [48]; Westerman et al. (2014) [49]	Leadership drives digital transformation success.	Need AI leadership development models.
Industry 5.0 & AI	Xu et al. (2021) [53]; Nahavandi (2019) [54]	Human-AI collaboration is central to Industry 5.0.	Limited management education integration.
AI-based Executive Competencies	WEF (2023) [58]; Longo et al. (2020) [55]	Future executives need AI, strategic, ethical, and innovation competencies.	Lack of empirical executive competency models.
Publication-Oriented Learning & Reverse Placement	Aithal & Aithal (2024) [18]	AI can support research and publication productivity.	Reverse placement largely unexplored.

Overall Literature Review Conclusion:
The reviewed literature clearly indicates that Artificial Intelligence is transforming management education, strategic decision-making, business research, employability, innovation, entrepreneurship, leadership, and organizational competitiveness. While individual studies have examined these domains independently, a significant gap remains in understanding how AI-based strategic and research competencies can be systematically integrated into MBA education to improve employability, executive readiness, research productivity, and entrepreneurship. This gap provides the intellectual foundation for the present study and justifies the development of a comprehensive AI-based MBA competency framework capable of supporting future business leadership in the AI and Industry 5.0 era.

3. CONCEPTUAL FOUNDATION :

3.1 Concept of AI-based Strategic Skills:

AI-based strategic skills refer to the ability of MBA graduates to use artificial intelligence tools, data analytics, machine learning, generative AI, and business intelligence systems for strategic thinking, decision-making, forecasting, competitive positioning, risk assessment, and future planning. These skills transform MBA graduates from traditional management learners into AI-enabled strategic professionals capable of supporting business growth in uncertain, competitive, and technology-driven environments.

(1) Strategic Intelligence:

Strategic intelligence refers to the ability to collect, interpret, synthesize, and apply internal and external information for long-term strategic decision-making. In the AI era, strategic intelligence is no longer limited to human judgment, managerial experience, or manual environmental scanning. It increasingly depends on AI-enabled tools that analyse large datasets, detect patterns, identify weak signals, and support strategic foresight. Csaszar, Ketkar, and Kim (2024) [34] show that AI can support strategic decision-making by generating and evaluating strategic alternatives, while Doshi and Bell (2024) [59] argue that generative AI can assist in evaluating strategic decisions and business model alternatives. AI therefore strengthens managerial cognition by improving search, representation, and aggregation of strategic information.

For MBA graduates, AI-based strategic intelligence includes the ability to use AI tools for industry analysis, company analysis, market trend analysis, business model evaluation, strategic option generation, and decision justification. Felten, Raj, and Seamans (2021) [29] demonstrate that AI exposure is especially relevant to knowledge-intensive and managerial occupations, while Raisch and Krakowski (2021) [50] explain that managers must increasingly operate within human–AI hybrid intelligence systems. Hence, strategic intelligence becomes a core executive competency because future managers must combine machine-generated insights with human judgment, ethical reasoning, and contextual understanding.

(2) Predictive Analytics:

Predictive analytics refers to the use of historical and real-time data, statistical models, machine learning algorithms, and AI systems to forecast future outcomes. It enables managers to anticipate customer

behaviour, sales trends, financial risks, operational disruptions, market opportunities, and competitive movements. Shmueli and Koppius (2011) [60] emphasized that predictive analytics is important because it shifts research and decision-making from explanation alone to prediction and managerial action. Wamba et al. (2017) [61] found that big data analytics capabilities positively influence firm performance through dynamic capabilities, demonstrating the strategic value of data-driven prediction. In MBA education, predictive analytics should be taught as a strategic skill rather than only a technical subject. MBA graduates must understand how predictive models support demand forecasting, customer analytics, financial planning, HR analytics, supply chain planning, and strategic investment decisions. Akter et al. (2016) [62] showed that big data analytics capability affects firm performance through management, technology, and talent capability, while Cao & Duan (2024) [71] found that business analytics enhances strategic decision-making through environmental scanning and decision rationality. Thus, predictive analytics allows MBA graduates to shift from reactive decision-making to proactive, evidence-based strategy formulation.

(3) AI-assisted Planning:

AI-assisted planning refers to the use of AI systems to support strategic planning, operational planning, resource allocation, market entry planning, product planning, and organizational transformation planning. Traditional planning often relied on managerial experience, past data, and periodic review. AI-assisted planning is more dynamic because it can process continuous data streams, identify emerging trends, simulate alternatives, and recommend possible courses of action. Csaszar et al. (2024) [34] show that AI can support strategy generation and evaluation, while Doshi and Bell (2024) [59] demonstrate the usefulness of generative AI in evaluating strategic alternatives.

For MBA graduates, AI-assisted planning is essential because future organizations will expect managers to use AI for business plans, startup models, marketing plans, financial projections, risk mitigation plans, and innovation roadmaps. Raisch and Krakowski (2021) [50] argue that AI creates an automation–augmentation paradox where machines support decision-making but human judgment remains necessary. Similarly, Cao & Duan (2024) [71] suggests that analytics strengthens strategic decision-making by improving information processing in dynamic environments. Therefore, MBA graduates must learn how to use AI for planning while also critically evaluating AI outputs, assumptions, biases, and ethical implications.

(4) Competitive Intelligence:

Competitive intelligence refers to the systematic collection, analysis, and use of information about competitors, customers, markets, technologies, regulations, and business ecosystems for strategic advantage. In the AI era, competitive intelligence is enhanced through web scraping, sentiment analysis, market analytics, social media analytics, patent analytics, customer review analysis, and AI-based competitor tracking. Cekuls (2023) [63] highlights AI-driven competitive intelligence as a tool for strengthening business strategy and decision-making. Maluleka (2023) [64] also emphasizes that competitive intelligence supports strategy implementation when organizations develop structured intelligence processes.

For MBA graduates, AI-enabled competitive intelligence is highly relevant because it supports industry analysis, company analysis, product/service analysis, CEO analysis, patent analysis, and startup analysis. Such capabilities help students and future managers identify market gaps, benchmark competitors, track technology trends, and evaluate strategic opportunities. Felten et al. (2021) [29] show that AI exposure affects managerial and knowledge-based work, while Wamba et al. (2017) [61] demonstrate that analytics capability contributes to firm performance. Therefore, competitive intelligence should become a practical AI-based strategic skill in MBA education.

(5) Risk Analytics:

Risk analytics refers to the use of data, statistical models, AI, and machine learning to identify, measure, monitor, and mitigate business risks. These risks may include financial risk, market risk, operational risk, cybersecurity risk, reputational risk, regulatory risk, strategic risk, and AI-related ethical risk. AI enhances risk analytics by enabling early warning signals, anomaly detection, predictive risk scoring, fraud detection, and scenario-based risk simulation. Țîrcovnicu & Hațegan (2023) [65] shows that AI can improve risk management by analysing large financial datasets and detecting anomalies, while Yazdi et al. (2024) [66] explains that AI-supported risk management improves responsiveness and decision quality.

For MBA graduates, risk analytics is important because future business leaders must manage uncertainty in technology-intensive environments. AI can help managers forecast business disruptions, evaluate financial exposure, assess market volatility, and identify operational vulnerabilities. Di Palma et al. (2025) [67] argue that enterprise risk management frameworks must evolve to address AI-related risks, while Zeriouh and Amara (2025) [68] propose AI-driven strategic risk management models for organizational resilience and decision support. Therefore, MBA graduates should be trained to use AI not only for growth strategies but also for responsible risk governance.

(6) Scenario Building:

Scenario building is a strategic method used to imagine, analyse, and prepare for multiple possible futures. It helps organizations deal with uncertainty by developing alternative future narratives based on economic, technological, social, political, environmental, and competitive drivers. In the AI era, scenario building can be enhanced through generative AI, predictive analytics, simulation tools, trend mining, and real-time data modelling. Bradfield et al. (2005) [69] reviewed the development of scenario planning techniques and showed their importance in strategic foresight. Amer, Daim, and Jetter (2013) [70] emphasized that scenario planning supports decision-making under uncertainty by linking future possibilities with strategic action.

For MBA graduates, AI-assisted scenario building is useful for analysing future industries, market disruptions, technology adoption, consumer behaviour, policy changes, and entrepreneurial opportunities. Varum and Melo (2010) [72] showed that scenario planning is widely used in business and policy contexts, while Csaszar et al. (2024) [34] demonstrated that AI can support strategic alternative generation and evaluation. Thus, AI-based scenario building enables MBA graduates to prepare for multiple futures rather than depend on single-point forecasts. This skill is especially important in the future business world where technological disruption, AI adoption, climate change, geopolitical uncertainty, and changing labour markets will require flexible and adaptive strategic thinking.

3.2 Concept of AI-based Research Skills:

AI-based research skills refer to the ability of MBA graduates to use artificial intelligence, data analytics, machine learning, automation tools, and predictive modelling techniques for identifying research problems, reviewing literature, collecting and analysing data, generating insights, writing scholarly papers, and supporting evidence-based managerial decisions. These skills are important because future managers must not only consume business knowledge but also create, validate, and apply knowledge for solving complex organizational problems.

(1) AI-assisted Literature Review:

AI-assisted literature review refers to the use of artificial intelligence tools to search, screen, classify, summarize, map, and synthesize scholarly literature. Traditional literature reviews are time-consuming because researchers must manually identify relevant papers, read large volumes of literature, compare theories, and identify research gaps. AI tools can support this process by recommending articles, extracting themes, clustering literature, identifying citation networks, and summarizing research streams. Bernard et al. (2025) [73] found that AI research assistants such as Elicit can support systematic review screening, although they should complement rather than replace human judgment. Similarly, Li et al. (2025) [74] developed and validated a large language model-assisted system for systematic literature reviews, showing that AI can improve review efficiency in evidence synthesis. Marshall and Wallace (2019) [75] also demonstrated that machine learning can support systematic review processes by helping with citation screening and evidence identification. O'Mara-Eves et al. (2015) [76] showed that text-mining techniques can reduce workload in systematic reviews by supporting study identification and prioritization. For MBA graduates, AI-assisted literature review is useful in preparing scholarly articles on industry analysis, company analysis, patent analysis, CEO analysis, product/service analysis, and entrepreneurship studies.

(2) Data Mining:

Data mining refers to the process of discovering meaningful patterns, relationships, trends, classifications, and insights from large datasets. In business research, data mining is used for customer segmentation, market basket analysis, fraud detection, credit scoring, sales prediction, web analytics, social media analysis, and consumer behaviour research. Han, Kamber, and Pei (2012) [77] define data mining as knowledge discovery from data, while Girija and Srivatsa (2006) [78] show that data mining

can support knowledge-based business strategies. Chen, Chiang, and Storey (2012) [79] explain that data mining forms a major part of business intelligence and analytics because it enables organizations to transform raw data into actionable knowledge. Witten, Frank, Hall, and Pal (2016) [80] further emphasize that data mining techniques such as classification, clustering, association rules, and regression are important for solving applied business problems. For MBA graduates, data mining skills support AI-based research by enabling them to analyse customer data, competitor data, financial data, employee data, and market data for decision-making and publication-oriented research.

(3) Big Data Analytics:

Big data analytics refers to the use of advanced analytical techniques to process large-volume, high-velocity, high-variety, and high-value datasets for business insight generation. Unlike traditional data analysis, big data analytics deals with massive datasets from social media, enterprise systems, sensors, digital transactions, mobile platforms, customer reviews, and online behaviour. Wamba et al. (2017) [61] found that big data analytics capabilities positively influence firm performance through dynamic capabilities. Akter et al. (2016) [62] showed that big data analytics capability improves firm performance when aligned with business strategy, technology, and talent capabilities. Chen et al. (2012) [79] argued that business intelligence and analytics are central to decision support in the big data era. McAfee and Brynjolfsson (2012) [81] also emphasized that data-driven decision-making enables firms to improve productivity and competitiveness. For MBA graduates, big data analytics is essential because future business research will increasingly involve large datasets related to customers, markets, competitors, technologies, industries, and digital ecosystems.

(4) Machine Learning Applications:

Machine learning refers to the ability of computer systems to learn from data and improve performance without being explicitly programmed for every task. In business and management research, machine learning is used for prediction, classification, clustering, recommendation systems, sentiment analysis, fraud detection, demand forecasting, credit risk analysis, employee analytics, customer churn prediction, and strategic decision support. Jordan and Mitchell (2015) [82] described machine learning as a major force in data-driven scientific and business applications. Batz et al. (2025) [83] reviewed machine learning in business and management research and identified major application clusters across business administration. Sarker (2022) [84] provided a comprehensive view of AI-based modelling techniques and their applications across domains, while Shmueli and Koppius (2011) [60] emphasized the importance of predictive analytics in information systems research. For MBA graduates, machine learning applications help convert research from descriptive reporting into predictive, prescriptive, and evidence-based managerial analysis.

(5) Research Automation:

Research automation refers to the use of AI systems to automate repetitive, technical, or time-consuming research activities such as literature search, citation screening, reference management, data cleaning, coding, transcription, summarization, visualization, plagiarism checking, journal matching, and manuscript formatting. Van Dinter, Tekinerdogan, and Catal (2023) [85] surveyed AI techniques used to automate systematic literature reviews and found that AI can support tasks such as search, screening, classification, and extraction. Aithal and Aithal (2023) [2] argued that ChatGPT and AI-based GPTs can assist higher education research by supporting idea generation, writing, analysis, publication preparation, and research productivity. Dempere et al. (2023) [38] noted that ChatGPT has significant implications for higher education research and writing, but it also creates ethical concerns regarding accuracy, authorship, and academic integrity. Lu et al. (2026) [86] showed that AI research automation is moving toward end-to-end scientific workflows, though human supervision remains essential. For MBA graduates, research automation can improve productivity in preparing case studies, industry reports, company analyses, patent reviews, research articles, and consulting reports.

(6) Predictive Modelling:

Predictive modelling refers to the development of statistical, econometric, machine learning, or AI-based models that forecast future outcomes based on historical and current data. In business research, predictive modelling is used for sales forecasting, customer churn prediction, market demand estimation, credit scoring, risk assessment, employee attrition prediction, price forecasting, and entrepreneurial success analysis. Shmueli and Koppius (2011) [60] argued that predictive analytics deserves greater importance in information systems research because prediction provides actionable managerial value. Wamba et al. (2017) [61] showed that big data analytics improves firm performance

through predictive and dynamic capabilities. Chung (2023) [87] introduced machine learning-based predictive models in entrepreneurship research, showing their relevance for predicting entrepreneurial outcomes. Aljohani (2023) [88] demonstrated that predictive analytics and machine learning can improve real-time risk prevention and supply chain agility. For MBA graduates, predictive modelling is one of the most important AI-based research skills because it enables them to move from past-oriented analysis to future-oriented decision-making, which is essential for executive roles, consulting assignments, entrepreneurship, and strategic planning.

3.3 AI-based Employability Framework:

The AI-based Employability Framework proposes that future MBA graduates can remain relevant in the rapidly evolving business world only by integrating six interdependent dimensions: Knowledge Skills, Strategic Skills, Research Skills, Innovation Skills, Entrepreneurial Skills, and Leadership Skills. Traditional employability frameworks primarily emphasize academic qualifications, communication skills, and managerial competencies. However, the AI era requires a broader capability structure in which graduates can effectively collaborate with intelligent technologies, generate knowledge, solve complex problems, innovate continuously, and create sustainable business value. The framework argues that AI serves as an enabling technology that enhances human competencies rather than replacing them. Consequently, MBA graduates possessing AI-enhanced competencies are likely to achieve superior employability, executive readiness, professional visibility, and entrepreneurial success.

(1) Knowledge Skills:

Knowledge skills refer to the ability of MBA graduates to acquire, understand, integrate, apply, and continuously update multidisciplinary knowledge relevant to business decision-making. In the AI era, knowledge acquisition is no longer restricted to traditional classroom learning because intelligent systems can provide instant access to information, learning resources, business intelligence, and decision-support content. Therefore, the emphasis shifts from information memorization toward knowledge interpretation, contextual understanding, and intelligent application. Nonaka (1994) [89] emphasized that organizational competitiveness increasingly depends on knowledge creation and utilization rather than information possession alone. Drucker (1993) [90] similarly described knowledge workers as the primary drivers of productivity and innovation in modern organizations.

Recent studies indicate that AI literacy has become a critical component of knowledge skills. Wut et al. (2025) [5] found that AI literacy positively influences employability and professional preparedness among university students. Portocarrero Ramos (2025) [3] further demonstrated that AI competencies significantly improve graduate employability outcomes. Aithal and Aithal (2023) [2] argued that AI-based GPTs transform higher education by facilitating knowledge creation, personalized learning, and research productivity. Consequently, MBA graduates require domain knowledge, digital literacy, AI literacy, business intelligence awareness, and lifelong learning capability to remain relevant in future business environments.

(2) Strategic Skills:

Strategic skills refer to the ability to analyse environments, formulate objectives, evaluate alternatives, anticipate future developments, and create sustainable competitive advantage. Strategic management literature has consistently emphasized the importance of strategic thinking, environmental scanning, competitive intelligence, and long-term planning for organizational success. Porter (1985) [91] highlighted the importance of strategic positioning and competitive advantage, while Hamel and Prahalad (1993) [92] emphasized strategic intent and core competencies as drivers of organizational performance.

Artificial Intelligence enhances strategic skills by improving forecasting, predictive analytics, scenario planning, competitive intelligence, and strategic decision support. Csaszar, Ketkar, and Kim (2024) [34] demonstrated that AI systems can generate and evaluate strategic alternatives comparable to human experts. Raisch and Krakowski (2021) [50] proposed the concept of hybrid intelligence, where human judgment and machine intelligence jointly support decision-making. Felten, Raj, and Seamans (2021) [29] showed that AI exposure increasingly affects managerial occupations requiring strategic analysis. Thus, MBA graduates must develop AI-enabled strategic intelligence, predictive reasoning, business foresight, and evidence-based decision-making capabilities to remain employable in executive and consulting roles.

(3) Research Skills:

Research skills refer to the ability to identify problems, formulate research questions, review literature, collect and analyse data, generate insights, communicate findings, and create new knowledge. Modern organizations increasingly rely on research-driven decision-making because competitive advantage depends on evidence-based management, innovation, and organizational learning. Shmueli and Koppius (2011) [60] emphasized the importance of predictive and analytical research for managerial decision-making. Chen, Chiang, and Storey (2012) [79] argued that analytics and business intelligence are central to contemporary business research and organizational competitiveness.

AI technologies significantly enhance research capability by automating literature reviews, supporting data mining, enabling predictive modelling, facilitating machine learning analysis, and improving research productivity. Aithal and Aithal (2024) [18] highlighted the role of AI-based GPTs in supporting scholarly publication, knowledge creation, and academic productivity. Marshall and Wallace (2019) [75] demonstrated the usefulness of machine learning tools in research synthesis and systematic reviews. Wamba et al. (2017) [61] found that data analytics capabilities positively influence organizational performance through improved decision-making. Therefore, AI-based research skills enable MBA graduates to become knowledge creators rather than passive consumers of information, thereby enhancing employability, consulting capability, and professional visibility.

(4) Innovation Skills:

Innovation skills refer to the ability to generate, evaluate, implement, and commercialize new ideas, products, services, business models, and processes. Innovation has long been recognized as a critical source of competitive advantage and organizational growth. Schumpeter (1934) [93] identified innovation as the central driver of economic development and entrepreneurial success. More recently, Chesbrough (2003) [94] introduced the concept of open innovation, emphasizing collaboration and knowledge exchange as sources of innovation capability.

AI significantly enhances innovation by accelerating idea generation, opportunity recognition, product design, customer analysis, and experimentation. Giuggioli and Pellegrini (2023) [40] found that AI supports entrepreneurial innovation through improved decision-making, opportunity identification, and knowledge management. Mishra and Tripathi (2021) [95] argued that AI-driven business models create new forms of organizational value through intelligent systems and digital platforms. Al-Mamary (2025) [42] demonstrated that AI capabilities positively influence entrepreneurial innovation and business performance. Consequently, MBA graduates require AI-assisted innovation skills to identify emerging opportunities, design innovative solutions, and create competitive business models in dynamic environments.

(5) Entrepreneurial Skills:

Entrepreneurial skills refer to the ability to identify opportunities, mobilize resources, evaluate risks, create ventures, and generate sustainable value. Entrepreneurship literature consistently identifies opportunity recognition, innovation, risk management, adaptability, and value creation as core entrepreneurial competencies. Shane and Venkataraman (2000) [96] argued that entrepreneurship begins with the identification and exploitation of opportunities. Baron (2006) [97] emphasized cognitive processes such as pattern recognition and entrepreneurial alertness as important entrepreneurial capabilities.

Artificial Intelligence strengthens entrepreneurial skills by supporting market analysis, customer intelligence, business model development, startup evaluation, financial forecasting, and risk assessment. Giuggioli and Pellegrini (2023) [40] found that AI facilitates entrepreneurial decision-making and venture performance. Zhang (2025) [43] demonstrated that AI integration improves entrepreneurship education by enhancing opportunity recognition and business planning capabilities. Al-Mamary (2025) [42] further showed that AI contributes to venture success through innovation, automation, customer engagement, and strategic decision support. Therefore, MBA graduates equipped with AI-enabled entrepreneurial skills are better positioned to create and manage both online and offline businesses, thereby expanding employment opportunities beyond traditional corporate careers.

(6) Leadership Skills:

Leadership skills refer to the ability to influence, motivate, guide, and coordinate individuals and organizations toward achieving strategic objectives. Effective leadership remains essential despite increasing automation because organizations require vision, ethical judgment, stakeholder management, communication, and cultural transformation. Bass (1985) [98] identified transformational leadership as

a critical factor influencing organizational performance and innovation. Avolio, Sosik, Kahai, and Baker (2014) [52] argued that digital technologies fundamentally transform leadership processes and require new forms of technology-enabled leadership.

In AI-enabled organizations, leadership extends beyond traditional management functions to include digital transformation, AI governance, ethical technology adoption, and human–machine collaboration. Kane et al. (2015) [48] found that leadership capability is a stronger predictor of successful digital transformation than technology itself. Raisch and Krakowski (2021) [50] emphasized that leaders must manage hybrid intelligence systems involving both human and AI contributors. Longo, Padovano, and Umbrello (2020) [55] argued that Industry 5.0 requires leaders capable of balancing technological efficiency with human well-being, sustainability, and ethical responsibility. Thus, MBA graduates must develop AI-based leadership competencies that integrate strategic vision, technological literacy, ethical governance, adaptability, and collaborative intelligence.

4. PRESENT STATUS OF MBA GRADUATES IN THE AI ERA :

4.1 Current MBA Curriculum:

The current MBA curriculum in many business schools continues to be largely structured around traditional functional areas such as finance, marketing, human resource management, operations, economics, accounting, organizational behaviour, entrepreneurship, and strategic management. Although these areas remain essential for managerial education, scholars have repeatedly argued that traditional MBA curricula often fail to reflect the actual competencies required in managerial practice. Rubin and Dierdorff (2009) [24] found that several managerial competencies valued by organizations were insufficiently represented in required MBA courses, indicating a gap between curriculum design and workplace expectations. Similarly, Pfeffer and Fong (2002) [30] questioned the practical value of business school education, while Bennis and O'Toole (2005) [23] criticized business schools for becoming too academic and detached from professional practice.

In the AI era, the limitations of traditional MBA curriculum structures have become more visible. Contemporary organizations require graduates who can use data analytics, artificial intelligence, digital platforms, business intelligence systems, and research tools for strategic decision-making. Amblee (2023) [25] emphasized that MBA programmes need across-the-curriculum competency integration rather than isolated functional teaching. Aithal and Aithal (2023) [2] argued that AI-based GPTs are changing higher education by supporting personalized learning, research assistance, and knowledge creation. Therefore, the current MBA curriculum must move beyond subject-based instruction toward an integrated AI-enabled competency model involving strategic thinking, research capability, innovation, entrepreneurship, digital leadership, and ethical AI use.

4.2 Existing Skill Gap:

The existing skill gap among MBA graduates is mainly reflected in the mismatch between what business schools teach and what organizations expect from future managers. Traditional MBA graduates may possess conceptual knowledge of management theories, but many lack advanced analytical skills, research skills, digital literacy, AI literacy, innovation capability, and practical decision-making confidence. Rubin and Dierdorff (2009) [24] showed that critical managerial competencies were not sufficiently covered in MBA curricula, while Amblee (2023) [25] argued that competency delivery must be embedded across the curriculum to improve relevance. Pfeffer and Fong (2002) [22] also observed that business schools often overemphasize credentials and rankings rather than demonstrable managerial capability.

In the AI era, this skill gap has expanded from managerial relevance to technological relevance. Employers increasingly expect graduates to use AI tools for forecasting, data analysis, customer insight, market research, business model evaluation, and strategic planning. Portocarrero Ramos (2025) [3] found that AI skills significantly influence graduate employability. Wut et al. (2025) [5] similarly showed that perceived AI literacy affects students' employability readiness. Felten, Raj, and Seamans (2021) [29] demonstrated that AI exposure is substantial across knowledge-intensive occupations, including managerial work. Hence, MBA graduates without AI-based strategic and research skills may face declining employability because routine managerial tasks are increasingly supported or automated by intelligent systems.

4.3 Industry Expectations:

Industry expectations from MBA graduates have shifted from possession of management knowledge to demonstrable capability in solving complex business problems. Employers increasingly expect MBA graduates to possess analytical thinking, digital literacy, AI awareness, leadership capability, innovation mindset, communication skills, ethical judgment, and evidence-based decision-making ability. Business organizations operate in data-rich environments where decisions are increasingly supported by AI, machine learning, dashboards, predictive models, and real-time analytics. Therefore, graduates are expected to combine domain knowledge with technological capability and strategic judgment.

The literature suggests that industry now values both technical and human-centric capabilities. Brynjolfsson, Mitchell, and Rock (2018) [33] argued that machine learning changes occupations at the task level, requiring workers to adapt by developing complementary skills. Raisch and Krakowski (2021) [50] explained that organizations increasingly operate through human–AI collaboration rather than pure automation. Wamba et al. (2017) [61] found that big data analytics capabilities improve firm performance, indicating why employers value data-literate managers. Similarly, Akter et al. (2016) [62] showed that business analytics capability contributes to firm performance when aligned with strategy, technology, and talent. Thus, industry expects MBA graduates to be AI-enabled strategic contributors who can use evidence, analytics, and research to create organizational value.

4.4 Employability Trends:

Employability trends in the AI era indicate that traditional degree-based employability is gradually being replaced by skill-based, evidence-based, and portfolio-based employability. Earlier, MBA graduates could depend heavily on institutional reputation, degree credentials, and campus placement systems. However, the future labour market increasingly rewards graduates who can demonstrate practical capability through projects, analytics outputs, research publications, digital portfolios, consulting assignments, internships, certifications, and entrepreneurial initiatives. Portocarrero Ramos (2025) [3] found that AI skills positively influence employability among university graduates, while Wut et al. (2025) [5] linked AI literacy with employability readiness.

Automation and AI are also reshaping employment opportunities by reducing demand for routine managerial tasks and increasing demand for higher-order strategic and analytical roles. Frey and Osborne (2017) [26] showed that many occupations are susceptible to computerisation, while Acemoglu and Restrepo (2020) [32] demonstrated that automation can affect employment and wages in exposed labour markets. However, Brynjolfsson et al. (2018) [33] argued that AI affects specific work tasks rather than eliminating all occupations. For MBA graduates, this means that employability will increasingly depend on their ability to perform non-routine, analytical, creative, strategic, research-based, and leadership-oriented tasks. Therefore, graduates with AI-based strategic and research skills are likely to have stronger career prospects than those depending only on conventional management knowledge.

4.5 AI Readiness of Business Schools:

AI readiness of business schools refers to their preparedness to integrate AI into curriculum design, pedagogy, research, assessment, faculty development, institutional governance, and industry collaboration. Many business schools have begun introducing courses on business analytics, digital transformation, data science, AI in business, and technology management. However, institutional AI readiness remains uneven because many schools lack trained faculty, AI infrastructure, ethical guidelines, curriculum flexibility, and systematic assessment models. Zawacki-Richter et al. (2019) [99] found that AI applications in higher education are expanding, but the pedagogical and institutional implications remain underdeveloped.

AI readiness also requires faculty capacity-building. Dempere et al. (2023) [38] showed that ChatGPT has major implications for higher education, including teaching, learning, research, and assessment. Aithal and Aithal (2023) [2] argued that AI-based GPTs can transform higher education through personalized learning, research support, and academic productivity. Dwivedi et al. (2023) [100] highlighted both the opportunities and risks of generative AI, including ethical use, misinformation, governance, and responsible adoption. Therefore, business schools must develop AI policies, train faculty, redesign pedagogy, create AI labs, promote AI-assisted research, and ensure responsible AI

integration. Without such readiness, business schools may fail to prepare MBA graduates for AI-enabled workplaces.

4.6 Global Best Practices:

Global best practices in MBA education increasingly emphasize competency-based learning, experiential learning, industry collaboration, analytics integration, AI literacy, research orientation, entrepreneurship development, and lifelong learning. Business schools that remain globally competitive are moving beyond lecture-based instruction toward project-based learning, live consulting projects, simulation-based learning, data analytics labs, startup incubation, global immersion, and interdisciplinary learning. Kolb (1984) [101] emphasized experiential learning as a powerful model for transforming experience into knowledge, while Amblee (2023) [25] argued for across-the-curriculum competency integration in MBA programmes.

In the AI era, global best practices also include responsible AI education, research-based learning, digital portfolio development, AI-assisted publication, and human–AI collaboration. Aithal and Aithal (2024) [18] highlighted the use of AI-based GPTs in teaching-learning and research-publications, showing how AI can support academic productivity and knowledge creation. Raisch and Krakowski (2021) [50] proposed that organizations increasingly rely on hybrid intelligence systems, which implies that business education should train students to work with AI rather than merely learn about AI. Longo, Padovano, and Umbrello (2020) [55] further emphasized that future technology management must be human-centric, ethical, and sustainability-oriented. Hence, global best practices for MBA education should integrate AI literacy, strategic analytics, research publication, ethical AI governance, entrepreneurship, and leadership development into a future-ready curriculum.

5. FUTURE BUSINESS WORLD AND EMERGING AI TECHNOLOGIES :

5.1 Generative AI:

Generative Artificial Intelligence refers to AI systems capable of producing new text, images, code, audio, video, business reports, research summaries, strategic plans, and creative outputs based on learned patterns from large datasets. In the future business world, generative AI will become a major productivity and knowledge-creation technology because it can support content generation, customer communication, product ideation, business research, marketing communication, training, decision support, and innovation management. Dwivedi et al. (2023) [100] explain that generative conversational AI creates major opportunities and challenges for research, practice, and policy, while Dempere et al. (2023) [38] show that ChatGPT has significant implications for higher education, research, and professional learning. Kshetri, Dwivedi, Davenport, and Panteli (2024) [102] argue that generative AI has important applications in marketing, customer engagement, personalization, and productivity. Mariani, Machado, and Nambisan (2024) [103] further highlight that generative AI can transform innovation management by supporting idea generation, experimentation, design, and knowledge recombination.

For MBA graduates, generative AI is important because it enables faster preparation of business plans, industry analyses, company reports, patent reviews, market studies, research articles, and strategic documents. However, generative AI also creates risks such as hallucinated information, bias, plagiarism, overdependence, intellectual property concerns, and weak critical reasoning. Therefore, future MBA graduates must learn to use generative AI as an assistant rather than a substitute for managerial judgment. AI-based prompt engineering, verification of sources, ethical use, and critical evaluation of AI outputs must become part of future management education.

5.2 Machine Learning:

Machine Learning is a branch of AI that enables computer systems to learn patterns from data and make predictions, classifications, recommendations, or decisions without being explicitly programmed for each task. In business, machine learning is used for customer segmentation, demand forecasting, fraud detection, credit scoring, recommendation systems, employee analytics, market prediction, supply chain optimization, and risk assessment. Jordan and Mitchell (2015) [82] describe machine learning as a central technology of data-driven science and business decision-making. Shmueli and Koppius (2011) [60] emphasize the importance of predictive analytics in information systems research, especially for managerial decision-making. Brynjolfsson, Mitchell, and Rock (2018) [33] argue that machine learning

affects tasks within occupations, which means managerial work will increasingly require AI-complementary skills. Wamba et al. (2017) [61] show that big data analytics and machine learning-related capabilities improve firm performance through dynamic capabilities.

For MBA graduates, machine learning is not merely a technical subject but a strategic business competency. Managers may not need to build complex algorithms, but they must understand how machine learning models are used, what data they require, how predictions are interpreted, and what ethical or operational risks may arise. Machine learning literacy enables MBA graduates to work effectively with data scientists, evaluate AI-driven insights, and use predictive systems for strategic decision-making.

5.3 Deep Learning:

Deep Learning is an advanced form of machine learning based on artificial neural networks with multiple layers that can learn complex patterns from large datasets. It is widely used in natural language processing, image recognition, speech recognition, autonomous vehicles, medical diagnosis, fraud detection, customer analytics, and intelligent decision systems. LeCun, Bengio, and Hinton (2015) [104] explain that deep learning has transformed AI by allowing computational models to learn representations from raw data. Schmidhuber (2015) [105] provides a comprehensive review of deep learning in neural networks and highlights its ability to solve complex pattern-recognition problems. Najafabadi et al. (2015) [106] show that deep learning has major applications in big data analytics because it can handle large, complex, and high-dimensional datasets. Goodfellow, Bengio, and Courville (2016) [107] further emphasize that deep learning is foundational to modern AI applications. In the business world, deep learning enables intelligent automation, personalized marketing, predictive maintenance, sentiment analysis, chatbots, financial forecasting, and strategic intelligence systems. MBA graduates must understand the managerial implications of deep learning, including data requirements, model accuracy, explainability, bias, cost, governance, and business value. Deep learning will be especially relevant in industries that depend on large-scale digital data, such as banking, insurance, healthcare, retail, manufacturing, logistics, and consulting.

5.4 Agentic AI:

Agentic AI refers to AI systems that can plan, reason, take actions, interact with digital environments, and pursue goals with limited human intervention. Unlike traditional generative AI, which mainly responds to prompts, agentic AI can perform sequences of tasks, use tools, monitor progress, adapt strategies, and collaborate with other agents. Bandi, Adapa, and Kuchi (2025) [108] describe agentic AI as a new stage in AI development characterized by autonomy, adaptability, and goal-driven reasoning. Kshetri (2025) [109] explains that agentic AI is reshaping marketing by moving from predictive and generative systems toward autonomous action-oriented systems. Research on enterprise AI agents indicates that agentic systems can support customer service, marketing, HR, sales, operations, cybersecurity, and knowledge management. At the same time, agentic AI raises major concerns regarding accountability, control, bias, privacy, security, and human oversight.

For MBA graduates, agentic AI will change the meaning of managerial supervision and workflow design. Future managers may coordinate teams consisting of humans, AI assistants, and autonomous agents. They must know how to define goals, set boundaries, evaluate outputs, assign responsibilities, and manage risks in human–AI work systems. Therefore, agentic AI literacy must include not only technical awareness but also governance, ethics, accountability, and performance monitoring.

5.5 Autonomous Decision Systems:

Autonomous Decision Systems are AI-enabled systems that can make decisions or recommendations with minimal human intervention based on data, algorithms, rules, and learning mechanisms. They are used in credit approval, dynamic pricing, recruitment screening, inventory management, fraud detection, autonomous vehicles, algorithmic trading, and supply chain optimization. Raisch and Krakowski (2021) [50] explain that AI creates an automation–augmentation paradox in management because organizations must decide when to automate decisions and when to augment human judgment. Davenport and Ronanki (2018) [110] argue that AI can support business process automation, cognitive insight, and cognitive engagement. Felten, Raj, and Seamans (2021) [19] show that AI exposure is

significant across managerial and knowledge-based occupations. Brynjolfsson et al. (2018) [33] further note that AI changes work at the task level, making decision automation an important managerial issue. For MBA graduates, autonomous decision systems require new competencies in algorithmic governance, data ethics, risk evaluation, explainability, human oversight, and decision accountability. Managers must understand where automation improves speed and accuracy and where human judgment remains necessary due to uncertainty, ethical sensitivity, or strategic ambiguity. Thus, future MBA education must train students to evaluate autonomous decisions critically and responsibly.

5.6 AI-powered Business Analytics:

AI-powered Business Analytics refers to the use of AI, machine learning, data mining, visualization tools, predictive models, and prescriptive analytics to support business decision-making. It extends traditional business analytics by enabling real-time analysis, automated pattern detection, forecasting, anomaly detection, customer intelligence, and strategic recommendations. Chen, Chiang, and Storey (2012) [79] identify business intelligence and analytics as central to data-driven organizational transformation. Akter et al. (2016) [62] show that big data analytics capability improves firm performance when supported by business strategy, technology, and talent. Wamba et al. (2017) [61] demonstrate that big data analytics contributes to firm performance through dynamic capabilities. Cao (2024) [71] argues that business analytics improves strategic decision-making by supporting environmental scanning, rationality, and evidence-based action.

In the future business world, AI-powered analytics will be essential for marketing, finance, HR, operations, supply chain, entrepreneurship, and strategic management. MBA graduates must be able to interpret dashboards, understand predictive results, ask business-relevant questions, evaluate model assumptions, and convert analytical outputs into strategic decisions. Therefore, AI-powered analytics should be treated as a core employability skill for MBA graduates.

5.7 AI-driven Strategic Planning:

AI-driven Strategic Planning refers to the use of AI tools to support environmental scanning, trend analysis, competitive intelligence, resource allocation, scenario planning, forecasting, and strategic decision-making. Traditional strategic planning often relied on historical data, managerial experience, and periodic planning cycles. AI-driven planning is more dynamic because it can process real-time data, identify weak signals, simulate alternatives, and continuously update strategic options. Csaszar, Ketkar, and Kim (2024) [34] show that AI can generate and evaluate strategic alternatives in entrepreneurial and investment settings. Doshi and Bell (2024) [59] argue that generative AI can assist in evaluating strategic decisions. Raisch and Krakowski (2021) [50] suggest that human–AI collaboration creates a new model of managerial decision-making. Amer, Daim, and Jetter (2013) [70] show that scenario planning is useful for decision-making under uncertainty.

For MBA graduates, AI-driven strategic planning is essential because future organizations will expect managers to use AI for business planning, market entry decisions, product strategy, competitor analysis, startup modelling, and risk management. However, AI cannot replace strategic judgment because strategy involves uncertainty, values, stakeholder interests, ethics, and long-term consequences. Therefore, MBA students must learn to combine AI-generated insights with critical thinking, ethical reasoning, and contextual understanding.

5.8 AI-enabled Innovation Ecosystems:

AI-enabled Innovation Ecosystems refer to networks of firms, startups, universities, investors, customers, platforms, policymakers, and technology providers that use AI to create, share, and commercialize knowledge. Innovation is increasingly ecosystem-based because no single organization possesses all the data, expertise, technology, and market access required for sustained innovation. AI strengthens innovation ecosystems by enabling knowledge discovery, open innovation, collaboration, technology scouting, customer insight generation, predictive innovation, and business model transformation. Barile et al. (2025) [111] show that AI can enable open innovation and sustainable growth within innovation ecosystems. Qu et al. (2025) [112] propose a triple-layer framework of AI-enabled innovation ecosystems based on AI capabilities, barriers, and sustainability requirements. Burström et al. (2021) [113] demonstrate how AI supports business model innovation in industrial

ecosystems. Mishra and Tripathi (2021) [95] explain that AI-enabled business models create value through intelligent integration of data, platforms, and business processes.

For MBA graduates, AI-enabled innovation ecosystems create new career and entrepreneurship opportunities. Graduates can work as innovation managers, AI business consultants, ecosystem analysts, startup founders, technology strategists, and knowledge entrepreneurs. They must understand how AI connects industries, platforms, customers, research institutions, and markets. Thus, AI-enabled ecosystem thinking should become an important part of future MBA education.

6. FUTURE AI APPLICATIONS ACROSS ECONOMIC SECTORS :

6.1 Primary Industry Sector:

The primary industry sector includes activities directly connected with natural resources such as agriculture, mining, fisheries, and renewable energy. Artificial Intelligence is increasingly transforming this sector by improving productivity, resource efficiency, sustainability, forecasting, risk management, and decision-making. For MBA graduates, understanding AI applications in the primary sector is important because future business opportunities will emerge not only in digital industries but also in traditional resource-based industries that are being modernized through AI, machine learning, robotics, IoT, remote sensing, and predictive analytics.

(1) Agriculture:

Agriculture is one of the most important areas where AI can transform traditional practices into data-driven, precision-oriented, and sustainable systems. AI applications in agriculture include crop monitoring, soil health analysis, pest and disease detection, yield prediction, irrigation scheduling, weed identification, weather forecasting, automated harvesting, and supply chain optimization. McBratney, Whelan, Ancev, and Bouma (2005) [114] introduced the idea of precision agriculture as a system that uses spatial and temporal information to improve crop management. Later, Liakos et al. (2018) [115] showed that machine learning applications in agriculture support yield prediction, disease detection, weed detection, crop quality assessment, and livestock management. Kamilaris and Prenafeta-Boldú (2018) [116] further demonstrated that deep learning is increasingly used in agricultural image analysis, crop classification, disease diagnosis, and remote sensing. Eli-Chukwu (2019) [117] reviewed AI applications in agriculture and emphasized its role in soil management, crop management, weed management, disease management, and productivity improvement.

For MBA graduates, agriculture offers opportunities for AI-enabled agribusiness models, agri-tech startups, smart farming platforms, farm advisory services, precision input management, crop insurance analytics, and sustainable supply chain management. AI can help managers reduce input wastage, improve market forecasting, enhance farmer decision-making, and design scalable rural business models. Therefore, MBA graduates with AI-based strategic and research skills can contribute to agricultural modernization by combining business knowledge with AI-enabled decision systems.

(2) Mining:

Mining is another primary sector where AI is increasingly used to improve exploration, operational efficiency, worker safety, environmental monitoring, equipment maintenance, and resource optimization. AI applications in mining include mineral exploration, geological modelling, ore grade prediction, autonomous drilling, fleet management, predictive maintenance, mine safety monitoring, ventilation control, accident prediction, and environmental impact assessment. Ghosh (2022) [118] reviewed AI applications in mining and highlighted the role of machine learning, automation, IoT, computer vision, and autonomous systems in mining operations. Recent Mining 4.0 literature also emphasizes that AI-driven mining technologies can support smart, sustainable, and safer mining operations across the mining lifecycle. Jung and Choi (2021) [119] discussed the role of AI and machine learning in mine safety and productivity improvement, while explainable AI research highlights the importance of transparency and interpretability in high-risk industrial decision-making (Arrieta et al., 2020) [120]).

For MBA graduates, AI-enabled mining creates opportunities in mineral analytics, mining equipment management, sustainability consulting, safety analytics, ESG reporting, autonomous operations management, and supply chain planning. Since mining involves high capital investment, environmental sensitivity, regulatory complexity, and operational risk, managers must use AI not only for productivity but also for responsible governance. MBA graduates with AI-based strategic skills can support mining firms in balancing profitability, safety, sustainability, and regulatory compliance.

(3) Fisheries:

Fisheries and aquaculture are being transformed by AI through precision aquaculture, fish health monitoring, feeding optimization, water quality prediction, species identification, disease detection, stock assessment, marine ecosystem monitoring, and seafood supply chain management. Lim et al. (2024) [121] reviewed recent AI applications in fisheries and aquaculture and emphasized the role of AI in improving productivity, monitoring, and decision-making. Fernandes et al. (2020) [122] highlighted the use of computer vision and machine learning in fish species identification and biomass estimation. Føre et al. (2018) [123] discussed precision fish farming as a technology-driven approach that integrates sensors, automation, and decision-support systems. Goodwin et al. (2022) [124] showed that AI and machine learning can support ecological monitoring and aquatic resource management.

For MBA graduates, fisheries provide opportunities for AI-enabled aquaculture management, smart feeding systems, cold-chain analytics, seafood traceability, export market forecasting, marine resource planning, and sustainable blue-economy entrepreneurship. AI can reduce feed wastage, improve fish survival rates, support disease prevention, and improve profitability. Therefore, AI-based research and strategic skills can help MBA graduates design innovative fisheries business models that combine sustainability, productivity, and market competitiveness.

(4) Renewable Energy:

Renewable energy is becoming one of the most important primary-sector-linked areas because it depends heavily on natural resources such as solar radiation, wind, water, biomass, and geothermal energy. AI applications in renewable energy include solar and wind forecasting, smart grid optimization, energy storage management, predictive maintenance, load balancing, demand response, fault detection, and hybrid energy system optimization. Voyant et al. (2017) [125] reviewed machine learning methods for solar radiation forecasting and showed their usefulness in improving renewable energy prediction. Suganthi, Iniyan, and Samuel (2015) [126] reviewed energy models using demand forecasting and AI methods, highlighting the importance of AI in energy planning. Mellit and Kalogirou (2008) [127] demonstrated the role of AI techniques in photovoltaic systems, including prediction, control, and optimization. Antonanzas et al. (2016) [128] reviewed solar forecasting methods and showed that AI-based models can improve planning and grid integration.

For MBA graduates, renewable energy offers opportunities in clean-energy entrepreneurship, AI-enabled energy analytics, carbon management, smart grid consulting, green finance, ESG strategy, energy trading, and sustainability-focused business planning. Since renewable energy output is variable and weather-dependent, AI-based forecasting and optimization are essential for operational efficiency and investment decisions. MBA graduates with AI-based strategic and research skills can contribute to renewable energy firms by developing data-driven business models, improving energy market forecasting, and supporting sustainable investment decisions.

6.2 Secondary Industry Sector:

The secondary industry sector includes manufacturing and industrial production activities that convert raw materials into finished or semi-finished goods. Artificial Intelligence is transforming this sector through intelligent automation, predictive maintenance, digital twins, robotics, smart factories, quality inspection, supply chain synchronization, energy optimization, and autonomous decision systems. For MBA graduates, understanding AI applications in the secondary sector is important because future managerial roles in manufacturing will require knowledge of digital transformation, automation strategy, human–machine collaboration, customization, sustainability, and intelligent production systems.

(1) Manufacturing:

Manufacturing is one of the most important sectors where AI is reshaping production processes, quality control, predictive maintenance, supply chain management, inventory planning, demand forecasting, and customer-driven customization. AI enables firms to analyse machine data, production data, customer demand, supplier performance, and operational bottlenecks in real time. Rai, Tiwari, Ivanov, and Dolgui (2021) [129] observed that machine learning has significantly influenced manufacturing in the Industry 4.0 era by enabling predictive maintenance, process optimization, scheduling, and quality improvement. Peres et al. (2020) [130] also highlighted that industrial AI supports real manufacturing applications through data-driven monitoring, intelligent control, and automation. Barua, Sami, and Barua (2025) [131] showed that AI improves smart production management by enabling real-time

decisions, predictive maintenance, quality control, and supply chain synchronization. Similarly, Wuest, Weimer, Irgens, and Thoben (2016) [141] emphasized that machine learning in manufacturing improves system performance by supporting adaptive decision-making and intelligent process control.

For MBA graduates, AI-enabled manufacturing creates opportunities in production analytics, operations strategy, supply chain optimization, industrial marketing, technology adoption, quality management, and smart manufacturing consulting. Managers must understand how AI investments affect productivity, cost structure, workforce requirements, customer value, and competitive advantage. Hence, AI literacy in manufacturing is essential for future MBA graduates who wish to work in operations, supply chain, industrial strategy, and manufacturing leadership roles.

(2) Smart Factories:

Smart factories represent digitally connected, self-monitoring, and adaptive production systems that integrate AI, Internet of Things, cyber-physical systems, sensors, robotics, cloud computing, edge computing, digital twins, and data analytics. Unlike traditional factories, smart factories use real-time data to monitor machines, predict failures, optimize production, improve quality, and coordinate supply chains. Oks, Liebrecht, Schallo, and Vogel-Heuser (2022) [132] explain that cyber-physical systems are central to Industry 4.0 because they connect physical production systems with digital intelligence. Meindl, Ayala, Mendonça, and Frank (2021) [133] identified the "four smarts" of Industry 4.0—smart products, smart machines, smart operators, and smart planning—as key elements of smart manufacturing. Kusiak (2018) [134] argued that smart manufacturing depends on data, analytics, and intelligent systems to achieve flexibility and responsiveness. Zhong, Xu, Klotz, and Newman (2017) [135] further emphasized that smart manufacturing requires integration of data-driven systems across product design, production, logistics, and service delivery.

For MBA graduates, smart factories require managerial knowledge of technology integration, digital transformation, workforce reskilling, cybersecurity, data governance, vendor selection, return on investment, and change management. Smart factories are not merely technical systems; they are business transformation models that require strategic leadership. Therefore, MBA graduates with AI-based strategic and research skills can contribute by analysing smart factory readiness, assessing investment feasibility, designing digital transformation roadmaps, and managing technology-enabled industrial change.

(3) Industry 5.0: Human-centric, Customization, and Automation:

Industry 5.0 extends the automation-centred logic of Industry 4.0 by emphasizing human-centricity, sustainability, resilience, customization, and collaboration between humans and intelligent machines. While Industry 4.0 focuses on cyber-physical systems, automation, and digital connectivity, Industry 5.0 places human creativity, worker well-being, personalization, and ethical technology use at the centre of industrial development. Nahavandi (2019) [54] introduced Industry 5.0 as a human-centric model in which robots collaborate with humans rather than replace them. Xu, Lu, Vogel-Heuser, and Wang (2021) [53] described Industry 5.0 as an extension of Industry 4.0 that integrates human creativity with intelligent technologies. Alves et al. (2023) [136] found that Industry 5.0 is strongly associated with human-centred production, worker well-being, sustainability, and resilient manufacturing. Longo, Padovano, and Umbrello (2020) [55] emphasized that Industry 5.0 requires value-oriented and ethical technology engineering in industrial systems.

Industry 5.0 also supports customization because AI, robotics, additive manufacturing, digital twins, and flexible production systems allow firms to produce personalized products at scale. Human workers contribute creativity, judgment, empathy, and problem-solving, while AI and automation provide speed, precision, prediction, and scalability. For MBA graduates, Industry 5.0 creates managerial opportunities in human–machine collaboration, customized manufacturing strategy, ethical automation, sustainable operations, workforce development, and technology governance. Hence, MBA education must prepare graduates to manage production systems where human talent and AI-based automation jointly create value.

(4) Industry 6.0: Fully Customized Automation with Minimum Human Intervention:

Industry 6.0 is an emerging and still evolving concept in industrial transformation. Unlike Industry 5.0, which explicitly emphasizes human-centricity and human–machine collaboration, some emerging interpretations of Industry 6.0 suggest movement toward highly autonomous, self-optimizing, hyper-connected, AI-governed, and fully customized production systems with minimal direct human intervention. However, the scholarly literature is not yet fully settled. Some authors describe Industry

6.0 as autonomous and cognitive manufacturing, while others continue to include human-centric, ethical, and sustainable elements within the Industry 6.0 vision. Fernández-Miguel et al. (2025) [137] discuss the transition from Industry 4.0 to Industry 6.0 in sustainable manufacturing value chains and highlight AI-driven innovation, sustainability, and regulatory pressures. Karim and Reja (2024) [138] describe Industry 6.0 as an emerging field involving hyper-connectivity, cognitive manufacturing, and advanced AI-enabled automation. Kuru (2025) [139] explains that Industry 6.0 may integrate distributed AI, autonomous systems, and ethical governance to create intelligent and resilient industrial ecosystems. Murugan (2023) [140] also notes that Industry 6.0 discussions often involve minimized human intervention and advanced autonomous service and industrial systems.

In the context of this article, Industry 6.0 may be conceptually positioned as the next stage of industrial automation in which fully customized products are produced through autonomous AI agents, robotics, digital twins, quantum-enhanced optimization, cyber-physical systems, and self-learning production networks. Such systems may allow customers to design unique products online, while AI automatically manages design validation, material selection, production scheduling, robotic manufacturing, quality inspection, logistics, and after-sales service. For MBA graduates, Industry 6.0 will require new competencies in autonomous business models, AI governance, algorithmic accountability, platform manufacturing, mass personalization, industrial cybersecurity, and strategic risk management. Even if human intervention is minimized in operations, human strategic control, ethical oversight, policy design, and business model innovation will remain important executive responsibilities.

6.3 Tertiary Industry Sector:

The tertiary industry sector consists of service-based industries such as banking, insurance, healthcare, retail, and hospitality. Artificial Intelligence is transforming this sector by improving service personalization, operational efficiency, fraud detection, customer relationship management, predictive decision-making, automation, and strategic planning. For MBA graduates, AI applications in the tertiary sector are especially important because many future executive, consulting, analytics, marketing, operations, and entrepreneurship opportunities will emerge in service industries.

(1) Banking:

AI is transforming banking through credit scoring, fraud detection, anti-money laundering, customer service chatbots, robo-advisory, loan processing, risk assessment, investment analytics, and personalized financial services. Fares et al. (2022) [142] systematically reviewed AI utilization in banking and observed that AI improves customer experience, operational efficiency, decision-making, and banking service innovation. Similarly, Belanche, Casaló, and Flavián (2019) [143] showed that AI-based robo-advisors influence customer financial decision-making by combining automation with perceived usefulness and trust. Moro, Cortez, and Rita (2015) [160] demonstrated the use of data mining in bank marketing, showing how predictive models can improve customer targeting. Fundira (2025) [144] emphasized that AI in banking also creates ethical challenges relating to transparency, bias, privacy, and algorithmic accountability.

For MBA graduates, AI in banking creates opportunities in fintech strategy, digital banking, credit analytics, risk management, financial product innovation, customer analytics, and regulatory technology. Future managers must understand how AI improves banking efficiency while also managing ethical, legal, cybersecurity, and customer trust issues.

(2) Insurance:

AI is increasingly used in insurance for underwriting, claims processing, fraud detection, risk pricing, customer profiling, health insurance analytics, telematics-based motor insurance, actuarial modelling, and personalized insurance products. Bhattacharya (2025) [145] reviewed AI applications in automotive, health, and property insurance and found that AI improves claim settlement, risk prediction, and operational efficiency. Alkhelb et al. (2025) [146] emphasized that AI can simplify healthcare insurance operations through automation, fraud detection, and claims optimization. Eling and Lehmann (2018) [147] argued that digitalization, including AI and data analytics, is reshaping insurance business models, distribution, risk assessment, and customer interaction. Similarly, Verbelen, Antonio, and Claeskens (2018) [148] demonstrated how machine learning improves actuarial risk classification and prediction.

For MBA graduates, AI-enabled insurance provides opportunities in insurtech, risk analytics, actuarial decision support, customer experience management, fraud analytics, claims automation, and regulatory

compliance. Managers in the insurance sector must combine business strategy with AI governance because insurance decisions directly affect fairness, affordability, privacy, and consumer protection.

(3) Healthcare:

AI has significant applications in healthcare, including medical diagnosis, clinical decision support, patient monitoring, hospital management, drug discovery, medical imaging, robotic surgery, predictive health analytics, telemedicine, and personalized treatment. Topol (2019) [149] argued that high-performance medicine will emerge through the convergence of human and artificial intelligence. Bajwa et al. (2021) [150] described AI as a disruptive technology capable of transforming healthcare delivery, diagnosis, workflow efficiency, and patient outcomes. Jiang et al. (2017) [151] reviewed AI in healthcare and highlighted its role in disease diagnosis, clinical decision support, and treatment planning. Chustecki et al. (2024) [152] noted that AI in healthcare offers major benefits but also raises concerns regarding bias, transparency, privacy, safety, and regulation.

For MBA graduates, healthcare AI offers opportunities in hospital administration, health-tech entrepreneurship, healthcare analytics, digital health platforms, insurance-healthcare integration, medical supply chain management, and patient experience strategy. Future managers must understand not only AI-enabled efficiency but also ethics, patient safety, data privacy, affordability, and regulatory compliance.

(4) Retail:

AI is transforming retail through personalized recommendations, demand forecasting, inventory optimization, dynamic pricing, customer sentiment analysis, visual search, automated checkout, customer service chatbots, supply chain analytics, and omnichannel retailing. Grewal, Roggeveen, and Nordfält (2017) [153] explained that the future of retailing will be shaped by technology, customer experience, and data-driven personalization. Shankar (2018) [154] highlighted how artificial intelligence is transforming retailing by enabling personalization, predictive analytics, automation, and customer engagement. Yrjölä, Rintamäki, and Saarijärvi (2025) [155] argued that AI strengthens customer value propositions in retail by improving convenience, relevance, personalization, and efficiency. Davenport et al. (2020) [159] also emphasized that AI transforms marketing and retail customer experiences through prediction, automation, and personalization.

For MBA graduates, AI in retail provides opportunities in retail analytics, customer experience management, e-commerce strategy, digital marketing, supply chain planning, product recommendation systems, and retail entrepreneurship. Future managers must be able to use AI to understand consumer behaviour, improve profitability, manage inventory, and design personalized customer journeys.

(5) Hospitality:

AI is reshaping hospitality through service robots, AI-enabled chatbots, personalized guest services, smart rooms, revenue management, demand forecasting, review analytics, customer sentiment analysis, automated check-in, and operational efficiency. Ivanov and Webster (2019) [156] developed a conceptual framework for robots, AI, and service automation in tourism and hospitality, highlighting their strategic and operational implications. Tussyadiah (2020) [157] showed that AI and robots affect customer experience, service encounters, and hospitality innovation. Samala et al. (2020) [158] reviewed AI and robotics in tourism and hospitality and emphasized their role in service automation and customer engagement. Sousa et al. (2024) [161] found that AI systems are increasingly used by tourists for information search, planning, personalization, and service interaction.

For MBA graduates, AI-enabled hospitality creates opportunities in hotel analytics, guest experience management, tourism technology, service innovation, revenue optimization, destination analytics, and hospitality entrepreneurship. Managers must balance automation with human warmth because hospitality depends strongly on trust, emotional experience, service quality, and cultural sensitivity.

6.4 Quaternary Industry Sector:

The quaternary industry sector consists of knowledge-based and information-intensive activities such as research, consulting, data analytics, education technology, intellectual services, and innovation support. Artificial Intelligence is highly relevant to this sector because it enhances knowledge creation, decision-making, research productivity, service customization, analytics capability, and digital learning.

For MBA graduates, AI applications in the quaternary sector create opportunities in consulting, research analysis, knowledge entrepreneurship, business analytics, EdTech innovation, and AI-enabled professional services.

(1) Knowledge Industries:

Knowledge industries depend on the creation, processing, sharing, and commercialization of knowledge. AI is transforming knowledge-intensive business services by improving knowledge management, innovation, automation, service personalization, and decision support. Nonaka (1994) [89] emphasized that knowledge creation is central to organizational competitiveness, while Chen, Chiang, and Storey (2012) [79] showed that business intelligence and analytics help organizations convert data into valuable business knowledge. Recent studies on knowledge-intensive business services indicate that digital transformation strengthens innovation ambidexterity and supports both incremental and radical innovation in knowledge firms (Li et al. (2023) [162]). Similarly, Gelashvili-Luik et al. (2025) [163] show that AI is increasingly integrated into knowledge management systems for automation, intelligent search, decision support, and organizational learning. Therefore, MBA graduates with AI-based research and strategic skills can work as knowledge analysts, business intelligence managers, AI knowledge consultants, and innovation strategists in knowledge-intensive industries.

(2) Research Organizations:

Research organizations are increasingly adopting AI to accelerate scientific discovery, automate literature reviews, analyse large datasets, generate hypotheses, design experiments, write research summaries, and support publication workflows. AI-based research tools can help research institutions improve productivity, accuracy, and speed. Marshall and Wallace (2019) [75] showed that machine learning can support systematic review automation by assisting with screening and evidence synthesis. Van Dinter, Tekinerdogan, and Catal (2023) [85] reviewed AI methods for automating systematic literature reviews and found that AI can support search, screening, classification, and data extraction. Hartung (2025) [164] explains that AI, agentic models, and laboratory automation are transforming scientific discovery by enabling faster and broader research processes. Lu et al. (2026) [86] further demonstrate the movement toward end-to-end automation of AI research, where AI systems can generate ideas, run experiments, analyse results, and draft manuscripts. For MBA graduates, research organizations offer opportunities in research management, data-driven policy analysis, innovation evaluation, patent analysis, market research, and AI-enabled knowledge production.

(3) Consulting:

Consulting is one of the quaternary-sector industries most directly affected by AI because consulting work depends on problem diagnosis, data analysis, benchmarking, strategy formulation, report writing, client communication, and implementation support. AI can improve consulting by automating data collection, generating business insights, preparing presentations, analysing markets, benchmarking competitors, and supporting strategic recommendations. Mohan (2024) [165] argues that large language models are changing management consulting by reshaping consultant workflows, knowledge work, client interaction, and service delivery. Tiwari (2025) [166] notes that AI can assist management consultants in resolving business problems, creating value, maximizing growth, and improving business performance. Lari (2024) [167] also explains that AI applications in consulting include automation, analytics, decision support, and generative content creation. Dwivedi et al. (2023) [100] highlight that generative AI has major implications for research, practice, and policy, including knowledge-intensive professional services. For MBA graduates, AI-enabled consulting creates opportunities in strategic consulting, analytics consulting, digital transformation consulting, AI adoption consulting, startup advisory, and research-based business advisory services.

(4) Data Analytics:

Data analytics is a core quaternary industry because it converts raw data into insights for managerial decision-making. AI-powered data analytics includes descriptive analytics, diagnostic analytics, predictive analytics, prescriptive analytics, machine learning, visualization, and automated decision support. Chen et al. (2012) [79] identified business intelligence and analytics as central to big-data-driven decision-making. Akter et al. (2016) [62] demonstrated that big data analytics capability improves firm performance when aligned with business strategy, technology, and talent capabilities. Wamba et al. (2017) [61] found that big data analytics positively affects firm performance through dynamic capabilities. Maroufkhani et al. (2019) [168] systematically reviewed big data analytics and firm performance and concluded that analytics capability contributes to organizational value creation. Therefore, MBA graduates with AI-based analytics skills can pursue roles such as business analyst, data strategy manager, analytics consultant, market intelligence analyst, and decision-support specialist.

(5) EdTech:
Education Technology, or EdTech, is being transformed by AI through adaptive learning platforms, intelligent tutoring systems, learning analytics, automated assessment, personalized feedback, student engagement prediction, academic writing support, and AI-based research assistance. Zawacki-Richter, Marín, Bond, and Gouverneur (2019) [99] systematically reviewed AI applications in higher education and found growing use of intelligent tutoring, assessment, learner support, and institutional analytics. Dempere et al. (2023) [38] showed that ChatGPT affects higher education through teaching, learning, research, assessment, and academic writing. Aithal and Aithal (2023) [2] argued that AI-based GPTs are changing higher education by enabling personalized learning, research support, and knowledge creation. Kamalov, Calong, and Gurrib (2023) [19] described AI in education as a multifaceted revolution capable of transforming learning design, delivery, and assessment. For MBA graduates, EdTech offers opportunities in digital learning management, AI-based curriculum design, online education entrepreneurship, learning analytics, corporate training, academic publishing, and AI-enabled research mentoring.

7. CHALLENGES FOR CONVENTIONAL MBA GRADUATES :

7.1 Employability Challenges:
Conventional MBA graduates face serious employability challenges in the AI era because employers increasingly demand graduates who can combine managerial knowledge with digital literacy, AI awareness, analytical thinking, research capability, and innovation orientation. Traditional MBA programmes have often been criticized for weak alignment between curriculum content and real managerial competencies (Pfeffer & Fong (2002). [22]; Rubin & Dierdorff (2009). [24]). In the contemporary labour market, the challenge is more serious because graduate employability is increasingly influenced by AI skills, digital skills, and the ability to demonstrate practical capability through projects, analytics outputs, and research-based portfolios (Portocarrero Ramos (2025). [3]; Wut et al. (2025). [5]). Therefore, MBA graduates who depend only on classroom knowledge and conventional placement systems may find it difficult to compete with candidates possessing AI-supported strategic, analytical, and research competencies.

7.2 Automation Threats:
Automation threatens conventional MBA graduates because many routine managerial and administrative tasks are increasingly performed by AI systems, robotic process automation, analytics dashboards, and decision-support tools. Frey and Osborne (2017) [26] showed that several occupations are vulnerable to computerisation, especially those involving routine and predictable tasks. Acemoglu and Restrepo (2020) [27] demonstrated that automation and robotics can affect employment and wages in exposed labour markets. However, AI does not simply eliminate whole occupations; it transforms specific tasks within occupations (Brynjolfsson et al. (2018). [28]). Raisch and Krakowski (2021) [50] further explained that AI creates an automation–augmentation paradox in which some managerial tasks are automated while others are enhanced through human–AI collaboration. Hence, conventional MBA graduates who cannot work with AI may face displacement, while AI-skilled graduates may benefit from augmentation.

7.3 Decision-making Redundancy:
Decision-making redundancy occurs when traditional managerial decision-making becomes less valuable because AI systems can process data faster, identify patterns, generate forecasts, and recommend actions more efficiently. Conventional MBA graduates trained only in intuition-based or theory-based decision-making may struggle in organizations that rely on analytics, machine learning, and automated decision systems. Shmueli and Koppius (2011) [60] emphasized the growing importance of predictive analytics for managerial decision-making. Chen et al. (2012) [79] showed that business intelligence and analytics transform organizational decision support. Wamba et al. (2017) [61] found that big data analytics capability improves firm performance through dynamic capabilities. Csaszar et al. (2024) [34] demonstrated that AI can generate and evaluate strategic alternatives, indicating that strategic decision-making itself is becoming AI-supported. Thus, MBA graduates must move from conventional decision-making to AI-assisted evidence-based strategic reasoning.

7.4 Lack of AI Literacy:

Lack of AI literacy is a major challenge for conventional MBA graduates because AI is increasingly embedded in marketing, finance, HR, operations, supply chain, consulting, banking, healthcare, retail, and entrepreneurship. AI literacy includes understanding AI capabilities, limitations, applications, risks, ethical concerns, and business implications. Long and Magerko (2020) [169] proposed core competencies for AI literacy, including understanding machine learning, data, algorithmic bias, and ethical implications. Ng et al. (2021) [170] argued that AI literacy is becoming essential for non-specialists to engage meaningfully with AI systems. Aithal and Aithal (2023) [2] observed that AI-based GPTs are changing higher education and research practices. Portocarrero Ramos (2025) [3] found that AI skills influence employability among university graduates. Therefore, MBA graduates without AI literacy may become less relevant in future managerial and executive roles.

7.5 Analytical Skill Deficiency:

Analytical skill deficiency limits the ability of conventional MBA graduates to interpret data, evaluate business problems, generate insights, and support strategic decisions. Modern organizations increasingly use big data analytics, predictive modelling, dashboards, machine learning, and business intelligence systems. Akter et al. (2016) [62] showed that big data analytics capability improves firm performance when aligned with business strategy and talent capability. Wamba et al. (2017) [61] demonstrated that analytics capabilities contribute to firm performance through dynamic capabilities. Chen et al. (2012) [79] emphasized the central role of business intelligence and analytics in the big data era. Shmueli and Koppius (2011) [60] highlighted prediction as an important research and managerial capability. Hence, MBA graduates lacking analytical skills may be unable to contribute effectively to data-driven organizations.

7.6 Research Competency Deficiency:

Research competency deficiency is another serious limitation of conventional MBA graduates. Many MBA students complete their programmes with limited ability to identify research problems, conduct literature reviews, analyse data, prepare industry reports, write scholarly articles, or generate evidence-based recommendations. Research skills are critical because modern managers must evaluate business evidence, understand markets, analyse competitors, study technologies, and support strategic decisions. Marshall and Wallace (2019) [75] showed that machine learning tools can assist research synthesis. Van Dinter et al. (2023) [85] found that AI can automate parts of systematic literature reviews. Aithal and Aithal (2024) [18] emphasized AI-supported applications in teaching-learning and research publications. Dempere et al. (2023) [38] discussed the impact of ChatGPT on higher education research and academic writing. Therefore, MBA graduates without AI-based research skills may remain consumers of knowledge rather than creators of business knowledge.

7.7 Entrepreneurial Challenges:

Conventional MBA graduates also face entrepreneurial challenges because future businesses increasingly depend on AI-enabled opportunity recognition, digital platforms, analytics-based decision-making, automation, customer intelligence, and scalable business models. Traditional entrepreneurship education may develop general awareness of business planning and risk-taking, but AI-era entrepreneurship requires data-driven opportunity analysis, AI-supported market validation, digital business model design, and technology-enabled innovation. Shane and Venkataraman (2000) [96] emphasized opportunity identification as the foundation of entrepreneurship. Baron (2006) [97] explained that entrepreneurial opportunity recognition involves cognitive pattern recognition. Giuggioli and Pellegrini (2023) [40] showed that AI can support entrepreneurial decision-making, opportunity identification, and venture performance. Mishra and Tripathi (2021) [41] argued that AI-enabled business models create new forms of value through digital platforms and intelligent systems. Thus, MBA graduates without AI-based entrepreneurial skills may struggle to create and manage innovative businesses.

7.8 Leadership Challenges:

Leadership challenges for conventional MBA graduates arise because future organizations require leaders who can manage digital transformation, human–AI collaboration, ethical AI governance,

innovation, sustainability, and organizational change. Traditional leadership skills remain important, but they are insufficient without digital and AI-enabled leadership competencies. Avolio et al. (2014) [52] argued that technology transforms leadership processes and communication. Kane et al. (2015) [48] found that digital transformation depends more on strategy, leadership, and culture than on technology alone. Raisch and Krakowski (2021) [50] explained that leaders must manage the balance between automation and augmentation. Longo et al. (2020) [55] emphasized that Industry 5.0 requires ethical, human-centred, and value-oriented technology leadership. Hence, MBA graduates must develop AI-based leadership skills to guide organizations in complex, intelligent, and technology-driven business environments.

8. RESEARCH OBJECTIVES :

(1) To identify the emerging AI-driven competencies required for MBA graduates to remain professionally relevant in the future business world.
This objective aims to determine the knowledge, strategic, analytical, technological, research, innovation, entrepreneurial, and leadership competencies expected from MBA graduates in AI-enabled organizations and Industry 5.0 environments.
(2) To examine the role of AI-based strategic skills in enhancing employability, executive readiness, and organizational decision-making effectiveness.
This objective focuses on analysing how strategic intelligence, predictive analytics, competitive intelligence, risk analytics, AI-assisted planning, and scenario-building capabilities contribute to future managerial success.
(3) To analyse the contribution of AI-based research skills in developing evidence-based managerial competence, knowledge creation, and scholarly productivity among MBA graduates.
This objective evaluates the significance of AI-assisted literature review, data mining, big data analytics, machine learning applications, research automation, and predictive modelling in strengthening managerial research capability.
(4) To investigate industry expectations regarding AI-enabled managerial competencies across primary, secondary, tertiary, and quaternary economic sectors.
This objective seeks to identify the future skill requirements, technology adoption expectations, and competency demands of organizations operating in AI-driven business ecosystems.
(5) To develop a comprehensive AI-based Employability Framework that explains the relationship among AI literacy, strategic skills, research skills, innovation capability, leadership competence, and entrepreneurial readiness.
This objective proposes a conceptual model for understanding how AI-enabled competencies collectively influence employability, executive career success, professional visibility, and business creation opportunities.
(6) To propose strategic recommendations for business schools to redesign MBA curricula through AI-integrated learning, publication-oriented research training, innovation development, entrepreneurship education, and reverse-placement mechanisms.
This objective aims to provide a practical roadmap for transforming management education to produce future-ready MBA graduates capable of securing executive positions or creating innovative ventures in the AI era.

9. RESEARCH QUESTIONS :

The following research questions are derived from the above objectives and found appropriate for the present research title:
RQ1: What AI competencies will determine future employability?
RQ2: How do AI-based strategic skills enhance executive readiness?
RQ3: How do AI-based research skills improve managerial effectiveness?
RQ4: What educational reforms are required?

10. RESEARCH METHODOLOGY :

Qualitative Exploratory Research based on focus group interaction with Primary Sources including: Industry Experts, HR Managers, CEOs, MBA Students, Entrepreneurs, and Business teachers/trainers/researchers. Relevant information is collected from various secondary sources like

Journals, Reports, AI Publications, Industry Reports, through company websites, google search engine, Google scholar search engine, and AI-driven GPTs and processed using various analysis frameworks as per the objectives of the paper [171-177].

11. CONCEPTUAL MODEL DEVELOPMENT :

In this research, a new conceptual model named "Dual Path AI Competency Employability–Entrepreneurship Model (DACEEM)" is proposed based on collected information and focus group discussion.

11.1 Conceptual Framework:

The proposed model assumes that future career success of MBA graduates depends on the acquisition of four AI-enabled competency domains:

Independent Variables (AI Competency Constructs):

(1) AI Strategic Skills (ASS)

Ability to use AI tools for strategic intelligence, predictive analytics, AI-assisted planning, competitive intelligence, risk analytics, and scenario building.

(2) AI Research Skills (ARS)

Ability to conduct AI-assisted literature review, data mining, business research, predictive modelling, scholarly publication, patent analysis, and evidence-based decision-making.

(3) AI Analytical Skills (AAS)

Ability to use AI-based analytics, business intelligence, machine learning, dashboard interpretation, forecasting, and data-driven problem solving.

(4) AI Innovation Skills (AIS)

Ability to utilize AI for innovation management, idea generation, product/service development, business model innovation, startup creation, and opportunity recognition.

Mediating Variables:

(1) Employability (EMP)

The degree to which MBA graduates possess competencies demanded by employers, enabling them to secure and sustain executive employment opportunities.

(2) Entrepreneurial Readiness (ER)

The preparedness of MBA graduates to identify opportunities, create innovative ventures, manage business risks, and develop sustainable enterprises using AI-enabled capabilities.

Dependent Variables:

(1) Executive Career Success (ECS)

Achievement of managerial and executive career outcomes including placement, promotion, leadership roles, compensation growth, professional recognition, and organizational impact.

(2) Business Creation Capability (BCC)

Ability to establish, manage, scale, and sustain innovative business ventures in AI-driven markets.

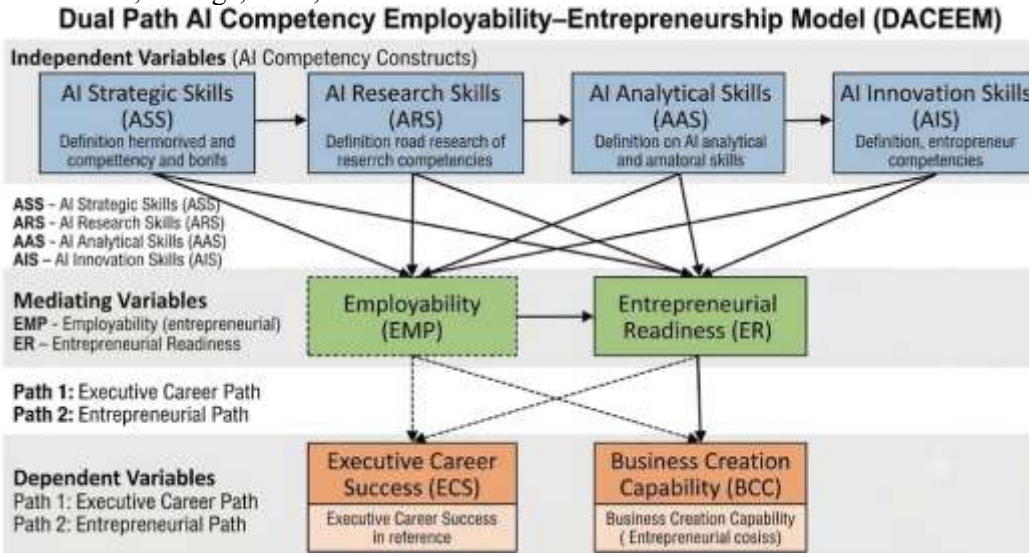

Fig. 1: Conceptual DACEE Model

11.2 Graphical Representation of the Model:

AI Strategic Skills
|
AI Research Skills
|
AI Analytical Skills
|
AI Innovation Skills
|

| |
V V
Employability (EMP) Entrepreneurial Readiness (ER)
| |
| |
V V
Executive Career Success Business Creation Capability
(ECS) (BCC)

Cross Relationships

AI Strategic Skills ----------> ECS
AI Research Skills ----------> ECS
AI Innovation Skills ----------> BCC
AI Analytical Skills ----------> BCC

Employability ----------> ER
Entrepreneurial Readiness ----------> ECS

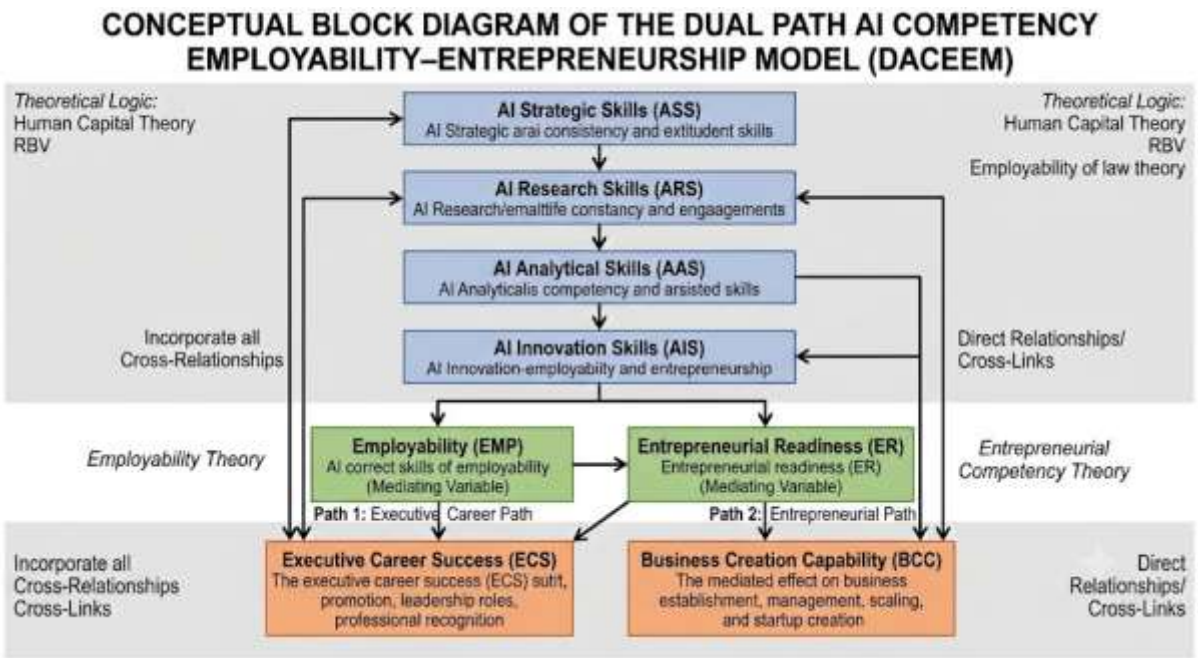

Fig. 2: Block Diagrammatic Representation of the proposed DACEE Model

11.3 Theoretical Logic of the Model:

The model is grounded in:

(1) Human Capital Theory:

AI competencies increase the knowledge capital of MBA graduates, thereby improving employability and career outcomes (Sweetland (1996). [178]).

(2) Resource-Based View (RBV):

AI skills constitute valuable, rare, and difficult-to-imitate strategic resources that create competitive advantage for individuals (Madhani (2010). [179]).

(3) Employability Theory:

Graduates possessing future-oriented competencies are more likely to secure executive positions and sustain long-term career growth (Brown et al. (2003). [180]).

(4) Entrepreneurial Competency Theory:

Innovation, analytical capability, research orientation, and strategic thinking improve entrepreneurial readiness and venture success (Bird (2019). [181]).

11.4 Expected Relationships:

Path 1: Executive Career Path

AI Strategic Skills → Employability → Executive Career Success
AI Research Skills → Employability → Executive Career Success
AI Analytical Skills → Employability → Executive Career Success

MBA graduates possessing AI-enabled strategic, analytical, and research competencies are expected to obtain superior executive opportunities, leadership positions, and organizational recognition.

Path 2: Entrepreneurial Path

AI Innovation Skills → Entrepreneurial Readiness → Business Creation Capability
AI Research Skills → Entrepreneurial Readiness → Business Creation Capability
AI Analytical Skills → Entrepreneurial Readiness → Business Creation Capability

MBA graduates possessing AI-enabled innovation and research competencies are expected to identify opportunities more effectively and establish successful businesses.

11.5 Research Propositions / Hypotheses:

Direct Effects:

H1: AI Strategic Skills positively influence Employability.
H2: AI Research Skills positively influence Employability.
H3: AI Analytical Skills positively influence Employability.
H4: AI Innovation Skills positively influence Entrepreneurial Readiness.
H5: AI Research Skills positively influence Entrepreneurial Readiness.
H6: AI Analytical Skills positively influence Entrepreneurial Readiness.

Mediating Effects:

H7: Employability positively influences Executive Career Success.
H8: Entrepreneurial Readiness positively influences Business Creation Capability.
H9: Employability mediates the relationship between AI Strategic Skills and Executive Career Success.
H10: Employability mediates the relationship between AI Research Skills and Executive Career Success.
H11: Entrepreneurial Readiness mediates the relationship between AI Innovation Skills and Business Creation Capability.
H12: Entrepreneurial Readiness mediates the relationship between AI Research Skills and Business Creation Capability.

Extended Relationships:

H13: Employability positively influences Entrepreneurial Readiness.
H14: Entrepreneurial Readiness positively influences Executive Career Success.

11.6 Practical Contribution of the Model:

The model demonstrates that merely obtaining an MBA degree is insufficient in the AI era. Instead, AI-based strategic, research, analytical, and innovation skills become the primary drivers of employability and entrepreneurial readiness, which subsequently determine executive career success and business creation capability. The framework also provides a foundation for curriculum redesign, competency assessment, reverse-placement strategies, and future empirical testing using SEM, PLS-SEM, or path analysis techniques.

Thus, this model directly connects the four AI competency constructs to the two major future outcomes discussed throughout the manuscript—**Executive Career Success** and **Business Creation Capability**—while explaining the mediating roles of **Employability** and **Entrepreneurial Readiness**.

Conceptual Diagram:

AI Strategic Skills
↓
AI Research Skills
↓
AI Analytical Skills
↓
Innovation Capability
↓
Employability
↓
Executive Career Success
↓
Entrepreneurship Success

12. HYPOTHESIS DEVELOPMENT :

H1: AI Strategic Skills positively influence employability.
H2: AI Research Skills positively influence managerial effectiveness.
H3: AI Innovation Skills positively influence entrepreneurship readiness.
H4: AI Competencies positively influence executive career growth.
H5: Employability mediates the relationship between AI skills and career success.

The above hypotheses of DACEE model can be systematically proved either using experimental or empirical, or exploratory (case studies) research methodologies.

13. STRUCTURAL ANALYSIS OF THE CONCEPT :

13.1 SWOC Analysis of Dual Path AI Competency Employability–Entrepreneurship Model (DACEEM):

About SWOC:

A conceptual model utilizing a SWOC (Strengths, Weaknesses, Opportunities, and Challenges) framework serves as a rigorous strategic planning tool designed to analyze both internal organizational capabilities and external environmental dynamics to ensure long-term sustainability (Aithal (2015). [182]). While traditionally built upon the classical SWOT matrix, shifting from "Threats" to "Challenges" within modern conceptual models allows organizations to view external obstructions as actionable, competitive stimuli rather than immutable hazards (Karatayev et al. (2017). [183]). This conceptual structural alignment ensures that internal variables—such as operational infrastructure and intrinsic assets—are systematically harmonized with outward growth opportunities while proactively mitigating core vulnerabilities (Barreto & Mayya (2022). [184]). Within complex, evolving industries like education, information systems, and corporate branding, deploying a SWOC-based model provides a multi-dimensional lens to optimize performance metrics, refine organizational positioning, and navigate systemic disruptions (Dhawan & Samantara (2022). [185]). Furthermore, integrating artificial intelligence and advanced quantitative diagnostics into the SWOC architecture transforms the conceptual layout from a static reporting matrix into a dynamic, predictive engine capable of driving real-time strategic pivots (Patil et al. (2025). [186]). Ultimately, a robust SWOC conceptual model establishes a unified theoretical framework that empowers decision-makers to evaluate risk, balance performance parameters, and foster resilient institutional growth (Fakhouri et al. (2023). [187]).

13.1.1 Strengths of Dual Path AI Competency Employability–Entrepreneurship Model:

Table 6: Strengths of Dual Path AI Competency Employability–Entrepreneurship Model

S. No.	Key Strength	Description

1	**Data-driven decisions**	The model strengthens MBA graduates' ability to use AI, analytics, and evidence-based reasoning for strategic decisions, thereby improving managerial accuracy and reducing dependence on intuition alone (Raisch & Krakowski (2021). [50])
2	**Higher employability**	AI competency improves graduates' employability because employers increasingly value AI literacy, digital skills, and the ability to work with intelligent systems (Portocarrero Ramos, (2025). [3]).
3	**Innovation capability**	The model promotes AI-enabled innovation by helping students identify business opportunities, design new solutions, and create AI-supported business models (Giuggioli & Pellegrini, (2023). [40]).
4	**Global competitiveness**	MBA graduates with AI-based strategic and research skills can compete in global labour markets where AI exposure is reshaping managerial and knowledge-based occupations (Felten et al. (2021). [29]).
5	**Research productivity**	AI-assisted research improves literature review, data analysis, idea generation, academic writing, and publication-oriented learning, thereby strengthening scholarly output among MBA students (Aithal & Aithal (2023). [2]).
6	**Strategic intelligence**	The model develops strategic intelligence by enabling graduates to use AI for environmental scanning, scenario analysis, forecasting, and strategic choice evaluation (Csaszar et al. (2024). [34]).
7	**Entrepreneurial readiness**	AI tools help MBA graduates evaluate markets, predict demand, understand customers, and design scalable ventures, improving their entrepreneurship potential (Mishra & Tripathi (2021). [41]).
8	**Digital leadership**	The model prepares graduates for digital leadership roles by developing AI literacy, digital transformation skills, adaptability, and technology-enabled decision-making ability (Sousa & Rocha (2019). [51]).
9	**Human–AI collaboration**	It strengthens graduates' ability to combine human judgment with AI-generated insights, which is essential in future management roles (Raisch & Krakowski (2021). [50]).
10	**Professional visibility**	Publication-oriented AI research, industry analysis, company analysis, patent analysis, and startup analysis help MBA graduates build visible knowledge portfolios, supporting reverse placement and career advancement (Dempere et al. (2023). [38]).

13.1.2 Weaknesses of Dual Path AI Competency Employability–Entrepreneurship Model:

Table 7: Weaknesses of Dual Path AI Competency Employability–Entrepreneurship Model

S. No.	Key Weaknesses	Description
1	**Learning complexity**	The model may be difficult for some MBA students because AI-based strategic analysis, research writing, data interpretation, and publication-oriented learning require advanced cognitive and digital skills (Kasneci et al. (2023). [188]).
2	**Cost of training**	Implementing AI-based competency development requires investment in software tools, digital infrastructure, faculty training, workshops, databases, and continuous curriculum updating (Zawacki-Richter et al. (2019). [99]).
3	**Technology dependence**	Excessive dependence on AI tools may reduce independent thinking, creativity, analytical reasoning, and original problem-solving ability among students (Dwivedi et al. (2023). [100]).
4	**Faculty readiness gap**	Many faculty members may require reskilling to effectively teach AI-based strategic thinking, research methods, prompt engineering, analytics, and ethical AI use (Celik et al. (2022). [189]).
5	**Academic integrity risks**	AI-assisted assignments and research outputs may increase risks of plagiarism, fabricated references, ghostwriting, and weak originality if not properly monitored (Dempere et al. (2023). [38]).

6	**Unequal student access**	Students from economically weaker backgrounds may face unequal access to paid AI tools, high-speed internet, advanced devices, and premium databases, creating a digital divide (Zawacki-Richter et al. (2019). [99]).
7	**Data privacy concerns**	AI-based learning and research activities may involve sharing student data, institutional information, business data, or research inputs with digital platforms, raising privacy and security risks (Akgun & Greenhow (2022). [190]).
8	**Overemphasis on tools over concepts**	Students may focus more on using AI applications than understanding management theories, research methodology, statistical reasoning, and strategic logic, weakening conceptual foundations (Kasneci et al. (2023). [188]).

13.1.3 Opportunities of Dual Path AI Competency Employability–Entrepreneurship Model:

Table 8: Opportunities of Dual Path AI Competency Employability–Entrepreneurship Model

S. No.	Key Opportunities	Description
1	**New executive roles**	AI-based strategic and research competencies create opportunities for MBA graduates to enter emerging executive roles such as AI strategy manager, business analytics leader, digital transformation manager, and AI governance officer (Raisch & Krakowski (2021). [50])
2	**Entrepreneurship**	AI enables graduates to identify opportunities, test business models, analyse markets, and launch innovative ventures with stronger evidence-based decision-making (Giuggioli & Pellegrini, (2023). [40]).
3	**Global consulting**	Graduates with AI-supported analytical, research, and strategic skills can offer consulting services in industry analysis, company analysis, market intelligence, startup evaluation, and digital transformation (Csaszar et al. (2024). [34]).
4	**AI leadership**	The model creates opportunities for MBA graduates to become AI-enabled leaders who can combine human judgment with intelligent systems for organizational decision-making (Raisch & Krakowski, (2021). [50]).
5	**Reverse placement**	AI-assisted research publications, digital portfolios, and professional visibility can help graduates attract employers instead of depending only on traditional campus placement (Portocarrero Ramos (2025). [3]).
6	**Knowledge entrepreneurship**	MBA graduates can convert AI-assisted research outputs into business reports, case studies, patents, policy briefs, training modules, and consulting products (Aithal & Aithal (2023). [2]).
7	**Cross-sector career mobility**	AI competencies allow graduates to work across finance, marketing, HR, operations, healthcare, education, logistics, retail, and technology-driven sectors (Felten et al. (2021). [29]).
8	**Industry 5.0 career readiness**	The model prepares graduates for human-centric, sustainable, resilient, and AI-supported business environments, creating opportunities in future-ready organizations (Xu et al. (2021). [53]).

13.1.4 Challenges of Dual Path AI Competency Employability–Entrepreneurship Model:

Table 9: Challenges of Dual Path AI Competency Employability–Entrepreneurship Model

S. No.	Key Challenges	Description
1	**Rapid technological change**	The continuous evolution of AI technologies, algorithms, platforms, and business applications creates challenges for MBA graduates in maintaining current knowledge and competencies. Continuous

		learning and upskilling become essential for sustaining career relevance (Dwivedi et al. (2023). [100]).
2	**Ethical concerns**	The increasing use of AI raises ethical issues related to algorithmic bias, transparency, accountability, privacy, fairness, and responsible decision-making, requiring managers to balance technological efficiency with ethical governance (Longo et al. (2020). [55]).
3	**Skill obsolescence**	AI-driven automation can quickly render existing managerial and technical skills outdated, forcing professionals to continuously update their competencies to remain employable and competitive (Frey & Osborne (2017). [26]).
4	**Data privacy and cybersecurity risks**	AI-based strategic analysis and research activities rely heavily on data collection and processing, exposing organizations and professionals to cybersecurity threats, data breaches, and privacy violations (Bélanger & Crossler (2011). [191]).
5	**Human–AI integration challenges**	Organizations often struggle to effectively integrate human judgment with AI-generated recommendations, creating managerial challenges in trust, collaboration, and decision accountability (Raisch & Krakowski (2021). [50]).
6	**Regulatory and compliance uncertainty**	The rapidly changing legal and regulatory environment surrounding AI creates challenges for organizations and managers in ensuring compliance with emerging standards and governance frameworks (Floridi et al. (2018). [192]).
7	**Quality and reliability of AI outputs**	AI systems may generate inaccurate information, biased recommendations, hallucinated content, or flawed analyses, requiring managers to verify and critically evaluate AI-generated outputs before implementation (Kasneci et al. (2023). [188]).
8	**Global talent competition**	As AI competencies become increasingly important worldwide, MBA graduates face intense competition from a global talent pool possessing similar technological and analytical capabilities, making continuous differentiation necessary (Felten et al. (2021). [29]).

13.2 ABCD Analysis of Dual Path AI Competency Employability–Entrepreneurship Model (DACEEM):

13.2.1 About ABCD Analysis:

The ABCD (Advantages, Benefits, Constraints, and Disadvantages) analysis framework serves as a structured, multidimensional qualitative and quantitative tool designed to evaluate the strategic viability and systemic impact of an enterprise, business model, operational strategy, or conceptual framework (Aithal (2016). [193]). By systematically partitioning an organizational architecture into four distinct strategic quadrants, the model identifies internal operating capabilities and isolating external systemic factors to determine overarching institutional sustainability (Aithal et al. (2015). [194]). The framework operates through an explicit analytical hierarchy that breaks down individual concepts into specific focus areas, core elements, and measurable determinants, allowing for an incredibly granular diagnostic review of complex systems (Aithal & Aithal (2017). [195]). While traditional structural tools like SWOT or PESTLE offer a general baseline of organizational health, the specialized ABCD matrix distinguishes itself by cleanly separating immediate structural "Advantages" from long-term user "Benefits," while contrasting inherent operational "Constraints" directly against localized market "Disadvantages" (Aithal (2021). [196]). When integrated deeply into nascent fields like digital learning architectures, financial service models, or emerging healthcare technologies, this conceptual layout transforms raw environmental data into an organized, scannable, and actionable dashboard for risk mitigation (Aithal et al. (2016). [197]). Ultimately, deploying a formalized ABCD analysis within a conceptual model establishes a highly rigorous, mathematically backed theoretical framework that empowers organizational decision-makers to optimize resource allocation, balance risk parameters, and navigate turbulent economic trajectories (Aithal & Aithal (2018). [198]).

13.2.2 Stakeholders: (MBA Students' Perspective):

A. Advantages:

Table 10: Advantages of the DACEE model from MBA Students' Perspective

S. No.	Key Advantages	Description
1	**Enhanced AI-driven decision-making capability**	MBA students develop the ability to utilize AI tools, analytics, and predictive models for evidence-based managerial decisions, improving strategic effectiveness.
2	**Integration of employability and entrepreneurship pathways**	The model simultaneously prepares students for executive careers and entrepreneurial ventures, reducing dependence on a single career trajectory.
3	**Research-oriented professional development**	Students acquire competencies in business research, industry analysis, patent analysis, and publication-oriented learning, strengthening professional credibility.
4	**Industry relevance of management education**	AI-integrated learning aligns MBA education with evolving industry expectations and future workforce requirements.
5	**Development of strategic intelligence**	Students gain expertise in forecasting, competitive intelligence, scenario planning, and AI-supported strategic analysis.
6	**Preparation for Industry 5.0 environments**	The model equips students to work effectively in human–AI collaborative organizations emphasizing innovation, sustainability, and resilience.

B. Benefits:

Table 11: Benefits of the DACEE model from MBA Students' Perspective

S. No.	Key Benefits	Description
1	**Improved employability outcomes**	AI competencies significantly enhance graduates' job prospects and career readiness in technology-driven organizations.
2	**Higher innovation potential**	AI-assisted ideation, business model design, and opportunity recognition increase students' innovation capabilities.
3	**Stronger entrepreneurial readiness**	Students can identify market opportunities, validate business concepts, and create scalable ventures using AI-enabled tools.
4	**Increased research productivity**	AI supports literature reviews, data analysis, academic writing, and publication generation, enabling greater scholarly output.
5	**Global career opportunities**	AI literacy and strategic competencies enable graduates to participate in international consulting, analytics, and leadership roles.
6	**Lifelong learning capability**	Continuous engagement with AI technologies promotes adaptability and lifelong professional development.

C. Constraints:

Table 12: Constraints of the DACEE model from MBA Students' Perspective

S. No.	Key Constraints	Description
1	**Requirement of advanced digital infrastructure**	Effective implementation requires access to AI software, databases, computing resources, and internet connectivity.
2	**Need for faculty competency development**	Institutions must invest significantly in training faculty members to teach AI-based strategic and research skills.

3	**High learning curve**	Students from non-technical backgrounds may experience difficulties understanding AI concepts, analytics, and advanced research methods.
4	**Limited access to premium AI tools**	Many advanced AI platforms require subscription fees, creating accessibility barriers for students.
5	**Dependence on quality data**	Strategic analysis and research effectiveness depend heavily on the availability and reliability of data sources.
6	**Curriculum redesign challenges**	Integrating AI competencies into existing MBA programmes requires substantial curriculum restructuring and administrative support.

D. Disadvantages:

Table 13: Disadvantages of the DACEE model from MBA Students' Perspective

S. No.	Key Disadvantages	Description
1	**Potential overdependence on AI systems**	Excessive reliance on AI may weaken independent analytical thinking and managerial intuition.
2	**Risk of reduced originality**	AI-generated content may discourage deep critical thinking and original knowledge creation if used inappropriately.
3	**Privacy and data security concerns**	AI-based learning and research platforms may expose sensitive personal or institutional information to cybersecurity risks.
4	**Ethical and bias-related issues**	AI algorithms may generate biased recommendations, affecting the quality and fairness of managerial decisions.
5	**Rapid skill depreciation**	Continuous technological advancement may quickly make acquired AI competencies obsolete, requiring ongoing reskilling.
6	**Psychological pressure for continuous upskilling**	Students may experience stress and uncertainty due to constant technological changes and the need for continuous learning.

13.2.3 Stakeholders: (Business Schools' Perspective)

A. Advantages:

Table 14: Advantages of the DACEE model from Business Schools' Perspective

S. No.	Key Advantages	Description
1	**Enhanced institutional relevance**	The integration of AI-based strategic and research competencies enables business schools to align MBA education with contemporary industry requirements and future workforce expectations.
2	**Curriculum innovation capability**	The model provides a structured framework for introducing AI, analytics, strategic intelligence, and entrepreneurship into management education, thereby modernizing MBA curricula.
3	**Improved academic reputation**	Business schools implementing AI-integrated learning models can position themselves as innovative institutions, attracting quality students, faculty, and industry collaborations.
4	**Strengthened industry–academia linkage**	AI-enabled projects, research, consulting assignments, and entrepreneurial activities facilitate stronger collaboration with industries and employers.
5	**Promotion of research culture**	The model encourages publication-oriented learning, business analytics research, patent studies, and innovation projects, enhancing institutional research productivity.
6	**Competitive differentiation**	Business schools offering AI-based employability and entrepreneurship pathways can distinguish themselves from traditional MBA providers in a highly competitive educational market.

B. Benefits:

Table 15: Benefits of the DACEE model from Business Schools' Perspective

S. No.	Key Benefits	Description
1	**Higher graduate employability rates**	AI-enhanced MBA programmes improve placement outcomes and employer satisfaction, strengthening institutional performance indicators.
2	**Increased student enrolment attractiveness**	Prospective students are increasingly attracted to programmes that offer AI competencies, digital skills, and future-oriented career opportunities.
3	**Enhanced research output and visibility**	AI-assisted research methodologies enable greater faculty and student publication productivity, increasing institutional academic visibility.
4	**Improved accreditation and ranking prospects**	Innovative AI-based curriculum models contribute positively to quality assurance frameworks, accreditation standards, and institutional rankings.
5	**Expanded entrepreneurship ecosystem**	Business schools benefit from increased startup creation, incubation activities, innovation projects, and industry engagement generated by AI-enabled entrepreneurial learning.
6	**Global collaboration opportunities**	AI-focused programmes facilitate international partnerships, joint research projects, faculty exchanges, and global consulting initiatives.

C. Constraints:

Table 16: Constraints of the DACEE model from Business Schools' Perspective

S. No.	Key Constraints	Description
1	**High infrastructure investment requirements**	Business schools must invest substantially in AI software, cloud computing facilities, databases, laboratories, and digital learning platforms.
2	**Faculty training and reskilling needs**	Successful implementation requires continuous faculty development in AI technologies, analytics, prompt engineering, and AI-supported research methods.
3	**Curriculum redesign complexity**	Integrating AI competencies across MBA subjects demands extensive curriculum restructuring, approval processes, and stakeholder coordination.
4	**Limited availability of AI experts**	Business schools may face challenges in recruiting and retaining faculty members with interdisciplinary expertise in AI and management.
5	**Dependence on technology vendors**	Institutions may become dependent on external software providers and subscription-based AI platforms, increasing operational vulnerability.
6	**Resource disparities among institutions**	Smaller or resource-constrained business schools may struggle to implement AI-enabled programmes at the same level as well-funded institutions.

D. Disadvantages:

Table 17: Disadvantages of the DACEE model from Business Schools' Perspective

S. No.	Key Disadvantages	Description
1	**Risk of technological obsolescence**	Rapid technological advancements may quickly render institutional investments, software platforms, and curriculum content outdated.

2	**Ethical and governance challenges**	Business schools must address issues of algorithmic bias, academic integrity, responsible AI use, and ethical decision-making within educational processes.
3	**Potential reduction in traditional managerial learning**	Excessive emphasis on AI tools may reduce attention to foundational management theories, human relations, and experiential learning approaches.
4	**Cybersecurity and data privacy risks**	AI-based educational systems increase exposure to data breaches, privacy concerns, and cybersecurity threats affecting institutional operations.
5	**Resistance to organizational change**	Faculty members, administrators, and other stakeholders may resist the transition toward AI-enabled educational models, slowing implementation.
6	**Increased operational costs**	Continuous upgrading of technology, software subscriptions, faculty development, and infrastructure maintenance may significantly increase institutional expenditures.

13.2.4 Stakeholders: (Employers' Perspective):

A. Advantages:

Table 18: Advantages of the DACEE model from Employers' Perspective

S. No.	Key Advantages	Description
1	**Availability of AI-ready managerial talent**	Employers gain access to MBA graduates who possess AI literacy, strategic intelligence, analytics capabilities, and research competencies required for modern organizations.
2	**Improved data-driven decision support**	Graduates trained in AI-based strategic analysis can contribute to evidence-based managerial decision-making and business planning processes.
3	**Enhanced innovation capability**	AI-competent MBA graduates can assist organizations in identifying new business opportunities, developing innovative products, and improving operational processes.
4	**Reduced onboarding and training requirements**	Employers benefit from recruiting graduates who already possess competencies in AI applications, business analytics, digital transformation, and research methods.
5	**Greater adaptability to technological change**	AI-skilled graduates are generally better equipped to adapt to evolving technologies, business models, and organizational transformations.
6	**Support for Industry 5.0 transformation**	Such graduates contribute to human–AI collaboration, sustainability initiatives, and resilient organizational systems required in Industry 5.0 environments.

B. Benefits:

Table 19: Benefits of the DACEE model from Employers' Perspective

S. No.	Key Benefits	Description
1	**Higher organizational productivity**	AI-enabled MBA graduates can leverage automation, analytics, and intelligent decision-support systems to improve organizational efficiency.
2	**Improved strategic competitiveness**	Employers benefit from graduates capable of conducting AI-supported competitive intelligence, forecasting, and strategic planning.
3	**Enhanced business research capability**	AI-trained MBA graduates contribute to market research, consumer analysis, industry studies, and evidence-based business recommendations.

4	**Stronger innovation and entrepreneurship culture**	Such employees encourage intrapreneurship, business model innovation, and continuous organizational improvement.
5	**Better talent pipeline for leadership positions**	AI-based strategic and research skills prepare graduates for future managerial and executive responsibilities.
6	**Improved global business capability**	Employers can utilize AI-skilled graduates in international consulting, digital business operations, and global strategic projects.

C. Constraints:

Table 20: Constraints of the DACEE model from Employers' Perspective

S. No.	Key Constraints	Description
1	**Need for continuous employee upskilling**	Employers must continually invest in training and development because AI technologies evolve rapidly.
2	**Integration challenges with existing systems**	Organizations may face difficulties integrating AI-capable graduates into traditional structures and legacy business processes.
3	**Dependence on technological infrastructure**	Effective utilization of AI-skilled employees requires adequate digital infrastructure, data systems, and analytics platforms.
4	**Shortage of experienced AI mentors**	Organizations may lack senior managers with sufficient AI expertise to guide and supervise AI-enabled MBA graduates.
5	**Shortage of experienced AI mentors**	Organizations may lack senior managers with sufficient AI expertise to guide and supervise AI-enabled MBA graduates.
6	**Difficulty in evaluating AI competencies**	Employers may find it challenging to accurately assess practical AI skills and research capabilities during recruitment and performance evaluation processes.

D. Disadvantages:

Table 21: Disadvantages of the DACEE model from Employers' Perspective

S. No.	Key Disadvantages	Description
1	**Risk of overreliance on AI-generated outputs**	Employees may excessively depend on AI recommendations, reducing independent managerial judgment and critical thinking.
2	**Ethical and legal liability concerns**	AI-supported decisions may create issues related to fairness, accountability, bias, and regulatory compliance, exposing employers to legal risks.
3	**Cybersecurity and data privacy vulnerabilities**	Increased AI adoption raises exposure to cyber threats, data breaches, and misuse of organizational information.
4	**Rapid skill obsolescence among employees**	AI competencies acquired today may become outdated quickly, requiring continuous workforce reskilling investments.
5	**Higher technology-related operational costs**	Organizations may incur substantial expenses for AI software, infrastructure, maintenance, licensing, and employee training.
6	**Potential workforce resistance**	Existing employees may resist AI-enabled organizational transformation due to fear of automation, role changes, or job displacement.

13.2.5 Stakeholders: (Society Perspective)

A. Advantages:

Table 22: Advantages of the DACEE model from Society Perspective

S. No.	Key Advantages	Description
1	**Creation of a future-ready workforce**	The model develops AI-literate MBA graduates capable of addressing complex socio-economic and business challenges, thereby strengthening societal preparedness for the digital economy.
2	**Promotion of knowledge-based economic development**	AI-based strategic and research skills contribute to knowledge creation, innovation, and intellectual capital formation, which are essential for economic growth.
3	**Support for technological advancement**	The model accelerates the adoption of AI, analytics, and digital transformation across sectors, helping society benefit from emerging technologies.
4	**Strengthening entrepreneurial ecosystems**	AI-enabled entrepreneurial competencies encourage startup creation, innovation-driven enterprises, and job generation within society.
5	**Improved human–AI collaboration**	Society benefits from professionals who can effectively integrate human judgment with machine intelligence to solve organizational and social problems.
6	**Contribution to Industry 5.0 transformation**	The model promotes human-centric, sustainable, and resilient socio-economic development through AI-supported leadership and innovation.

B. Benefits:

Table 23: Benefits of the DACEE model from Society Perspective

S. No.	Key Benefits	Description
1	**Economic growth and productivity enhancement**	AI-skilled graduates contribute to higher organizational productivity, innovation, and competitiveness, which collectively support economic development.
2	**Improved decision-making across sectors**	AI-based strategic competencies can contribute to better decisions in business, healthcare, education, governance, and public services.
3	**Enhanced innovation culture**	The model fosters a culture of creativity, experimentation, and evidence-based innovation that benefits society at large.
4	**Development of digital society**	AI-competent graduates facilitate digital transformation initiatives that improve service delivery, connectivity, and socio-economic inclusion.
5	**Promotion of lifelong learning**	Continuous AI-driven learning and reskilling create a more adaptive and resilient workforce capable of responding to future societal changes.

C. Constraints:

Table 24: Constraints of the DACEE model from Society Perspective

S. No.	Key Constraints	Description
1	**Digital divide and unequal access**	Societal benefits may be limited by disparities in access to AI technologies, internet connectivity, and digital education opportunities.
2	**Need for large-scale educational investment**	Governments and institutions must invest significantly in digital infrastructure, AI literacy programmes, and workforce development initiatives.

3	**Shortage of AI-skilled educators and trainers**	The availability of qualified professionals capable of delivering AI education remains limited in many regions.
4	**Dependence on technological infrastructure**	The effectiveness of AI-based competency models depends on the availability and reliability of technological systems and digital ecosystems.
5	**Policy and governance challenges**	Society requires appropriate regulatory frameworks to guide responsible AI adoption, workforce transition, and ethical implementation.
6	**Variation in adoption across regions**	Differences in economic development, educational quality, and technological readiness may limit uniform societal benefits.

D. Disadvantages:

Table 25: Disadvantages of the DACEE model from Society Perspective

S. No.	Key Disadvantages	Description
1	**Risk of workforce displacement**	AI adoption may automate certain managerial and administrative functions, creating employment disruptions and social adjustment challenges.
2	**Ethical concerns and algorithmic bias**	AI systems may reinforce societal inequalities if bias, discrimination, and fairness issues are not properly addressed.
3	**Data privacy and surveillance risks**	Increased AI utilization can expose individuals and organizations to privacy violations, data misuse, and surveillance concerns.
4	**Growing socio-economic inequality**	Unequal access to AI skills and technologies may widen existing gaps between technologically advanced and disadvantaged populations.
5	**Technology dependence**	Excessive reliance on AI systems may reduce human judgment, critical thinking, and societal resilience in decision-making processes.
6	**Continuous skill obsolescence pressure**	Rapid technological advancement requires constant reskilling and adaptation, creating long-term educational and social challenges.

13.3 PESTLE Analysis of Dual Path AI Competency Employability–Entrepreneurship Model (DACEEM):

(1) Political Factors: Government AI Policies:

Government policies and national AI strategies play a critical role in shaping the adoption of AI-based strategic and research competencies in management education. Many countries have introduced national AI frameworks aimed at enhancing digital transformation, workforce readiness, innovation ecosystems, and AI-driven economic growth. These policies encourage educational institutions to integrate AI literacy, data analytics, and digital skills into higher education curricula to prepare future professionals for emerging workforce requirements (Miao et al. (2021). [199]). Governments are also investing in AI research centres, innovation hubs, startup incubation programmes, and digital infrastructure that support entrepreneurship and employability. Consequently, the Dual Path AI Competency Employability–Entrepreneurship Model aligns well with national objectives of developing AI-ready managerial talent, promoting innovation-led economic growth, and strengthening global competitiveness (Aithal & Aithal (2023). [2]).

(2) Economic Factors: Future Job Market

The future job market is increasingly influenced by AI, automation, analytics, and digital transformation, creating demand for professionals who can work effectively with intelligent technologies. AI is simultaneously automating routine tasks and generating new occupations requiring advanced analytical, strategic, and technological competencies. Research indicates that future employment opportunities will increasingly favour workers possessing AI literacy, problem-solving

ability, digital intelligence, and interdisciplinary skills (Frey & Osborne (2017). [26]). MBA graduates equipped with AI-based strategic and research competencies are therefore more likely to remain employable, adaptable, and competitive in dynamic labour markets. Furthermore, AI-enabled entrepreneurship can contribute to job creation, innovation, and economic diversification, thereby supporting long-term economic development (Portocarrero Ramos (2025). [3]).

(3) Social Factors: Changing Skill Expectations

Societal expectations regarding professional competencies are changing rapidly due to digitalization and AI adoption. Employers, industries, and communities increasingly value critical thinking, creativity, innovation, data-driven decision-making, digital literacy, and lifelong learning rather than merely possessing academic qualifications. AI is transforming the nature of managerial work and creating expectations for graduates who can combine human intelligence with machine intelligence to address complex business and societal challenges (Sousa & Rocha (2019). [51]). The proposed model addresses these changing expectations by equipping MBA graduates with AI-supported strategic thinking, research capabilities, entrepreneurial competencies, and adaptive learning skills that enhance their relevance in future workplaces and society (World Economic Forum (2023). [58]).

(4) Technological Factors: AI Disruptions

Rapid technological advancements in artificial intelligence, machine learning, generative AI, big data analytics, cloud computing, and intelligent automation are continuously disrupting business models, industries, and managerial roles. AI technologies are transforming strategic planning, customer engagement, research methodologies, innovation processes, and organizational decision-making systems (Raisch & Krakowski (2021). [50]). While these disruptions create significant opportunities for MBA graduates possessing AI competencies, they also necessitate continuous learning and skill upgrading. The Dual Path AI Competency Employability–Entrepreneurship Model directly addresses these technological disruptions by integrating AI-based strategic intelligence, predictive analytics, research productivity, and innovation capabilities into management education (Dwivedi et al. (2023). [100]).

(5) Legal Factors: AI Regulations

The increasing adoption of AI has generated growing concerns regarding privacy, accountability, transparency, intellectual property, bias, fairness, and cybersecurity. Governments and international organizations are developing legal and regulatory frameworks to ensure responsible AI development and deployment. Compliance with AI-related regulations requires professionals who understand ethical AI governance, data protection laws, algorithmic accountability, and responsible innovation practices (Floridi et al. (2018). [192]). MBA graduates trained under the Dual Path AI Competency Employability–Entrepreneurship Model can contribute to organizational compliance and ethical decision-making by integrating legal awareness with strategic and technological expertise. Therefore, AI regulation represents both a challenge and an opportunity for future management professionals.

(6) Environmental Factors: Green AI and Sustainability

Environmental sustainability is becoming a critical consideration in AI development and deployment. The concept of Green AI emphasizes energy-efficient algorithms, sustainable computing infrastructure, responsible resource utilization, and environmentally conscious technological innovation. At the same time, AI technologies can support sustainability initiatives through energy optimization, waste reduction, predictive maintenance, smart resource management, and environmental monitoring (Longo et al. (2020). [55]). The Dual Path AI Competency Employability–Entrepreneurship Model encourages MBA graduates to integrate sustainability principles into strategic decision-making, innovation management, and entrepreneurial activities. Such competencies are increasingly important in Industry 5.0 environments that prioritize human-centricity, sustainability, resilience, and responsible technological advancement (Xu et al. (2021). [53]).

14. IMPACT ANALYSIS OF DUAL PATH AI COMPETENCY EMPLOYABILITY–ENTREPRENEURSHIP MODEL (DACEEM) :

(1) Economic Impact:

The Dual Path AI Competency Employability–Entrepreneurship Model (DACEEM) can create a strong economic impact by producing MBA graduates who are capable of contributing to productivity, innovation, and knowledge-based economic growth. AI-enabled graduates can support organizations in improving decision-making, reducing inefficiencies, analysing markets, and identifying new business

opportunities. Since AI affects occupations and economic productivity by changing the nature of work and task performance, graduates with AI-based strategic and research skills can contribute more effectively to the emerging digital economy (Brynjolfsson et al. (2018). [28]). Further, AI competencies can improve graduate employability and enable better participation in high-value professional roles, thereby strengthening income generation and economic mobility (Portocarrero Ramos (2025). [3]).

(2) Industrial Impact:

DACEEM has significant industrial impact because it prepares MBA graduates to support AI-driven transformation across sectors such as finance, marketing, logistics, healthcare, retail, education, manufacturing, and consulting. Industries increasingly require professionals who can combine business knowledge with AI-enabled analytics, strategic intelligence, and digital transformation capability. AI is transforming managerial decision-making through automation and augmentation, where human judgment and machine intelligence work together for superior outcomes (Raisch & Krakowski (2021). [50]. Similarly, AI applications in business research and decision-making are expanding across multiple organizational domains, making AI-trained management graduates valuable contributors to industry competitiveness (Nguyen et al. (2022). [36]).

(3) Educational Impact:

DACEEM can transform MBA education from a conventional knowledge-delivery model into a competency-based, research-oriented, and innovation-driven learning model. It encourages business schools to integrate AI literacy, strategic analysis, business research, publication-oriented learning, and entrepreneurship into the curriculum. Studies on AI in higher education show that AI tools can support teaching, learning, research, academic writing, and student engagement when used responsibly (Aithal & Aithal (2023). [2]). However, successful integration requires curriculum redesign, faculty development, ethical guidelines, and institutional readiness, as AI is reshaping higher education institutions at structural and pedagogical levels (Katsamakas et al. (2024). [17]).

(4) Organizational Impact:

At the organizational level, DACEEM helps develop graduates who can contribute to data-driven planning, digital transformation, innovation management, and human–AI collaboration. Organizations benefit from employees who can interpret AI outputs, evaluate strategic alternatives, and support evidence-based decisions. The automation–augmentation paradox explains that AI does not merely replace human work but also enhances human capability when organizations design effective human–AI collaboration systems (Raisch & Krakowski (2021). [50]). Moreover, AI-based strategic decision-making can assist entrepreneurs, managers, and investors in generating and evaluating business strategies more effectively (Csaszar et al. (2024). [34]).

(5) Employment Impact:

The employment impact of DACEEM is highly relevant because AI is reshaping job roles, recruitment expectations, and employability skills. MBA graduates with AI-based strategic and research competencies are better prepared for emerging positions such as AI strategy analyst, business analytics manager, digital transformation executive, AI governance officer, research consultant, and innovation manager. Research shows that AI skills positively influence the employability of university graduates, particularly when graduates frequently use AI tools and understand their practical applications (Portocarrero Ramos (2025). [3]). At the same time, automation can affect employment by replacing routine tasks, making continuous reskilling essential for long-term career sustainability (Frey & Osborne (2017). [26]).

(6) Entrepreneurial Impact:

DACEEM supports entrepreneurship by enabling MBA graduates to use AI tools for opportunity recognition, market analysis, customer profiling, business model innovation, financial forecasting, and startup validation. AI can act as an enabler of entrepreneurial processes by improving opportunity identification, decision-making, venture performance, and entrepreneurial learning (Giuggioli & Pellegrini (2023). [40]). Further, AI-based business models help entrepreneurs create digital platforms, personalized services, automated processes, and scalable ventures, thereby strengthening startup success and innovation-led enterprise creation (Mishra & Tripathi (2021). [41]).

(7) Research Impact:

The research impact of DACEEM is reflected in its ability to convert MBA students from passive learners into active knowledge creators. AI tools can support literature review, data analysis, bibliometric studies, business case development, patent analysis, industry analysis, company analysis,

and scholarly publication. AI is increasingly becoming central to business research, with growing applications in management, marketing, operations, information systems, and strategic decision-making (Cao et al. (2024). [71]). In higher education and research, AI-based tools such as ChatGPT can support idea generation, academic writing, analysis, and research productivity, provided that academic integrity and source verification are maintained (Aithal & Aithal (2023). [2]).

(8) Societal Impact:

DACEEM can create wider societal impact by producing AI-literate, ethically aware, and innovation-oriented MBA graduates who contribute to responsible technological adoption and inclusive development. Society benefits when management graduates use AI for solving business, social, educational, environmental, and governance-related problems. However, AI adoption also raises social concerns related to bias, fairness, privacy, accountability, and human well-being, requiring responsible AI governance (Floridi et al. (2018). [192]). In addition, Industry 5.0 emphasizes human-centric, sustainable, and resilient development, where AI and human creativity are combined for social and economic progress (Xu et al. (2021). [53]).

15. ANTICIPATED SOLUTIONS AND SKILL FRAMEWORK :

15.1 AI-based Strategic Skills:

(1) Strategic Foresight:

Strategic foresight refers to the ability of MBA graduates to anticipate future business trends, identify weak signals, analyse environmental changes, and prepare organizations for uncertainty. In an AI-driven business environment, strategic foresight becomes more powerful because AI tools can process large volumes of market, technological, financial, and social data to detect emerging opportunities and threats. MBA graduates trained in AI-based strategic foresight can use predictive analytics, scenario planning, competitor intelligence, and trend analysis to support long-term strategic decisions. This skill is especially important because AI increasingly affects managerial and knowledge-based occupations, requiring professionals to understand future technological exposure and its implications for organizations (Felten et al. (2021). [29]). Further, AI-supported strategy generation and evaluation can improve the quality of strategic thinking by helping managers compare alternative future pathways and business models (Csaszar et al. (2024). [34]).

(2) AI Decision Making:

AI decision making refers to the ability to use artificial intelligence systems as decision-support tools while maintaining human judgment, ethical reasoning, and managerial accountability. MBA graduates should not depend blindly on AI outputs; rather, they must learn to interpret algorithmic recommendations, verify data quality, evaluate risks, and apply contextual business understanding. AI can improve decision-making by augmenting managerial cognition, reducing information overload, and supporting evidence-based choices. However, effective AI decision making requires balancing automation with human judgment, as organizations increasingly operate through human–AI collaboration systems (Raisch & Krakowski (2021). [50]). Ethical issues such as fairness, bias, transparency, and accountability must also be considered when AI is used for strategic and managerial decisions (Floridi et al. (2018). [192]).

(3) Predictive Planning:

Predictive planning refers to the use of AI, machine learning, business analytics, and forecasting models to anticipate future demand, market movements, financial performance, customer behaviour, operational risks, and competitive changes. MBA graduates with predictive planning skills can support organizations in preparing data-driven strategies rather than relying only on past experience or intuition. Such planning is valuable in dynamic markets because AI can identify patterns and estimate future outcomes across business functions. Machine learning is transforming occupations by changing task-level decision processes and enabling more accurate forecasting and planning (Brynjolfsson et al. (2018). [28]). In business research, AI applications are increasingly used for forecasting, analytics, decision support, and organizational intelligence, making predictive planning a core strategic skill for future MBA graduates (Nguyen et al. (2022). [36]).

15.2 AI-based Research Skills:

(1) AI Research Platforms:

AI research platforms refer to digital tools and intelligent systems that support literature search, reference management, academic writing, data extraction, bibliometric analysis, plagiarism checking, and research dissemination. For MBA graduates, these platforms are useful in conducting industry analysis, company analysis, CEO analysis, product analysis, patent analysis, startup analysis, and market research. AI-supported research platforms help students move beyond passive learning by enabling faster identification of research gaps, synthesis of literature, generation of research questions, and preparation of scholarly outputs. Studies show that AI tools are increasingly transforming higher education and research by supporting academic productivity, knowledge creation, and research-oriented learning (Aithal & Aithal (2023). [2]). Similarly, AI applications in business research are expanding across management disciplines, indicating that future researchers must understand how to use AI-based platforms responsibly and effectively (Cao et al. (2024). [71]).

(2) Data Analytics:

Data analytics is the ability to collect, clean, organize, analyse, visualize, and interpret business data for research and decision-making. In MBA education, data analytics helps students convert raw business data into meaningful insights related to consumer behaviour, market trends, financial performance, operational efficiency, employee engagement, and competitive positioning. AI-based data analytics enables students to use statistical tools, machine learning models, dashboards, and visualization platforms for evidence-based research. Business research literature shows that AI has become increasingly important in analysing large datasets and generating insights across marketing, operations, finance, strategy, and information systems (Nguyen et al. (2022). [36]). Machine learning is also changing the nature of occupational tasks by improving prediction, classification, and pattern recognition, making data analytics a core research competency for future management graduates (Brynjolfsson et al. (2018). [28]).

(3) Predictive Research:

Predictive research refers to the use of AI, machine learning, statistical modelling, and forecasting techniques to estimate future outcomes based on historical and real-time data. MBA graduates can use predictive research for demand forecasting, customer churn prediction, financial risk assessment, market growth analysis, HR analytics, sales forecasting, and startup success evaluation. This skill allows students to move from descriptive research toward forward-looking research that supports strategic decision-making. AI-based predictive models improve the ability of researchers and managers to evaluate future possibilities and reduce uncertainty in business decisions (Csaszar et al. (2024). [34]). Further, AI's growing role in business research demonstrates that predictive analytics is becoming central to evidence-based management and organizational intelligence (Cao et al. (2024). [35]).

(4) Research Case Study:

Research case study skill refers to the ability to systematically investigate real business situations, analyse organizational problems, interpret evidence, and develop practical recommendations. In the AI era, MBA students can use AI tools to strengthen case study research by collecting secondary data, summarizing company reports, identifying industry trends, analysing competitors, mapping stakeholder issues, and generating structured insights. Case study research is especially valuable in management education because it links theory with real-world managerial practice. AI can enhance this process by assisting in data interpretation and comparative analysis while still requiring human judgment, contextual understanding, and ethical reasoning. Research on AI and management emphasizes that effective managerial decision-making depends on balancing human judgment with AI-supported analysis (Raisch & Krakowski (2021). [50]). Further, AI-supported higher education research can improve academic writing, analysis, and publication-oriented learning when students critically verify sources and maintain research integrity (Dempere et al. (2023). [38]),

15.3 AI-based Innovation Skills:

(1) Design Thinking:

Design thinking is a human-centred innovation skill that enables MBA graduates to identify user problems, empathize with stakeholders, generate creative solutions, prototype ideas, and test practical business models. In the context of AI-based management education, design thinking helps students combine human creativity with AI-supported analysis to solve complex business and social problems. MBA graduates can use AI tools to analyse customer feedback, identify pain points, generate alternative solutions, and test innovation concepts more efficiently. Design thinking has been recognized as a

valuable approach for innovation, problem-solving, and management education because it strengthens creativity, collaboration, and user-centred decision-making (Glen et al. (2014). [200]). Further, AI-enabled innovation requires human-centred approaches so that technology development remains aligned with user needs, ethical values, and organizational goals (Raisch & Krakowski (2021). [50]).

(2) AI Product Development:

AI product development refers to the ability to design, develop, evaluate, and commercialize products or services that use artificial intelligence as a core value-creating component. MBA graduates require this skill to identify market gaps, define product value propositions, analyse customer needs, evaluate feasibility, and coordinate between technical teams and business stakeholders. AI product development is especially important because firms increasingly use AI to create new business models, personalize services, automate processes, and improve customer experiences. AI-driven business models allow organizations to create value through data, algorithms, platforms, and intelligent automation (Mishra & Tripathi (2021). [41]). Similarly, AI enables innovation by improving opportunity recognition, entrepreneurial decision-making, and business performance (Giuggioli & Pellegrini (2023). [40]).

(3) AI-based Patent Ideas:

AI-based patent idea generation is the ability to identify novel, useful, and commercially relevant technological solutions using AI-assisted research, patent analysis, prior-art search, and innovation mapping. MBA graduates can use AI tools to analyse existing patents, identify technology gaps, study competitor innovations, and generate new product or process ideas suitable for intellectual property protection. This skill is important because future entrepreneurs and managers must understand how innovation can be converted into protectable intellectual assets. AI-supported research tools can help students improve idea generation, literature review, patent scanning, and innovation documentation (Aithal & Aithal (2023). [2]). In addition, AI is increasingly transforming business research and innovation studies by enabling large-scale analysis of technologies, markets, and knowledge domains (Cao et al. (2024). [71]).

15.4 AI-based Entrepreneurial Skills:

(1) Startup Analytics:

Startup analytics refers to the ability of MBA graduates to use AI tools, business analytics, and data-driven methods to evaluate startup opportunities, customer segments, market size, competitor behaviour, revenue potential, financial risks, and scalability. This skill enables future entrepreneurs to move from intuition-based startup creation to evidence-based venture design. MBA graduates can use AI for customer discovery, demand forecasting, sentiment analysis, pricing decisions, market validation, and investor pitch preparation. AI has been identified as an important enabler of entrepreneurial opportunity recognition, decision-making, performance improvement, and venture development (Giuggioli & Pellegrini (2023). [40]). Further, AI-supported strategic decision-making helps entrepreneurs and investors generate, compare, and evaluate business strategies more effectively, making startup analytics a critical entrepreneurial competency for MBA graduates (Csaszar et al. (2024). [34]).

(2) AI Business Models:

AI business model skill refers to the ability to design, evaluate, and implement business models in which artificial intelligence becomes a source of value creation, value delivery, and value capture. MBA graduates must understand how AI can support platform businesses, subscription models, automated services, personalized customer experiences, predictive maintenance, data monetization, digital consulting, and intelligent decision-support services. AI-based business models depend on the integration of data, algorithms, digital platforms, automation, and customer intelligence. Research shows that AI business models create new forms of organizational value by combining machine learning, digital platforms, and business strategy (Mishra & Tripathi (2021). [41]). Similarly, AI-driven entrepreneurship strengthens innovation, competitive advantage, customer experience, and business performance, making AI business model design essential for future entrepreneurs (Al-Mamary (2025). [42]).

(3) AI-based New Online and Offline Business Ideas:

AI-based new online and offline business idea generation refers to the ability to identify, design, and validate innovative business opportunities using AI tools. Online business ideas may include AI-enabled digital marketing agencies, chatbot-based customer service firms, AI tutoring platforms, market

research services, data analytics consulting, automated content services, and e-commerce personalization solutions. Offline business ideas may include AI-assisted retail analytics, smart inventory management, AI-supported agri-business advisory, healthcare appointment optimization, logistics route planning, educational counselling, and local business automation services. MBA graduates can use AI to analyse customer pain points, test demand, assess feasibility, estimate profitability, and design low-cost startup models. AI supports entrepreneurs by improving innovation capability, opportunity discovery, and business performance (Giuggioli & Pellegrini (2023). [40]). Moreover, AI and business management research shows that AI applications are expanding across multiple sectors, creating diverse opportunities for online and offline entrepreneurial ventures (Patra (2023). [37]).

15.5 AI-based Leadership Skills:

(1) Digital Leadership:

Digital leadership refers to the ability of MBA graduates to guide organizations through digital transformation by combining strategic vision, technological awareness, change management, collaboration, and innovation orientation. In AI-enabled organizations, digital leaders must understand how data, platforms, automation, analytics, and intelligent systems influence business models and organizational performance. MBA graduates require this skill to lead digital teams, promote technology adoption, manage resistance to change, and align digital initiatives with organizational strategy. Digital leadership is increasingly important because digital transformation depends not only on technology but also on leadership capability, organizational culture, and strategic direction (Sousa & Rocha (2019). [51]). Further, AI-enabled organizations require leaders who can manage human–AI collaboration and balance automation with human judgment (Raisch & Krakowski (2021). [50]).

(2) AI Governance:

AI governance refers to the ability to design, monitor, and regulate the responsible use of artificial intelligence within organizations. MBA graduates must understand issues such as algorithmic bias, privacy, transparency, explainability, accountability, cybersecurity, intellectual property, and legal compliance. AI governance is essential because managerial decisions supported by AI can affect employees, customers, stakeholders, and society. Therefore, future managers must ensure that AI systems are used ethically, fairly, and responsibly. Responsible AI governance requires clear principles for fairness, accountability, transparency, and human oversight (Floridi et al. (2018). [192]). In addition, AI-based management involves both opportunities and risks, requiring leaders to develop governance systems that prevent overdependence, bias, and unintended organizational consequences (Dwivedi et al. (2023). [100]).

(3) AI-based Customer Satisfaction, Delight, and Enlightenment:

AI-based customer satisfaction, delight, and enlightenment refers to the leadership skill of using AI tools to understand customer needs, personalize services, improve customer experience, predict customer behaviour, and create meaningful value beyond basic satisfaction. Customer satisfaction is achieved when AI helps organizations respond accurately and efficiently to customer expectations. Customer delight occurs when AI enables personalization, faster service, intelligent recommendations, and proactive problem-solving. Customer enlightenment goes further by using AI to educate customers, guide better choices, and create informed long-term relationships. AI-based business models increasingly use data, algorithms, platforms, and personalization to enhance customer value creation (Mishra & Tripathi (2021). [41]). Further, AI-enabled innovation and entrepreneurship improve customer experience, decision-making, and business performance by helping firms understand and respond to market needs more effectively (Al-Mamary (2025). [42]).

16. STRATEGIES FOR BUSINESS SCHOOLS :

(1) Curriculum Reforms:

Business schools should redesign MBA curricula by integrating AI literacy, business analytics, strategic foresight, research methodology, entrepreneurship, and ethical AI governance across core and elective subjects. Curriculum reforms should move MBA education from theory-centred delivery to competency-based learning, where students use AI for industry analysis, company analysis, market research, startup evaluation, and strategic decision-making. Such reforms are necessary because traditional MBA curricula often show a gap between classroom learning and managerial competency

requirements (Rubin & Dierdorff (2009). [24]). AI integration in higher education further requires institutional transformation, updated pedagogy, and responsible technology adoption (Zawacki-Richter et al. (2019). [99]).

(2) AI Labs:

Business schools should establish AI labs where MBA students can practically use AI tools, analytics platforms, data visualization software, machine learning applications, and generative AI systems for business problem-solving. These labs can support experiential learning through simulations, dashboard creation, predictive modelling, customer analytics, financial forecasting, and strategic decision-support exercises. AI labs are important because AI applications in higher education can enhance learning, assessment, analytics, and academic productivity when used systematically (Zawacki-Richter et al. (2019). [99]). Further, AI-enabled business research increasingly requires access to platforms that support data analysis, forecasting, and organizational intelligence (Nguyen et al. (2022). [36]).

(3) AI Incubation Centres:

Business schools should create AI incubation centres to help MBA students convert AI-based ideas into viable startups, consulting services, digital products, and social enterprises. Such centres can provide mentoring, idea validation, prototype development, investor readiness, market testing, and business model design support. AI incubation centres are essential because AI strengthens entrepreneurial opportunity identification, decision-making, venture performance, and entrepreneurial learning (Giuggioli & Pellegrini (2023). [40]). AI-based business models also enable new value creation through data, platforms, personalization, and automation (Mishra & Tripathi (2021). [41]).

(4) Industry Collaboration:

Business schools should build strong collaborations with industries for internships, live projects, consultancy assignments, guest lectures, executive mentoring, AI workshops, and placement-linked skill development. Industry collaboration helps align MBA training with real business requirements and exposes students to current AI applications in organizations. University–industry collaboration is widely recognized as a mechanism for innovation, knowledge transfer, and practical problem-solving (Perkmann et al. (2013). [201]). In AI-driven business environments, collaboration with industry also helps students understand real applications of AI in decision-making, research, and business transformation (Nguyen et al. (2022). [36]).

(5) AI Certification Programs:

Business schools should introduce short-term and long-term AI certification programmes in business analytics, prompt engineering, AI for managers, digital transformation, predictive analytics, AI ethics, and AI-based entrepreneurship. These certifications can improve students' employability by providing visible proof of skill acquisition. AI skills are increasingly linked with employability outcomes among university graduates (Portocarrero Ramos (2025). [3]). Moreover, employers increasingly value demonstrable competencies and digital skills in addition to formal degrees, making certification-based learning useful for career differentiation (Sousa & Rocha (2019). [51]).

(6) Research-driven Learning:

Business schools should promote research-driven learning where MBA students use AI tools to prepare research papers, case studies, industry reports, patent analyses, startup studies, and company analyses. This strategy transforms students from knowledge consumers into knowledge creators. AI tools can support literature review, academic writing, idea generation, data analysis, and publication-oriented learning (Aithal & Aithal (2023). [2]). However, research-driven learning must include citation verification, academic integrity, and responsible AI use because generative AI also creates risks of inaccurate information, weak originality, and ethical misuse (Dempere et al. (2023). [38]).

(7) Startup Ecosystems:

Business schools should develop startup ecosystems through entrepreneurship cells, innovation clubs, seed funding support, alumni mentoring, investor connects, hackathons, and AI-based business idea competitions. Such ecosystems can help students develop opportunity recognition, market validation, financial modelling, and venture-launching capabilities. AI supports entrepreneurship by improving innovation, business performance, opportunity identification, and competitive advantage (Al-Mamary (2025). [42]). Entrepreneurial education supported by AI also helps students design scalable business models and respond to emerging market opportunities (Giuggioli & Pellegrini (2023). [40]).

(8) AI Consulting Projects:

Business schools should introduce AI consulting projects in which MBA students work with companies, startups, NGOs, and local businesses to solve practical problems using AI and analytics. These projects may include customer analysis, market forecasting, inventory planning, digital marketing analytics, HR analytics, financial risk assessment, and competitor intelligence. AI consulting projects improve employability because they provide evidence of applied skills and industry problem-solving ability. AI-supported strategic decision-making helps managers and entrepreneurs generate and evaluate business strategies more effectively (Csaszar et al. (2024). [34]). Similarly, human–AI collaboration improves managerial decision-making when AI supports rather than replaces human judgment (Raisch & Krakowski (2021). [50]).

(9) International Collaborations:

Business schools should establish international collaborations with foreign universities, research centres, AI institutes, and global industry partners for joint research, student exchange, faculty exchange, global certification programmes, and virtual international projects. Such collaborations expose MBA students to global AI practices, cross-cultural business models, international consulting methods, and global employability standards. AI is reshaping occupations and industries across geographical regions, making global exposure important for management graduates (Felten et al. (2021). [29]). Digital learning and digital transformation skills also support international academic collaboration through online platforms, virtual classrooms, and cross-border research networks (Sousa & Rocha (2019). [51]).

(10) Continuous Faculty Development:

Business schools should continuously train faculty members in AI tools, research platforms, analytics software, digital pedagogy, AI ethics, and publication-oriented mentoring. Faculty development is essential because teachers must guide students in using AI responsibly for learning, research, decision-making, and entrepreneurship. Studies show that AI creates both opportunities and challenges for teachers, requiring professional development and pedagogical adaptation (Celik et al. (2022). [189]). Faculty readiness is also a major requirement for successful AI adoption in higher education because technology alone cannot transform learning without trained educators and institutional support (Zawacki-Richter et al. (2019). [99]).

17. PROPOSED FUTURE MBA CURRICULUM MODEL :

17.1 Foundation Courses:

(1) AI Fundamentals:

AI Fundamentals should introduce MBA students to the basic concepts, applications, opportunities, and risks of artificial intelligence in business. The course should cover machine learning, generative AI, natural language processing, automation, AI ethics, data-driven decision-making, and human–AI collaboration. It should help students understand AI not as a purely technical subject but as a managerial tool for strategy, innovation, research, and entrepreneurship. AI literacy is increasingly necessary for graduate employability and professional readiness (Portocarrero Ramos (2025). [3]). Further, AI adoption in higher education requires students to understand both the possibilities and limitations of AI-enabled learning and decision-making (Zawacki-Richter et al. (2019). [99]).

(2) Data Analytics using AI:

Data Analytics using AI should train MBA students to collect, clean, analyse, visualize, and interpret business data using AI-enabled tools. The course should include descriptive analytics, predictive analytics, dashboard creation, customer analytics, financial analytics, HR analytics, and market analytics. Students should learn to use AI tools to identify patterns, forecast trends, and support evidence-based managerial decisions. AI is transforming business research by enabling large-scale data analysis across management domains (Nguyen et al. (2022). [36]). Machine learning also improves prediction and classification tasks, making analytics an essential competency for future business professionals (Brynjolfsson et al. (2018). [28]).

(3) Research Methodology using AI:

Research Methodology using AI should prepare students to use AI tools for literature review, research gap identification, questionnaire design, qualitative analysis, quantitative analysis, bibliometric analysis, citation management, and academic writing. The course should also emphasize research ethics, source verification, plagiarism prevention, and responsible AI use. AI-based tools can improve research productivity and support scholarly writing when used critically and ethically (Aithal & Aithal (2023).

[2]. However, generative AI in higher education also raises concerns related to accuracy, originality, academic integrity, and ethical research practice (Dempere et al. (2023). [38]).

17.2 Advanced Courses:

(1) AI Strategy:

AI Strategy should focus on how organizations use artificial intelligence for competitive advantage, strategic foresight, digital transformation, business model innovation, and decision-making. MBA students should learn AI-based industry analysis, company analysis, competitor analysis, scenario planning, and strategic option evaluation. AI can support strategic decision-making by helping managers and entrepreneurs generate and evaluate strategic alternatives (Csaszar et al. (2024). [34]). Further, AI changes managerial work through both automation and augmentation, making human–AI collaboration central to strategic leadership (Raisch & Krakowski (2021). [50]).

(2) AI-driven Innovation:

AI-driven Innovation should train students to use AI for opportunity identification, design thinking, product innovation, service innovation, process innovation, and business model development. The course should include AI-enabled creativity, customer insight analysis, rapid prototyping, patent idea generation, and innovation commercialization. AI acts as an enabler of entrepreneurial opportunity recognition, innovation, decision-making, and venture performance (Giuggioli & Pellegrini (2023). [40]). AI-based business models also support new value creation through data, platforms, automation, and personalization (Mishra & Tripathi (2021). [41]).

(3) Business Intelligence using AI:

Business Intelligence using AI should develop students' ability to convert organizational data into actionable insights for managerial planning and control. The course should include AI dashboards, data visualization, market intelligence, customer intelligence, operational intelligence, financial intelligence, and performance analytics. AI has become important in business research and managerial decision-making because it supports analytics, forecasting, and organizational intelligence (Cao et al. (2024). [71]). Business intelligence also strengthens strategic and operational decision-making by enabling organizations to analyse large volumes of structured and unstructured data (Nguyen et al. (2022). [36]).

17.3 Experiential Components:

(1) AI Internships:

AI Internships should provide students with practical exposure to AI applications in real organizations. Students may work on projects related to digital marketing analytics, financial forecasting, HR analytics, customer relationship management, supply chain analytics, AI governance, or business automation. Internships help students connect classroom learning with practical industry problems and improve employability. AI skills have been shown to improve graduate employability outcomes (Portocarrero Ramos (2025). [3]). Further, industry exposure is important because AI is reshaping occupations, tasks, and managerial roles across sectors (Felten et al. (2021). [29]).

(2) AI Consulting Projects:

AI Consulting Projects should require students to solve real business problems using AI-enabled research, analytics, and strategic tools. Students can work with companies, startups, NGOs, and local businesses on customer analysis, competitor intelligence, pricing analytics, sales forecasting, inventory optimization, and digital transformation planning. Such projects build applied problem-solving ability and professional confidence. AI-supported strategic decision-making can help managers evaluate alternatives and improve business choices (Csaszar et al. (2024). [34]). Human–AI collaboration also strengthens organizational decision processes when AI supports managerial judgment rather than replacing it (Raisch & Krakowski (2021). [50]).

(3) AI-based Startup Development:

AI-based Startup Development should help MBA students convert innovative ideas into viable ventures using AI tools. Students should learn opportunity recognition, customer discovery, market validation, prototype development, revenue model design, financial forecasting, and investor pitch preparation. This component should encourage both online and offline AI-enabled business ideas. AI enhances entrepreneurship by improving opportunity identification, decision-making, innovation, and venture performance (Giuggioli & Pellegrini (2023). [40]). AI business models further enable scalable ventures

through digital platforms, automation, personalization, and data-driven value creation (Mishra & Tripathi (2021). [41]).

18. FUTURE EXECUTIVE ROLES FOR MBA GRADUATES :

18.1 Future Executive Roles for MBA Graduates:

(1) Chief AI Strategy Officer:

The Chief AI Strategy Officer is responsible for aligning artificial intelligence initiatives with the long-term strategic goals of the organization. This role requires MBA graduates to understand AI capabilities, business models, competitive positioning, risk management, and ethical governance. Such executives must identify where AI can create value, improve decision-making, automate processes, and support innovation. AI is increasingly reshaping strategic decision-making and requiring managers to combine human judgment with machine intelligence (Raisch & Krakowski (2021). [50]). Further, AI can support strategy generation and evaluation, making strategic AI leadership a future executive competency (Csaszar et al. (2024). [34]).

(2) AI Business Consultant:

An AI Business Consultant advises organizations on how to adopt AI tools for business transformation, process improvement, customer analytics, digital marketing, financial forecasting, HR analytics, and strategic planning. MBA graduates in this role must diagnose business problems, recommend AI-enabled solutions, evaluate implementation feasibility, and support organizational change. AI applications in business research and management are expanding across several domains, creating strong demand for consulting expertise (Nguyen et al. (2022). [36]). AI also improves entrepreneurial and managerial decision-making by supporting opportunity recognition and strategic evaluation (Giuggioli & Pellegrini (2023). [40]).

(3) Business Analytics Manager:

A Business Analytics Manager leads the collection, analysis, visualization, and interpretation of data to support managerial decisions. MBA graduates in this role use AI, machine learning, dashboards, predictive models, and business intelligence tools to analyse customers, markets, operations, finance, and employee performance. Machine learning is transforming work by improving prediction and task-level decision processes (Brynjolfsson et al. (2018). [28]). Business analytics is also becoming central to AI-enabled business research and organizational intelligence (Cao et al. (2024). [35]).

(4) Innovation Manager:

An Innovation Manager develops new products, services, processes, and business models using AI-supported creativity, market research, and design thinking. MBA graduates in this role identify customer problems, generate ideas, test prototypes, and commercialize innovations. AI strengthens innovation by enabling opportunity recognition, decision support, and business performance improvement (Giuggioli & Pellegrini (2023). [40]). AI-based business models further create value through data, platforms, personalization, and automation (Mishra & Tripathi (2021). [41]).

(5) AI Product Manager:

An AI Product Manager connects business strategy, customer needs, technology development, and market implementation for AI-enabled products and services. This role requires MBA graduates to define product vision, analyse user needs, coordinate with technical teams, evaluate ethical risks, and design revenue models. AI-based business models support new forms of value creation through intelligent platforms and data-driven services (Mishra & Tripathi, (2021). [41]), Responsible AI product development also requires attention to transparency, accountability, privacy, and fairness (Floridi et al. (2018). [192]).

(6) AI Transformation Leader:

An AI Transformation Leader guides organizations through AI adoption, digital change, workforce reskilling, and human–AI collaboration. MBA graduates in this role must manage resistance to change, redesign workflows, develop AI adoption roadmaps, and ensure strategic alignment. Digital transformation requires leadership capability, digital skills, adaptability, and organizational learning (Sousa & Rocha (2019). [51]). AI transformation also depends on balancing automation with augmentation so that AI enhances rather than replaces human managerial capability (Raisch & Krakowski, 2021). [50]).

(7) AI Entrepreneur:

An AI Entrepreneur identifies market opportunities and develops AI-enabled ventures, platforms, consulting services, digital products, or offline business solutions. MBA graduates can use AI for customer discovery, market validation, financial forecasting, product design, and business model development. AI supports entrepreneurship by improving opportunity identification, decision-making, innovation, and venture performance (Giuggioli & Pellegrini (2023). [40]). AI-based business models also enable scalable ventures through automation, personalization, platformization, and data-driven value creation (Mishra & Tripathi (2021). [41]).

(8) Digital Strategy Director:

A Digital Strategy Director develops and implements digital transformation strategies across business functions such as marketing, operations, finance, HR, supply chain, and customer service. MBA graduates in this role must integrate AI, analytics, digital platforms, and business intelligence into organizational strategy. Digital learning and digital transformation competencies are essential for future organizational leadership (Sousa & Rocha (2019). [51]). AI exposure is also increasing across occupations and industries, making digital strategy a critical executive function in future organizations (Felten et al. (2021). [29]).

19. RESEARCH AGENDA FOR FUTURE MBA STUDENTS/SCHOLARS :

(1) Short-term Research Directions (One Semester):

In one semester, MBA students can undertake exploratory research projects focused on industry analysis, company analysis, product/service/process analysis, CEO/leadership analysis, and patent/IPR asset analysis. These projects can be completed using secondary data, AI-assisted literature review, company reports, industry databases, patent databases, and case-study methods. Short-term research should train students to identify research gaps, frame research questions, collect evidence, and prepare publishable business research reports. AI tools can support literature review, topic identification, data extraction, and academic writing when used with proper verification and research ethics (Aithal & Aithal (2023). [2]; Dempere et al. (2023). [38]). Such short-term projects also improve analytical thinking and employability by helping students produce visible research outputs.

(2) Medium-term Research Directions (One Year/Two Semesters):

Over one academic year, MBA students can conduct more structured research combining exploratory research with empirical validation. Students may study industry competitiveness, company performance, customer satisfaction, employee engagement, digital transformation, AI adoption, or business model innovation using surveys, interviews, statistical analysis, and case studies. Medium-term research can also include comparative studies of companies, products, services, CEOs, startups, and patents across sectors. AI and business research literature shows that artificial intelligence is increasingly used across management domains for data analysis, forecasting, and decision support (Nguyen et al. (20220. [36]; Cao et al. (2024). [71]). Therefore, one-year projects should train students in both AI-assisted research and conventional empirical methods.

(3) Long-term Research Directions (Two Years/Four Semesters):

Long-term research across two years can help MBA scholars build deeper research portfolios through multiple linked studies. Students may begin with exploratory industry or company analysis, move toward empirical research, and finally conduct experimental or intervention-based projects. For example, a student may first analyse an industry, then conduct a customer or employee survey, and finally test an AI-based marketing, HR, finance, or operations solution through a live project. Such research supports publication-oriented learning, consulting capability, and entrepreneurship readiness. AI-supported strategic decision-making can help researchers evaluate alternatives and future business scenarios (Csaszar et al. (2024). [34]), while AI-based business models support innovation and venture development (Mishra & Tripathi (2021). [41]).

(4) Cross-disciplinary Research Directions (Through Collaboration and Networking):

Cross-disciplinary research should encourage MBA students to collaborate with scholars from computer science, data science, engineering, law, psychology, education, healthcare, agriculture, sustainability, and public policy. Such collaboration can produce richer studies on AI adoption, digital transformation, ethical AI, customer behaviour, leadership, patent analytics, sustainability, and social innovation. Cross-

disciplinary networking can also support empirical and experimental projects with industries, startups, government agencies, NGOs, and international institutions. University–industry collaboration strengthens innovation, knowledge transfer, and applied research outcomes (Perkmann et al. (2013). [201]). AI-enabled entrepreneurship and innovation research further shows that collaboration improves opportunity recognition, decision-making, and venture performance (Giuggioli & Pellegrini (2023). [40]).

20. FINDINGS AND DISCUSSION :

(1) Key Findings:

The key finding of the study is that MBA graduates require AI-based strategic and research competencies to remain relevant in the future business world. Traditional MBA knowledge alone is insufficient because AI is transforming managerial decision-making, business analytics, innovation, and employment structures. AI skills improve graduate employability and career readiness by enabling students to work with intelligent systems and data-driven business processes (Portocarrero Ramos (2025). [3]). Further, AI changes managerial work through both automation and augmentation, making human–AI collaboration an essential future competency (Raisch & Krakowski (2021). [50]).

(2) Emerging Themes:

The major emerging themes are AI literacy, strategic foresight, research-driven learning, digital leadership, entrepreneurship, and responsible AI governance. The study shows that future MBA education should move from placement-oriented learning to competency-based, publication-oriented, and innovation-driven learning. AI tools can support research productivity, literature review, idea generation, and academic writing when used ethically (Aithal & Aithal (2023). [2]). At the same time, generative AI creates concerns related to originality, accuracy, academic integrity, and responsible usage (Dempere et al. (2023). [38]).

(3) Industry Implications:

The model has strong industry implications because organizations increasingly need managers who can use AI for forecasting, market intelligence, customer analytics, competitive analysis, and strategic decision-making. MBA graduates trained in AI-based strategy and research can support digital transformation and improve organizational competitiveness. AI is already expanding across business research and management domains, including marketing, operations, finance, strategy, and information systems (Nguyen et al. (2022). [36]). AI-supported strategic decision-making also helps managers and entrepreneurs generate and evaluate business strategies more effectively (Csaszar et al. (2024). [34]).

(4) Educational Implications:

The study implies that business schools must redesign MBA curricula by integrating AI fundamentals, data analytics, AI-based research methodology, AI strategy, business intelligence, innovation, and entrepreneurship. The future MBA model should include AI labs, consulting projects, research publications, startup development, and industry collaboration. AI applications in higher education can improve teaching, learning, assessment, and research support when supported by institutional readiness (Zawacki-Richter et al. (2019). [99]). However, successful AI integration requires transformation in pedagogy, curriculum design, faculty development, and academic governance (Katsamakas et al., (2024). [17]).

(5) Managerial Implications:

The managerial implication is that future managers must develop the ability to combine human judgment with AI-generated insights. MBA graduates should be trained to interpret AI outputs, verify data quality, evaluate strategic alternatives, manage ethical risks, and make responsible decisions. AI-enabled management requires balancing automation with augmentation, where AI supports rather than replaces managerial judgment (Raisch & Krakowski (2021). [50]). Responsible AI decision-making also requires attention to fairness, transparency, accountability, privacy, and ethical governance (Floridi et al. (2018). [192]).

(6) Entrepreneurial Implications:

The model has significant entrepreneurial implications because AI enables MBA graduates to identify business opportunities, test startup ideas, design AI-based business models, and create scalable ventures. AI can support market validation, customer discovery, product innovation, pricing decisions, and business model development. AI acts as an enabler of entrepreneurship by improving opportunity recognition, decision-making, innovation, and venture performance (Giuggioli & Pellegrini (2023).

[40]). AI-based business models further create value through data, platforms, automation, personalization, and intelligent services (Mishra & Tripathi (2021). [41]).

21. RECOMMENDATIONS :

(1) Recommendations for Students:
MBA students should proactively develop AI-based strategic, analytical, research, innovation, and entrepreneurial competencies rather than relying solely on traditional management knowledge. They should regularly use AI tools for industry analysis, company analysis, product/service analysis, leadership analysis, patent analysis, market intelligence, and business forecasting. Students should also build strong portfolios through research publications, consulting projects, internships, case studies, startup projects, and AI certifications. Since AI skills significantly influence employability and career readiness, students should continuously update their competencies in emerging AI technologies and applications. Furthermore, responsible use of AI requires students to develop critical thinking, ethical awareness, and human judgment to complement AI-generated insights.

(2) Recommendations for Business Schools:
Business schools should redesign MBA curricula to include AI fundamentals, business analytics, AI strategy, research methodology using AI, business intelligence, innovation management, and AI-based entrepreneurship. Institutions should establish AI laboratories, incubation centres, research clusters, consulting centres, and industry-linked experiential learning platforms. Business schools should also encourage publication-oriented learning through industry analysis, company analysis, patent analysis, startup analysis, and AI-supported empirical research projects. AI integration in higher education requires institutional transformation, curriculum redesign, and faculty preparedness. Continuous faculty development and AI-enabled pedagogical innovation are also necessary for effective implementation.

(3) Recommendations for Industry:
Industries should actively collaborate with business schools in designing AI-relevant curricula, internships, consulting projects, live case studies, and innovation programmes. Organizations should create structured opportunities for MBA students to participate in AI-driven projects related to strategy, marketing, finance, operations, HR, customer analytics, and digital transformation. Industry leaders should also support joint research, startup mentoring, and entrepreneurial ecosystem development. AI-supported strategic decision-making has become increasingly important in business environments, requiring organizations to recruit and develop AI-literate managerial talent. Furthermore, AI applications across business domains demonstrate the growing need for professionals who can integrate analytics with managerial decision-making.

(4) Recommendations for Policymakers:
Policymakers should encourage the integration of AI education into management programmes through curriculum frameworks, accreditation standards, funding mechanisms, research grants, innovation policies, and startup support initiatives. Governments should invest in AI infrastructure, digital education, faculty development, and industry–academia collaboration to ensure that future graduates are prepared for the evolving digital economy. Policymakers should also establish guidelines for ethical AI use, privacy protection, algorithmic accountability, and responsible innovation. AI governance frameworks emphasize the importance of transparency, fairness, accountability, and human oversight in AI deployment. Additionally, national AI strategies and educational reforms can significantly strengthen workforce readiness and innovation capacity.

(5) Recommendations for Researchers:
Researchers should expand future studies on AI-enabled employability, entrepreneurship, strategic decision-making, innovation, leadership, and business transformation. Greater emphasis should be placed on exploratory research involving industry analysis, company analysis, product/service/process analysis, CEO and leadership analysis, patent/IPR analysis, startup ecosystems, and AI-driven business models. Researchers should also undertake empirical and experimental studies examining the effectiveness of AI-based educational interventions, consulting projects, innovation programmes, and entrepreneurial initiatives. AI continues to create new opportunities for management research, business intelligence, and strategic analysis. Furthermore, interdisciplinary research collaborations involving management, computer science, engineering, economics, psychology, law, and public policy can generate richer insights into AI-driven organizational and societal transformation.

22. CONCLUSION :

(1) Summary of Findings:
This study examined the future relevance of MBA graduates in an increasingly AI-driven business environment and found that traditional management education alone is no longer sufficient to ensure long-term employability, executive readiness, and entrepreneurial success. The analysis revealed that AI-based strategic skills—including strategic intelligence, predictive analytics, AI-assisted decision-making, competitive intelligence, risk analytics, and scenario planning—have become essential managerial competencies. Similarly, AI-based research skills such as AI-assisted literature review, business analytics, industry analysis, company analysis, CEO analysis, product and service analysis, patent analysis, and publication-oriented learning are emerging as critical differentiators in the modern labour market. The proposed Dual Path AI Competency Employability–Entrepreneurship Model (DACEEM) demonstrates that MBA graduates who combine AI-enabled strategic thinking with AI-supported research capability can create stronger professional visibility, higher employability, greater innovation potential, and enhanced entrepreneurial opportunities. These findings are consistent with recent research emphasizing the growing importance of AI literacy, digital competence, evidence-based decision-making, and human–AI collaboration in future managerial careers.

(2) Future Relevance of AI-skilled MBA Graduates:
The future business world will increasingly reward MBA graduates who can effectively collaborate with intelligent systems while retaining uniquely human capabilities such as creativity, critical thinking, ethical judgment, leadership, and innovation. As organizations adopt AI across strategy, marketing, finance, operations, human resources, consulting, and entrepreneurship, the demand for professionals capable of transforming AI-generated information into actionable business intelligence will continue to rise. Future executive roles such as Chief AI Strategy Officer, AI Business Consultant, AI Product Manager, Business Analytics Manager, AI Transformation Leader, Digital Strategy Director, and AI Entrepreneur are expected to become mainstream career opportunities for management graduates. Furthermore, AI-skilled MBA graduates will possess significant advantages in research productivity, consulting capability, startup creation, and global competitiveness because they can continuously generate knowledge, identify opportunities, solve complex business problems, and lead digital transformation initiatives. Consequently, the future relevance of MBA graduates will depend less on conventional functional specialization and more on their ability to integrate AI technologies with strategic management, innovation, research, and entrepreneurship.

(3) Strategic Roadmap for Management Education:
To prepare future-ready management professionals, business schools must undertake a comprehensive transformation of MBA education. This transformation should include curriculum reforms integrating AI fundamentals, business analytics, AI strategy, AI-based research methodology, business intelligence, innovation management, entrepreneurship development, and ethical AI governance. Institutions should establish AI laboratories, AI incubation centres, consulting hubs, publication-oriented learning ecosystems, industry-linked experiential learning platforms, and international collaborative research networks. Faculty members must be continuously trained in emerging AI technologies, research tools, and digital pedagogies to support effective implementation. Policymakers, industry leaders, and academic institutions should jointly develop frameworks that promote AI literacy, responsible innovation, employability enhancement, and entrepreneurial development. By adopting such a strategic roadmap, management education can evolve from a traditional knowledge-delivery model into a competency-driven, research-oriented, innovation-centred, and entrepreneurship-focused system capable of producing globally competitive leaders for the AI and Industry 5.0 era. Ultimately, MBA graduates equipped with AI-based strategic and research skills will not only remain relevant but will emerge as key drivers of organizational transformation, economic growth, knowledge creation, and societal advancement.

23. THEORETICAL CONTRIBUTIONS :

(1) Management Education Theory:
This study contributes to Management Education Theory by arguing that MBA education must move beyond traditional classroom-based, functional, and placement-oriented learning toward AI-enabled, competency-based, research-driven, and entrepreneurship-oriented learning. Classical management

education emphasized managerial knowledge, case analysis, leadership, and functional specialization; however, contemporary business schools are expected to develop graduates who can solve complex business problems using AI, analytics, research tools, and strategic intelligence. Earlier studies criticized business schools for the gap between MBA curricula and real managerial competencies, indicating the need for curriculum redesign and practice-based learning (Pfeffer & Fong (2002). [22]; Bennis & O'Toole (2005). [23]). Rubin and Dierdorff (2009) [24]), further showed that many important managerial competencies were underrepresented in MBA curricula. In the AI era, this theoretical gap becomes more serious because future managers must combine business knowledge with digital intelligence, research capability, and human–AI collaboration (Zawacki-Richter et al. (2019). [99]; Katsamakas et al. (2024). [17]). Therefore, the present study extends Management Education Theory by proposing that AI-based strategic skills and AI-based research skills should become central pillars of future MBA education.

(2) Employability Theory

This study contributes to Employability Theory by explaining that employability is no longer determined only by degrees, grades, communication skills, or internships, but increasingly by demonstrable AI-based competencies. Employability Theory emphasizes the ability of graduates to obtain, sustain, and progress in employment through knowledge, skills, adaptability, and labour-market relevance. In the AI-driven economy, employability depends on AI literacy, data analytics, research output, digital portfolios, strategic thinking, and continuous learning. Frey and Osborne (2017) [26] showed that automation threatens routine occupations, while Brynjolfsson et al. (2018) argued that machine learning changes work at the task level rather than replacing all occupations equally. Felten et al. (2021) [29] further demonstrated that AI exposure varies across occupations and industries, requiring sector-specific AI capabilities. Recent evidence also shows that AI skills positively influence graduate employability (Portocarrero Ramos (2025). [3]) while skill-based hiring increasingly values practical capability over degree signalling (Bone et al. (2023). [6]). Thus, the study extends Employability Theory by introducing AI-based strategic and research competencies as new employability capital for MBA graduates.

(3) Human Capital Theory

This study contributes to Human Capital Theory by positioning AI-based strategic and research skills as high-value human capital investments for MBA graduates. Human Capital Theory explains that education, training, skills, and knowledge increase individual productivity, income potential, organizational contribution, and economic value. In the AI era, traditional human capital must be upgraded through AI literacy, predictive analytics, business intelligence, research capability, innovation skills, and entrepreneurial readiness. Becker's human capital perspective explains education as an investment that improves productivity and economic returns, while later studies emphasize the role of education and skills in labour-market outcomes and economic growth (Becker (1993). [202]; Psacharopoulos & Patrinos (2018). [203]). In management education, AI-based competencies enhance students' ability to create value through data-driven decision-making, research productivity, consulting capability, and venture creation (Aithal & Aithal (2023). [2]; Portocarrero Ramos (2025). [3]). Hence, this study extends Human Capital Theory by arguing that AI-enabled strategic intelligence and research capability are essential forms of future managerial human capital.

(4) Innovation Theory

This study contributes to Innovation Theory by showing that AI-based MBA education can convert graduates into innovation creators, business model designers, startup founders, and knowledge entrepreneurs. Innovation Theory emphasizes the creation, diffusion, and commercialization of new ideas, products, processes, services, and business models. Schumpeterian innovation highlights entrepreneurship, creative destruction, and new combinations of resources as sources of economic development. In the modern AI context, innovation is increasingly supported by data, algorithms, platforms, automation, personalization, and intelligent decision systems. AI supports entrepreneurial opportunity recognition, decision-making, innovation performance, and venture development (Giuggioli & Pellegrini (2023). [40]). AI-based business models also create value through digital platforms, machine learning, customer intelligence, and automated services (Mishra & Tripathi (2021). [40]). Further, AI-supported strategic decision-making improves the ability to generate and evaluate new strategies and business opportunities (Csaszar et al. (2024). [34]). Therefore, this study extends

Innovation Theory by proposing that AI-based strategic and research skills function as innovation-enabling capabilities within MBA education.

24. PRACTICAL CONTRIBUTIONS :

(1) Industry:

This study offers practical contributions to industry by identifying the type of MBA graduates required for AI-enabled business environments. Industries increasingly need professionals who can combine management knowledge with AI literacy, business analytics, research capability, innovation skills, and strategic decision-making. AI-based MBA graduates can support organizations in market forecasting, customer analytics, competitor analysis, digital transformation, product innovation, and strategic planning. Since AI is transforming occupations at the task level, industries require employees who can work with intelligent systems rather than depend only on traditional managerial routines (Brynjolfsson et al. (2018) [28]; Felten et al. (2021). [29]). Further, AI-supported decision-making improves strategic analysis and helps organizations evaluate alternatives more effectively (Raisch & Krakowski (2021). [50]; Csaszar et al. (2024). [34]). Therefore, the proposed model contributes to industry by creating a future-ready managerial talent pool capable of supporting productivity, innovation, consulting, and digital transformation.

(2) Universities:

For universities, the study provides practical guidance for redesigning higher education in response to AI-driven workforce transformation. Universities can use the proposed framework to integrate AI literacy, digital research tools, interdisciplinary learning, publication-oriented education, and entrepreneurship development into postgraduate programmes. AI applications in higher education can improve teaching, learning, assessment, research support, and institutional innovation when implemented responsibly (Zawacki-Richter et al. (2019). [99]; Dempere et al. (2023). [38]). Universities also need to develop policies for ethical AI use, faculty training, academic integrity, and data privacy (Floridi et al. (2018). [192]; Akgun & Greenhow (2022). [190]). Thus, this study contributes to universities by offering a practical roadmap for transforming conventional degree programmes into AI-enabled competency development systems.

(3) Business Schools:

Business schools benefit directly from this study because it provides an actionable framework for future MBA curriculum transformation. The model suggests that business schools should move beyond classroom-based teaching and introduce AI labs, AI consulting projects, AI-based research methodology, startup incubation, industry collaborations, and publication-oriented learning. Existing studies show that traditional MBA programmes often fail to fully align with managerial competency requirements (Pfeffer & Fong (2002). [22]; Rubin & Dierdorff (2009). [24]). AI integration can help business schools improve relevance by strengthening students' analytical, strategic, research, and entrepreneurial capabilities (Aithal & Aithal (2023). [2]; Katsamakas et al. (2024). [17]). Therefore, the study contributes to business schools by offering a practical institutional model for improving employability, academic reputation, industry relevance, and innovation outcomes.

(4) Students:

For students, the study contributes by identifying the skills required to remain employable, competitive, and entrepreneurial in the AI era. MBA students can use the proposed framework to build AI-based strategic skills, research portfolios, digital credentials, consulting experience, startup readiness, and professional visibility. AI skills are increasingly associated with improved graduate employability and career readiness (Portocarrero Ramos (2025). [3]). Similarly, digital skills and demonstrable competencies are becoming important in skill-based hiring environments (Bone et al. (2023). [6]; Đorđević et al. (2025). [44]). AI-enabled entrepreneurship also helps students identify opportunities, design business models, validate markets, and develop ventures (Giuggioli & Pellegrini (2023). [40]; Mishra & Tripathi (2021). [41]). Thus, the study contributes to students by providing a practical pathway for employment, reverse placement, research productivity, and entrepreneurship.

(5) Policymakers:

For policymakers, the study provides practical insights for strengthening AI-ready management education, employability development, and innovation-led economic growth. Policymakers can use the proposed model to frame guidelines for AI integration in higher education, curriculum modernization, digital infrastructure, faculty development, industry–academia collaboration, and responsible AI

governance. AI policies in education should focus not only on technological access but also on ethical use, skill development, inclusiveness, and lifelong learning (Miao et al. (2021). [199]; Zawacki-Richter et al. (2019). [99]). Since AI and automation are reshaping labour markets, policy interventions are required to reduce skill gaps and support workforce transition (Frey & Osborne (2017). [26]; Acemoglu & Restrepo (2020). [27]). Therefore, the study contributes to policymakers by offering a framework for aligning management education with national AI strategies, employability policies, startup promotion, and digital economy development.

25. LIMITATIONS OF THE STUDY :

(1) Exploratory Nature:

The first limitation of this study is its exploratory nature. The article develops a conceptual understanding of how AI-based strategic and research skills can improve the future relevance of MBA graduates, but it does not test the proposed model using large-scale empirical data. Exploratory studies are useful for identifying emerging issues, developing frameworks, and opening new research directions; however, their conclusions are generally interpretive rather than statistically generalizable. Since AI in management education is still evolving, this study provides a foundation for future empirical validation rather than final causal evidence. Earlier studies on MBA relevance and curriculum gaps also indicate that management education research often requires further institutional and longitudinal validation (Pfeffer & Fong (2002). [30]; Rubin & Dierdorff (2009). [24]). Similarly, studies on AI in higher education emphasize that many current insights are still emerging and require stronger empirical testing across contexts (Zawacki-Richter et al. (2019). [99]; Dempere et al. (2023 [38]; Aithal & Aithal (2023). [2]).

(2) Conceptual Assumptions:

The second limitation relates to the conceptual assumptions used in developing the Dual Path AI Competency Employability–Entrepreneurship Model. The study assumes that MBA graduates who acquire AI-based strategic and research skills will achieve higher employability, executive readiness, research productivity, and entrepreneurial capability. Although this assumption is supported by literature on AI skills, employability, business analytics, strategic decision-making, and entrepreneurship, the strength of these relationships may vary depending on institutional quality, student motivation, faculty expertise, industry demand, and access to AI tools. Employability studies show that skills influence graduate outcomes, but labour-market success also depends on contextual factors such as employer expectations, economic conditions, and sectoral opportunities (Frey & Osborne (2017). [26]; Felten et al. (2021). [29]; Portocarrero Ramos (2025). [3]). Similarly, AI-driven entrepreneurship literature supports the value of AI for opportunity recognition and business model innovation, but entrepreneurial success also depends on resources, networks, market timing, and execution capability (Giuggioli & Pellegrini (2023). [40]; Mishra & Tripathi (2021). [41]; Al-Mamary (2025). [42]).

(3) Technology Evolution Uncertainty:

The third limitation is the uncertainty caused by rapid technological evolution. AI technologies, generative AI platforms, analytics tools, automation systems, and digital business models are changing quickly. Therefore, the skills, tools, platforms, and executive roles discussed in this study may evolve further in the coming years. What is considered an advanced AI competency today may become a basic managerial requirement tomorrow. This uncertainty makes it difficult to design a permanent MBA curriculum model around fixed AI tools or applications. Studies on automation and AI exposure show that AI affects occupations, tasks, and industries in uneven and changing ways (Brynjolfsson et al. (2018). [28]; Felten et al. (2021). [29]). Research on AI in management and higher education also highlights risks related to overdependence, ethical concerns, hallucinated outputs, bias, and changing institutional requirements (Raisch & Krakowski (2021). [50]; Floridi et al. (2018). [192]; Katsamakas et al. (2024). [17]). Hence, the proposed framework should be treated as a dynamic and adaptable model that requires continuous revision.

26. FUTURE SCOPE OF RESEARCH :

(1) Empirical Validation:

Future research should empirically validate the proposed Dual Path AI Competency Employability–Entrepreneurship Model by collecting primary data from MBA students, faculty members, employers, recruiters, entrepreneurs, alumni, and business school administrators. Since the present study is mainly

conceptual and exploratory, future researchers may use quantitative methods such as structured surveys, regression analysis, structural equation modelling, mediation analysis, and confirmatory factor analysis to test relationships among AI literacy, AI-based strategic skills, AI-based research skills, employability, research productivity, executive readiness, and entrepreneurial intention. Empirical studies are important because AI is transforming work at the task level, and the actual impact of AI competencies on employability must be measured through evidence-based research (Brynjolfsson et al. (2018). [28]; Felten et al. (2021). [29]). Further, existing studies show that AI skills influence graduate employability and that digital skills are becoming important predictors of career readiness (Portocarrero Ramos (2025 [3]; Đorđević et al. (2025). [44]). Future empirical validation can also examine whether AI-supported research portfolios, publications, consulting projects, and startup projects improve reverse placement outcomes and professional visibility among MBA graduates.

(2) Cross-country Studies

Future research may undertake cross-country comparative studies to examine how AI-based MBA competency development differs across developed, developing, and emerging economies. Such studies can compare national AI policies, business school readiness, digital infrastructure, faculty capability, student AI literacy, industry expectations, and employability outcomes across countries. Since AI adoption and occupational exposure vary across industries, regions, and institutional contexts, cross-country studies can reveal whether the proposed model is universally applicable or context-specific (Felten et al. (2021). [29]). Comparative research is especially important because higher education systems differ in terms of curriculum flexibility, industry collaboration, technology access, and regulatory frameworks. AI in higher education also requires attention to governance, academic integrity, fairness, and responsible adoption across different educational environments (Zawacki-Richter et al. (2019). [99]; Floridi et al. (2018). [192]). Further, studies on AI transformation in higher education suggest that institutional change is influenced by policy, resources, leadership, and technological readiness (Katsamakas et al. (2024). [17]; Dempere et al. (2023). [38]). Therefore, future cross-country research can help identify best practices for AI-integrated MBA education and global employability.

(3) Industry-specific Studies:

Future researchers should also conduct industry-specific studies to understand how AI-based strategic and research skills are applied in different sectors such as banking, insurance, healthcare, education, retail, logistics, manufacturing, hospitality, agriculture, consulting, and information technology. Each industry uses AI differently, and therefore MBA graduates may require sector-specific AI competencies. For example, finance may require AI-based risk analytics and fraud detection, marketing may require customer analytics and personalization, HR may require talent analytics, and logistics may require predictive supply-chain planning. AI is increasingly relevant across multiple business domains, including strategy, marketing, operations, information systems, and organizational decision-making (Nguyen et al. (2022). [36]; Cao et al. (2024). [71]). Industry-specific studies can also examine how AI supports productivity, competitiveness, innovation, and business transformation (Bharadiya et al. (2023). [39]). Moreover, AI-based strategic decision-making can support entrepreneurs and managers in generating and evaluating business strategies within specific industry contexts (Csaszar et al. (2024). [34]). Such studies will help business schools design sector-based AI electives, internships, consulting projects, and industry-linked research assignments for MBA students.

(4) Longitudinal Studies:

Longitudinal studies are needed to examine the long-term effect of AI-based strategic and research competencies on MBA graduates' career progression, employability, salary growth, executive roles, research productivity, startup success, and professional visibility. Instead of measuring student skills at a single point of time, future researchers can track MBA students from admission to graduation and further into their early career stages. Such studies can determine whether AI-based curriculum interventions, AI research projects, internships, publications, certifications, and consulting assignments produce lasting career advantages. Longitudinal research is particularly important because AI technologies, labour-market expectations, and managerial roles evolve continuously over time (Frey & Osborne (2017). [26]; Brynjolfsson et al. (2018). [28]). Studies on AI and management also suggest that human–AI collaboration, automation, and augmentation will continue to reshape managerial work over an extended period (Raisch & Krakowski (2021). [50]). Similarly, Industry 5.0 research emphasizes that future organizations will increasingly require human-centric, sustainable, and AI-enabled leadership capabilities (Xu et al. (2021). [53]; Longo et al. (2020). [55]). Therefore, longitudinal studies

can provide deeper evidence regarding whether AI-skilled MBA graduates remain relevant, adaptable, and competitive in the future business world.

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