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Bridging the AI Talent Gap in Supply Chain Management: Opportunities for Collaboration

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Abstract. The integration of Artificial Intelligence (AI) into supply chain management has become a key driver of operational efficiency, optimization, and innovation. However, the effective deployment of AI technologies is constrained by a significant talent gap, as the demand for AI-skilled professionals far exceeds the current supply. This gap is particularly pronounced in the supply chain sector, where specialized knowledge in both AI and supply chain operations is essential. Bridging this talent gap is crucial for industries aiming to leverage AI for competitive advantage, yet achieving this requires a collaborative approach involving multiple stakeholders. This explores the opportunities for collaboration between industry, academia, and public-private partnerships to address the AI talent shortage in supply chain management. By examining the challenges faced by organizations in recruiting and retaining AI professionals, this highlights the critical need for educational initiatives that focus on the intersection of AI and supply chain management. Industry-academia partnerships play a pivotal role in developing curricula that prepare the next generation of talent, while also fostering internship and mentorship programs to facilitate hands-on experience. Public-private collaborations can further enhance workforce development through funding and policy support aimed at AI education and training. Additionally, this discusses the importance of upskilling and reskilling existing employees, providing accessible training programs to build AI expertise within the current workforce. It also explores the potential of cross-industry knowledge sharing, global talent pool access, and promoting diversity and inclusion in AI roles. The review concludes by emphasizing the need for strategic investment in AI talent development and the importance of creating an inclusive and sustainable ecosystem to bridge the AI talent gap and accelerate the adoption of AI in supply chain management.

Keyword: Bridging, AI, Talent gap, Supply chain management, Review

1. Introduction

In supply chain management, artificial intelligence (AI) has become a game-changer, resulting in notable gains in decision-making, operational effectiveness, and overall performance (Ezeamii *et al*., 2023; Obianyo *et al*., 2024). The need for qualified AI specialists who can fully utilize these advancements has increased dramatically as organizations continue to use AI technologies to streamline their supply chains. But even with AI's enormous potential, a significant barrier to achieving its full potential is the lack of skilled workers, especially in industries like supply chain management (Folorunso *et al*., 2024; Bello *et al*., 2024). This explores the challenges and opportunities related to bridging the AI talent gap in the supply chain sector, emphasizing the need for collaborative efforts among industry, academia, and public institutions.

By increasing demand forecasting accuracy, streamlining inventory control, boosting logistics, and cutting expenses, artificial intelligence (AI) technologies are completely changing supply chain operations. AI is changing the conventional supply

chain model in a number of ways, including robotic automation, machine learning, and predictive analytics. These developments give businesses the ability to make data-driven choices that improve productivity, cut down on waste, and guarantee more effective use of resources. AI-driven solutions are being utilized more and more in logistics, where they help with fleet management, delivery scheduling, and route optimization, as well as forecasting, where they may analyze big datasets to estimate client demand (Ayo-Farai *et al*., 2023; Ezeamii *et al*., 2023). Moreover, AI-powered robotics are improving warehouse automation, enhancing productivity, and reducing human error in tasks such as order picking and packaging. As a result, AI has become an essential tool for supply chain professionals seeking to stay competitive in a rapidly evolving market.

However, companies need qualified experts who can integrate, manage, and optimize these cutting-edge technologies if they are to fully realize the potential of AI in supply chain management. As a result, supply chain management is one of the industries with the highest need for AI skills (Ariyibi *et al*., 2024; Adewuyi *et al*., 2024). Due to the intricacy of AI solutions, a thorough grasp of supply chain procedures is necessary in addition to technical proficiency in machine learning, data science, and algorithm design. The effective deployment and expansion of AI-driven solutions depend heavily on this special set of abilities.

There is a severe worldwide scarcity of skilled workers in spite of the rising need for AI skills (Adaramola *et al*., 2024). Industry statistics indicate that there is intense competition among businesses to recruit and retain top talent because the supply of AI-skilled personnel has not kept up with the growing demand. In supply chain management, where the combination of domain knowledge and AI expertise is a rare and highly sought-after skill set, this talent gap is especially noticeable. Finding experts who can successfully apply AI technologies to real-world logistics and operational challenges is a challenge for many supply chain organizations, especially in complex environments where scalability and integration with existing systems are crucial considerations (Adigun *et al*., 2024; Ajayi *et al*., 2024).

For sectors that depend on supply chain optimization, this talent scarcity has multiple ramifications. Businesses may experience delays in deploying AI-driven solutions, which could lead to lost chances for cost and efficiency reductions. Furthermore, supply chain teams may find it difficult to handle the challenges of adopting AI if they lack the necessary experience, which could result in underuse of the technologies that are accessible (Eyeghre *et al*., 2023; Wada *et al*., 2025). This can impede an organization's capacity to compete in a market that is increasingly demanding digital transformation, in addition to impeding operational progress.

A collaborative strategy is necessary to overcome the AI talent gap due to its complexity and magnitude. It is obvious that no one organization—government, business, or academia—can successfully address this issue on its own. To ensure that supply chain companies can obtain the skills they need to be competitive and to build a sustainable pipeline of AI talent, multi-stakeholder engagement is crucial (Ajibola *et al*., 2024; Ezeamii *et al*., 2024).

The collaboration between academia and industry is one of the most important initiatives that can aid in closing the skill gap in AI. In order to create curricula that give students the AI and supply chain capabilities they need, universities and training facilities play a crucial role. By incorporating practical training and real-world projects into their courses, these educational institutions can work with industry partners to create programs that specifically address the demands of the supply chain industry. Additionally, students can gain firsthand experience in supply chain settings through internships, mentorships, and cooperative education programs, which will improve their capacity to put AI principles into reality (Adhikari *et al*., 2024; Obianyo *et al*., 2024).

Addressing the AI skill gap can also be greatly aided by public-private cooperation. Governments can promote the creation of a competent workforce by providing financing, tax breaks, and legislative support for AI education and workforce development initiatives. These collaborations have the potential to increase innovation, generate employment, and guarantee that the advantages of AI are dispersed more widely throughout the economy. In addition to being a major obstacle, the AI talent gap in supply chain management offers a chance for cross-sector cooperation. In order to ensure that businesses can fully utilize AI technology to improve their supply chains, industry, academia, and government can collaborate to develop a comprehensive strategy for tackling the skills shortage (Ahmed *et al*., 2022; Kwok, 2022). This collaborative approach will not only accelerate the adoption of AI but also drive long-term innovation and competitiveness in the supply chain sector.

2. Methodology

The PRISMA methodology was employed in conducting this systematic review of literature to explore opportunities for collaboration in bridging the AI talent gap in supply chain management. A comprehensive search strategy was developed to identify relevant studies and reports, with inclusion and exclusion criteria established to ensure the focus remained on peer-reviewed articles, industry reports, and academic papers related to AI in supply chain management and talent development. The search process involved multiple databases, including Scopus, Google Scholar, and PubMed, covering publications from the past ten years, with emphasis on AI technologies, workforce development, and supply chain management.

The inclusion criteria were defined as: (1) articles discussing AI technologies and their applications in supply chain management, (2) literature exploring the shortage of AI talent in various industries, (3) research focused on collaborative models for talent development, and (4) case studies or reports on industry-academia partnerships or public-private initiatives aimed at addressing the talent gap. Exclusion criteria involved studies unrelated to AI, publications not focused on supply chain management, and works that did not include discussions of collaborative approaches for talent development.

Following the initial search, titles and abstracts were screened for relevance. A total of 56 articles met the inclusion criteria and were subjected to full-text review. These studies were further categorized into themes, including AI adoption in supply chains, barriers to AI talent acquisition, and opportunities for collaboration across sectors. Data were extracted regarding key findings on talent shortages, successful industry collaborations, and strategies to mitigate the gap. The synthesis of data identified several recurring themes: the critical need for interdisciplinary talent, the importance of strategic partnerships between industry and academia, and the role of government in facilitating workforce development.

The quality of included studies was assessed using standard appraisal tools, ensuring the reliability and validity of the findings. The PRISMA flow diagram was used to document the selection process, providing transparency and clarity in the methodology. The final analysis provided insights into the multifaceted nature of the AI talent gap in supply chain management and highlighted the promising collaborative approaches that could address this challenge. The findings underscore the importance of coordinated efforts between academia, industry, and government to ensure a sustainable AI talent pipeline for the future of supply chain management.

2.1 The AI Talent Gap in Supply Chain Management

For businesses looking to increase operational effectiveness, cut expenses, and improve decision-making, incorporating artificial intelligence (AI) into supply chain management has become essential (Tariq *et al*., 2021; Helo and Hao, 2022). From demand forecasting to logistics optimization, artificial intelligence (AI) technologies like robotics, data analytics, and machine learning (ML) have the potential to completely transform supply chains. However, a large talent shortage that prevents supply chains from adopting AI widely is preventing these technologies from being implemented and maintained efficiently. In order to fully grasp AI's promise in supply chain management, this gap must be closed.

Determining the skill sets needed for supply chain AI integration is crucial to comprehending the AI skills gap. Data science, machine learning, artificial intelligence engineering, and a thorough comprehension of supply chain procedures are among the essential key competencies. Proficiency in Python, R, and SQL are examples of data science abilities that are essential for managing and analyzing massive datasets, seeing trends, and creating predictive models. Expertise in machine learning is also essential for creating algorithms that can automate crucial procedures like logistics and inventory management, forecast changes in demand, and optimize operations (Jampani *et al*., 2023; Khedr, 2024).

Professionals must possess both technical expertise and an understanding of supply chain management. To guarantee that AI solutions are customized to the unique requirements of supply chains, expertise in production, distribution, transportation, and procurement is required. It is uncommon to find someone who is skilled in both supply chain management and artificial intelligence, and the market needs this dual knowledge (Hryhorak *et al*., 2023; Richey *et al*., 2023). Sadly, there is a significant disconnect between the workforce's present skills and the need for these specialists, which makes it difficult for businesses to successfully use AI technologies.

The supply chain sector has several obstacles when it comes to hiring AI experts. The competitive nature of the AI professional employment market is the first significant problem. The need for skilled workers has increased as a result of the continued use of AI by sectors including healthcare, banking, and retail. As a

result, businesses are finding it difficult to draw in and keep qualified AI professionals, creating a talent shortage. Companies frequently face intense competition and are compelled to give high salaries due to the shortage of AI specialists, making it challenging for businesses, especially those in supply chain management, to compete (Christensen, 2021; Muldoon *et al*., 2023).

The lack of personnel with both technical AI skills and supply chain management domain knowledge is a second major issue. Although the number of data scientists and AI engineers is increasing, few possess the specific knowledge of supply chain operations required to use AI technology successfully. The talent gap is made worse by this discrepancy between the abilities of the professionals who are accessible and the particular requirements of the supply chain industry. AI adoption and deployment in supply chain operations might be delayed since businesses are frequently forced to make significant investments in training and development or hire AI specialists from other industries (Ardichvili, 2022; Bukartaite and Hooper, 2023).

The performance of organizations is significantly impacted by the lack of AI talent in supply chain management. The delayed deployment of AI technologies is one of the main consequences. Businesses may put off or reduce their plans for implementing AI as a result of their inability to find skilled personnel, which will put them behind rivals that have already incorporated AI into their operations (Uren and Edwards, 2023; Esmaeilzadeh, 2024). The adoption of AI-enabled supply chains slows down and the full potential of the technology is not realized in the absence of qualified personnel.

This delay in AI adoption leads to inefficiencies within the supply chain. AI could streamline processes, reduce human error, and provide more accurate insights, but without the right talent to develop and manage these systems, the benefits are not realized (Aldoseri *et al*., 2023; Waqar *et al*., 2024).

Additionally, the lack of talent leads to lost chances for creativity. AI in supply chains can open up new possibilities, like automated decision-making, real-time shipment tracking, and sophisticated predictive analytics that help maximize resource allocation. But without qualified experts to put these ideas into practice, businesses lose out on chances to boost supply chain performance, lower operating costs, and increase customer satisfaction. For businesses to fully benefit from AI, the supply chain management AI talent gap is a crucial problem that must be resolved. Successful AI integration requires specific skills, and businesses face major obstacles due to the lack of competent individuals on the market. This talent gap results in delayed AI adoption, inefficiencies, and missed opportunities for supply chain optimization and innovation. To close the talent gap, companies must invest in training, education, and collaboration across sectors, while also exploring ways to attract professionals with both AI expertise and supply chain knowledge (Morandini *et al*., 2023; Shan and Wang, 2024). Addressing this gap will ensure that AI can transform supply chains and lead to more efficient, innovative, and competitive operations.

2.2 Opportunities for Collaboration to Address the Talent Gap

The lack of qualified AI specialists is a major issue as more and more companies incorporate AI into their operations, especially in supply chain management (Fosso *et al*., 2022; Modgil *et al*., 2022). Multi-stakeholder cooperation can provide useful ways to close this talent gap. Collaborations across government, industry, academia, and other sectors might produce the workforce with AI skills required to propel supply chain innovation. A sustainable talent pipeline may be established and firms can fully utilize AI in supply chains through cooperative efforts in AI education, workforce development, and knowledge exchange as shown in figure 1(Ayodele and Zhou, 2024; Zamiri and Esmaeili, 2024). In order to close the AI skill gap in the supply chain industry, this examines important areas for cooperation.

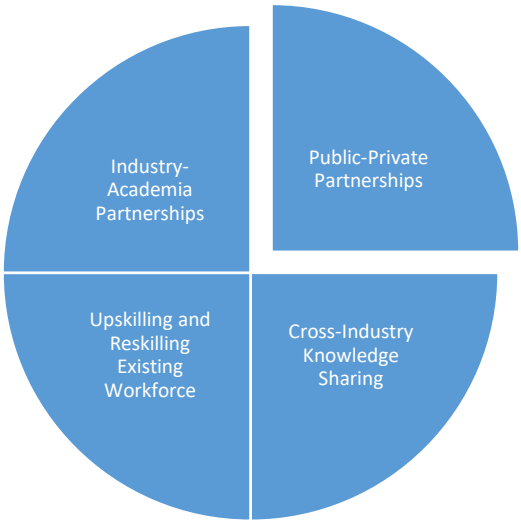

Figure 1: *Opportunities for Collaboration to Address the Talent Gap*

Establishing industry-academia collaborations is a potent tactic for closing the AI skill gap. Specialized AI curriculum that gives students both technological skills and domain understanding of supply chain management can be developed with the assistance of university-supply chain collaboration (Southworth *et al*., 2023; Mu and Zhao, 2024). These collaborations can guarantee that education centered on AI is in line with the practical requirements of the sector. Graduates will be equipped to handle the unique difficulties faced by supply chain professionals thanks to this customized methodology.

To create a pipeline of qualified AI specialists, internships and mentorship programs are crucial in addition to curriculum development. Industry partners can give students invaluable learning opportunities by giving them practical experience and direct exposure to the difficulties of integrating AI in supply chains (Poo and Qi, 2023; Owolabi *et al*., 2024). While mentorship programs can aid in the development of professional networks and provide career advice, internships give students the opportunity to apply their knowledge in practical settings. Students are more prepared for the demands of the AI-driven supply chain landscape thanks to such initiatives, which strengthen ties between academics and industry.

Public-private partnerships are another avenue for addressing the AI talent gap. Governments play a crucial role in shaping the future of AI education and workforce development through funding, policy-making, and infrastructure development. Government initiatives aimed at improving AI literacy and supporting AI research can provide a foundation for building the necessary talent base (Sey and Mudongo, 2021; Shiohira, 2021).

Involving the industry in these activities is just as crucial. Businesses can work with academic institutions to create AI-focused programs by providing financing for curriculum creation, research, or the establishment of AI labs. To further improve the learning process, industry partners can also offer case studies, industry insights, and guest lectures as ways to share their knowledge. In order to ensure that the workforce has both technical AI skills and industry-specific knowledge, these collaborations may result in the development of specialized AI training programs that are suited to the demands of the supply chain sector (Foroughi, 2021; Riad *et al*., 2024).

Cross-industry knowledge sharing presents another valuable opportunity for addressing the AI talent gap. Different industries face similar challenges in recruiting and retaining AI professionals, and by sharing best practices, they can jointly develop strategies to overcome these obstacles (Arslan *et al*., 2022; Vishwanath and Vaddepalli, 2023). Collaborative forums, workshops, and conferences can provide platforms for exchanging ideas on AI education, workforce development, and talent retention.

Initiatives for cross-industry research can also stimulate innovation and the growth of AI skills. Companies and academic institutions from a variety of industries can work together to develop open-source AI tools, new approaches to integrating AI, and novel supply chain uses of AI. Talented individuals may be

able to participate in cutting-edge research through such efforts, expanding their skill sets and helping to advance AI capabilities across industries (Yoon *et al*., 2021; Kazim *et al*., 2024).

In order to close the AI talent gap, it is just as critical to retrain and upskill the current workforce as it is to recruit new talent. Many companies currently employ people who are highly knowledgeable about supply chain management, but they might not have the requisite technical expertise in artificial intelligence. By offering instruction in subjects like data analysis, machine learning techniques, and AI technologies tailored to supply chain optimization, corporate training programs can assist in upskilling these experts (Morandini *et al*., 2023; Ramachandran *et al*., 2024). Employees can study at their own pace while carrying out their daily responsibilities with the help of these programs, which can be created as workshops, online learning modules, or short courses.

Furthermore, non-technical workers can easily acquire the fundamentals of AI through online courses and certifications. For those wishing to move into AI-related careers, platforms such as Coursera, edX, and Udacity offer flexible, affordable learning possibilities (Agarwal, 2021; King and Lee, 2022). For individuals looking to advance their careers in the supply chain industry and expand their knowledge of artificial intelligence, these programs might also be a first step. Businesses may guarantee a larger talent pool and close skill gaps in their current staff by expanding access to AI expertise.

A cooperative strategy involving alliances from academia, government, business, and the general public is needed to close the AI talent gap in supply chain management. To ensure the creation of a skilled AI workforce, industry-academia cooperation, public-private partnerships, cross-industry knowledge sharing, and upskilling efforts are all essential. Companies can unlock AI's full potential for supply chain optimization and growth by combining these efforts to build a sustainable talent pipeline, encourage innovation in AI applications, and quicken the adoption of AI in supply chain management (Muthuswamy and Ali, 2023; Shahzadi *et al*., 2024).

2.3 Strategic Approaches for Bridging the AI Talent Gap

The integration of artificial intelligence (AI) in supply chain management offers transformative potential, enabling companies to optimize operations, enhance decision-making, and increase overall efficiency (Eyeghre *et al*., 2023; Adeoye *et al*., 2025). However, the shortage of AI talent poses a significant barrier to realizing these benefits. To bridge the AI talent gap, strategic approaches are needed that focus on training and development, global talent access, and promoting diversity and inclusion. These strategies can help build a capable workforce capable of driving AI innovation in the supply chain sector as shown in figure 2.

Investing in ongoing AI training and development initiatives is one of the best ways to close the talent gap in AI. Supply chain management experts must keep up with the most recent advancements in machine learning, natural language processing, robotics, and data analytics because AI technologies are developing quickly. According to Osunkanmibi *et al*. (2025) and ADEOYE *et al*. (2025), ongoing education is crucial for both learning new skills and guaranteeing the successful integration of AI in a variety of supply chain operations, including risk management, forecasting, logistics, and procurement.

Initiatives that provide high-quality, reasonably priced AI education must be given top priority by organizations. To develop training programs that are easily accessible, this may entail forming alliances with academic institutions, online learning environments, and business professionals (Ogunyankinnu *et al*., 2022; Folorunso *et al*., 2024). Working together with academic institutions can also assist guarantee that the course material is in line with the real-world requirements of the supply chain industry. Additionally, creating scholarship programs or offering funding for AI education might increase access to learning opportunities for a wider group of people.

Increasing access to the worldwide talent pool is a crucial tactic to close the talent gap in AI. As remote work becomes more common, businesses can access qualified AI specialists worldwide, circumventing geographical limitations that traditionally restricted their talent acquisition (Haque, 2023; Arefin, 2024). With this strategy, companies can hire top-tier AI specialists from areas like North America, Europe, and some parts of Asia that have strong AI education systems and established talent pools.

Outsourcing AI talent from nations with robust infrastructure for AI education and development is a successful strategy for utilizing the global talent pool. Companies can obtain specialized AI skills and lessen recruitment difficulties in areas with unusually high demand for AI workers by forming cooperative partnerships or outsourcing agreements (Spring *et al*., 2022; Jerab and Mabrouk, 2023).

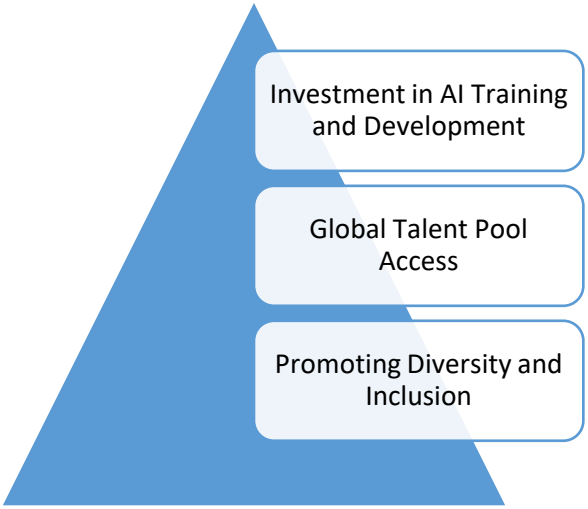

Figure 2: *Strategic Approaches for Bridging the AI Talent Gap*

In addition to outsourcing, companies can set up virtual collaboration platforms or remote work initiatives that let AI specialists operate from different places. In addition to expanding the talent pool, this flexibility raises the possibility of locating qualified applicants who can contribute a variety of talents and new viewpoints to the supply chain AI scene (Artar *et al*., 2024; Revolution *et al*., 2024). Working remotely can also promote international cooperation, allowing experts from many nations to exchange best practices and develop in the integration of AI.

In order to promote creativity and develop AI systems that are more inclusive and efficient, diversity in AI teams is essential. Organizations can foster creativity and problem-solving skills by bringing together people with different backgrounds, experiences, and viewpoints through the promotion of diversity and inclusion (Nishii and Leroy, 2022; Castelino and Shinde, 2023). Diversity can result in better solutions that meet the interests of various stakeholders, such as suppliers, buyers, and end users, when it comes to AI in supply chains. Additionally, diverse teams are more likely to create AI systems that are more representative and egalitarian, which lowers the possibility of algorithmic bias.

Attracting underrepresented groups to AI positions is a key component of advancing diversity in AI. In the AI workforce, women, members of racial and ethnic minorities, and people from low-income backgrounds are frequently underrepresented (Yarger *et al*., 2023; Farahani and Ghasemi, 2024). Organizations can solve this by putting these groups at the center of their targeted recruitment strategy. Connecting businesses with diverse talent pools can also be facilitated by working with groups that prioritize diversity in STEM (Science, Technology, Engineering, and Mathematics) disciplines.

Additionally, companies can promote inclusive workplaces by providing equal compensation, flexible work schedules, and chances for professional advancement. By fostering a more encouraging and welcoming work environment, these strategies not only draw in diverse talent but also aid in employee retention. Leaders in supply chain management must acknowledge the value of diversity and take proactive measures to remove the obstacles preventing underrepresented groups from succeeding in AI positions.

A diversified strategy is needed to close the AI talent gap in supply chain management. Businesses may build a competent staff that can use AI technology for supply chain optimization by investing in AI training and development. Overcoming local talent shortages can be achieved by increasing access to the global talent pool through outsourcing and remote labor. Furthermore, encouraging diversity and inclusion in AI teams guarantees that AI solutions are fair and inclusive of a range of stakeholders in addition to encouraging innovation. Organizations must adopt these tactics and work across industries to create a sustainable talent pipeline and promote AI innovation in supply chains as the need for AI in supply chain management keeps increasing (Shahzadi *et al*., 2024; Gaikwad, 2024).

2.4 The Role of Technology in Bridging the Talent Gap

A major obstacle to attaining peak performance and efficiency is the talent gap, particularly in domains like

supply chain management and artificial intelligence (AI). One significant difficulty for companies looking to incorporate AI technologies into their operations is the lack of qualified experts in these areas. In order to close this gap, technology itself can be quite important. Organizations can improve workforce capabilities and boost operational efficiency and scalability by utilizing automation, augmented intelligence, and AI-driven talent development technologies as shown in figure 3(Agnihotri *et al*., 2024; Kadirov *et al*., 2024). By automating complicated activities and facilitating employee upskilling, these technologies lessen the need for highly specialized positions.

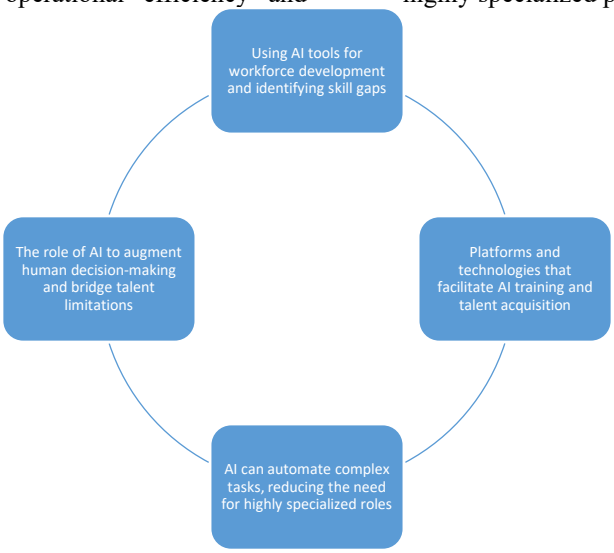

Figure 3: *The Role of Technology in Bridging the Talent Gap*

AI-driven talent development tools are transforming the way organizations approach workforce training and development. These tools use sophisticated algorithms and data analytics to assess current workforce capabilities, identify skill gaps, and recommend personalized learning paths for employees. Machine learning models can evaluate employees' strengths and weaknesses in real-time, providing tailored feedback and dynamically adjusting training materials based on individual learning styles and progress.

AI is being used more and more by platforms like Coursera, Udemy, and LinkedIn Learning to provide learning modules, certification programs, and tailored course suggestions that aim to bridge the skills gap (Bhatia *et al*., 2022; Amin *et al*., 2023). These platforms, which frequently collaborate with academic institutions or organizations that provide AI-focused content, give staff members access to excellent, on-demand training materials and courses. By allowing workers to learn at their own speed and from any location, this training approach democratizes access to AI education and gets beyond geographical restrictions.

AI tools can also make the talent recruiting process more efficient. Large volumes of resumes and job applications can be analyzed more quickly by recruiting platforms that incorporate AI-powered applicant tracking systems (ATS) and machine learning algorithms than by human recruiters. These tools help firms find the best candidates more quickly by evaluating credentials, experience, and other pertinent variables. AI may also forecast a candidate's chances of success in a certain position based on their qualifications, background, and compatibility with the company's culture. This can guarantee the best candidate for AI positions in supply chains and other industries while cutting down on the time and expense of the hiring process.

The application of automation and augmented intelligence is another technological advancement that is essential to closing the talent gap. Augmented intelligence takes one step further by supporting human decision-making rather than taking the place of it, even while AI alone can handle organized and repetitive activities (Kim *et al*., 2022; Mazurova and Standaert, 2024). Without requiring extensive AI skills, this technology helps professionals with jobs like supply chain management that call for cognitive judgment and insight. AI systems can offer actionable insights through predictive modeling and real-time data analysis, assisting staff members in making better decisions faster.

AI-powered systems, for instance, can more accurately forecast demand, optimize inventory levels, and anticipate supply chain interruptions. By providing pertinent information and choices, AI supports human decision-making in this way, freeing up experts to concentrate on strategic choices rather than mundane operational duties. Because workers with different degrees of experience may collaborate with AI systems to make complicated decisions, there is less need for highly specialized employment. Businesses can reduce their dependency on highly qualified AI specialists while streamlining operations, improving responsiveness, and minimizing human error by integrating augmented intelligence into supply chains.

Additionally, automation is essential in lowering the requirement for human involvement in laborious and low-level jobs. Employees may concentrate on higher-value jobs that call for creativity, critical thinking, and problem-solving skills by using AI to automate chores like data entry, order processing, and inventory management. Businesses can increase operational efficiency and reduce the need for human labor in various sectors by using AI to automate repetitive, complicated operations (Singh, 2024). Organizations can devote resources to more important areas that call for human intelligence, like invention and process improvement, while AI systems manage everyday tasks.

In businesses where there is a strong demand for AI skills but a limited supply, AI's ability to automate processes and enhance human decision-making is especially beneficial. AI technologies can provide the scale and flexibility required to close the skill gap in supply chain management, where effectiveness and flexibility are essential. Without having in-depth technical knowledge of AI, staff members with a basic understanding of supply chain operations can use AI tools to enhance performance. Technology plays a complex and more important role in closing the AI talent gap for businesses looking to stay competitive in the fast-paced commercial world of today. By offering individualized, on-demand learning experiences that assist staff in developing the skills required for AI integration, AI-driven talent development technologies streamline workforce training. By employing data-driven insights to find the most qualified applicants for AI positions, these platforms help enhance hiring procedures. Additionally, companies may optimize operations and lower the need for highly skilled expertise by combining automation and augmented intelligence. Businesses may overcome the difficulties presented by the AI talent gap and spur innovation in supply chain management and other fields by utilizing these technologies to create a workforce that is more adept and adaptive (Kvirchishvili, 2023; Ononiwu *et al*., 2024).

3. Conclusion

Businesses looking to increase productivity, save expenses, and maintain their competitiveness in a global market that is changing quickly must increasingly incorporate artificial intelligence (AI) into supply chain management. However, the widening skill gap is one of the biggest obstacles to the effective implementation of AI in this industry. A multifaceted strategy that encourages cooperation between businesses, academic institutions, and government agencies is needed to address this issue. Businesses may better position themselves to take advantage of AI's full potential by comprehending the essential competencies needed for AI integration, such as data science and machine learning, and creating creative ways to close this gap.

In order to develop customized educational programs that meet the quickly evolving needs of the AI-driven supply chain sector, cooperation between academics and business is crucial. While industry leaders should offer practical experience through internships and mentorship programs, universities must create curricula that incorporate the newest AI technologies. Government policies that encourage educational efforts and provide financial incentives for research and development can also help incentivise the creation of a professional AI workforce. Organizations can access a wealth of options for innovation, optimization, and the creation of new solutions that were previously inaccessible because of resource constraints once the skill gap is closed.

Future-focused research on AI talent development must continue to be a top emphasis. It will be crucial to implement strategic efforts targeted at upskilling the current workforce and consistently adjusting to technology changes. Furthermore, a sustainable pipeline of AI specialists with both technical skill and domain-specific knowledge will be ensured via long-term partnership between academia and industry. The development of AI technology in supply chain management is contingent upon both industry breakthroughs and a persistent endeavor to develop and retain the human capital required to propel these developments.

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