Smart Purchasing in Morocco: The Impact of Artificial Intelligence on the Transformation of the Purchasing Function

Abderrahim ZGHAIDA
Abdelmalek Essaâdi University, Morocco.

Abstract. In an era of digital transformation, artificial intelligence (AI) is reshaping purchasing functions by enhancing decision-making, demand forecasting, and supplier relationship management. Despite these advancements, purchasing remains less digitized compared to other business functions such as finance and marketing. This article aims to analyze the impact of AI on purchasing performance, focusing on automation, predictive analytics, and strategic sourcing. The study is based on a comprehensive literature review and case studies of companies that have successfully integrated AI into their purchasing processes.

The findings reveal that AI-driven purchasing enhances efficiency, reduces costs, and improves supplier collaboration. However, challenges such as data management complexities, skill shortages, and resistance to change hinder full adoption. Addressing these barriers requires targeted training, cultural shifts, and robust digital strategies. This study contributes to the understanding of AI's transformative role in purchasing and provides practical recommendations for businesses seeking to optimize their purchasing functions through AI.

Keywords: Artificial intelligence; Purchasing; Digital transformation; Automation; Predictive analytics.

1. Introduction

Artificial intelligence (AI) is gradually transforming purchasing practices in businesses, even though this function remains relatively less digitized compared to others, such as marketing or finance (Bienhaus & Haddud, 2018). However, rapid advancements in intelligent information systems are opening new possibilities. These systems increasingly incorporate advanced technologies for decision support, strategic monitoring, demand forecasting, and cross-functional collaboration. With these tools, purchasing professionals can enhance their analytical and forecasting capabilities, enabling more informed and faster decision-making in an increasingly complex and uncertain market environment.

Some pioneering companies, recognized for their high level of purchasing management maturity (Potage, 2017; Zghaida *et al*, 2024), have already taken significant steps by extensively integrating AI into their purchasing processes. These companies utilize these technologies not only to automate repetitive tasks but also to perform more complex operations, such as predictive analysis and automated negotiation. AI-based systems also allow them to perform multiple activities simultaneously, thereby increasing their efficiency and responsiveness in highly competitive markets.

Through these innovations, AI emerges as a transformative force for purchasing departments, offering not only a competitive edge but also the ability to accomplish tasks that were previously impossible without these emerging technologies (Constant *et al*, 2024). Beyond automation, AI expands the realm of possibilities for purchasing strategies by enhancing agility and adaptability in teams as they face rapid economic and technological changes.

Purchasing departments, along with the suppliers and partners of organizations, generate massive volumes of data daily. In addition, even larger amounts of data come from the company's extended ecosystem, including information about customers, market trends, transactions, and supply chain performance. This vast data flow holds enormous potential for

creating added value and optimizing purchasing processes (Sundarakani *et al*, 2021; Zghaida *et al*, 2022). However, despite this abundance of information, this potential is rarely, if ever, fully exploited.

One of the main barriers to leveraging this data lies in companies' inability to thoroughly process and analyze the available information. According to Mikalef, Pappas, Krogstie, and Giannakos (2018), a lack of specific analytical skills within purchasing teams and the absence of appropriate technological tools hinder effective data management. This gap significantly slows the adoption of data-driven approaches, where strategic decisions could be made based on trends and rigorous predictive analyses, thereby reducing purchasing risks and optimizing cost management.

Beyond technical skills, resistance to change is another major obstacle to the digital transformation of purchasing departments (Flechsig *et al*, 2022). Purchasing teams, often rooted in traditional processes, may be hesitant to adopt new technologies like AI. Fears related to automation, such as the concern that jobs might be replaced by machines, and uncertainties about fully digitized processes contribute to this resistance. Thus, the success of this transformation depends not only on acquiring the right technological tools but also on the ability to foster cultural and organizational change, encouraging innovation and flexibility within teams.

In this context, it is crucial for companies to develop a digital strategy that includes both training to acquire the necessary skills for data management and initiatives to overcome internal resistance to technological innovation. By focusing on these two aspects, organizations can maximize the potential of their data and fully leverage the benefits offered by AI in purchasing.

In an environment where competition is intensifying across all sectors, companies must contend with increasingly hostile and unpredictable conditions, where even minor errors can have disastrous consequences. This is particularly true for the manufacturing sector, where complex supply chains and fluctuating production costs make swift and precise decision-making essential (Wu & Pagell, 2011). Modern markets have significantly expanded, becoming not only vast and highly competitive but also extremely complex, more responsive, fast-paced, and difficult to predict. In this shifting landscape, survival is no longer sufficient for companies; they must anticipate, adapt, and even shape the market to their advantage. The purchasing department plays a central role in this dynamic, contributing decisively to the overall performance of the company (Allal-Chérif *et al*, 2021).

AI provides purchasing departments with the tools needed to transform this complexity into opportunity. With AI, purchasing professionals can conduct in-depth market trend analyses, anticipating demand fluctuations and changes in economic conditions. This forecasting capability not only helps avoid costly mistakes but also enables a proactive stance, even creating market disruption. By actively influencing trends and innovating in purchasing strategies, companies can achieve a sustainable and critical competitive advantage (Borges *et al*, 2009).

The value of AI is not limited to automating routine tasks; it is also closely tied to knowledge management and the absorptive capacity of organizations—their ability to learn and integrate new information to improve processes (Heiden *et al*, 2015; Liebowitz, 2001). By enhancing this learning capacity, AI becomes a strategic tool for strengthening companies' resilience and competitiveness. This explains why the relationship between AI systems and organizational management has gained critical importance among both researchers and business leaders.

Existing literature has explored several AI applications across different fields. For instance, social signal processing helps entrepreneurs make more informed decisions by capturing market dynamics and consumer behavior (Gieure *et al*, 2019; Liebregts *et al*, 2020). In commercial

banking and behavioral finance, AI enables the analysis of massive data volumes to predict trends and financial risks (Königstorfer & Thalmann, 2020). Moreover, machine learning has become a key tool for enhancing strategic performance by identifying new market opportunities and optimizing business decisions (Reis *et al*, 2020). In sustainability, AI plays a vital role in managing sustainable supply chains, facilitating better resource management, and promoting ethical and responsible purchasing practices (Dauvergne, 2020).

However, despite extensive research on AI applications in various sectors, its use specifically in purchasing services remains largely underexplored. This gap presents a significant research opportunity for academics and practitioners, as purchasing services are increasingly recognized as a strategic driver of companies' competitiveness and resilience in a globalized and ever-evolving business environment.

This article examines the diverse potential applications of AI in purchasing and analyzes its impact on purchasing performance. Through a literature review, it presents a broad range of AI uses, from the most operational tasks to strategic initiatives. Indeed, AI tools can revolutionize not only daily purchasing management processes but also redefine long-term business strategies. The objective of this study is to explore the concrete impact of these technologies on the purchasing function while identifying their limitations and challenges related to adoption.

One of the main contributions of this study is its in-depth analysis of AI applications and their influence on purchasing functions. This exploration provides a better understanding of AI's role, specific contributions, operation within purchasing processes, and the challenges associated with its adoption. Furthermore, the study reflects on the future prospects for AI development in this strategic area.

Thus, this research offers a comprehensive overview of AI technologies available for purchasing management, with a critical analysis of their benefits and limitations. It also provides perspectives on their future evolution while offering practical recommendations to managers on how these technologies could be integrated and used to optimize the purchasing function in their organizations.

The study is structured into several sections: the second section presents a detailed theoretical framework of AI applications, associated practices, and their impact on organizational performance. The third section outlines the research methodology adopted, while the fourth section explores five typical and emblematic cases illustrating AI applications in purchasing. Finally, the fifth section analyzes the findings, provides perspectives, and discusses implications for managerial practices. The study concludes with a summary of the major results and concrete recommendations for decision-makers in purchasing services.

2. Theoretical Framework: Artificial Intelligence in Purchasing
a. Definition and Typology of Artificial Intelligence

Artificial intelligence refers to the ability of computer systems to perform tasks that typically require human intelligence, such as speech recognition, natural language understanding, decision-making, and machine learning (Kreutzer, R. T., & Sirrenberg, M., 2020). In the context of purchasing, AI encompasses a range of technologies capable of analyzing large datasets and providing strategic recommendations or automating complex processes. These technologies primarily include machine learning, deep learning, and expert systems, which enable purchasing departments to manage information more quickly and efficiently (Allal-Chérif & al., 2021).

Machine learning is particularly relevant for automating purchasing processes. It allows systems to learn from past data to predict future outcomes, such as supply needs or market trends. Deep learning, an advanced branch of machine learning, uses deep neural networks to

process even larger and more complex data sets, especially in areas like consumer sentiment analysis or risk management (Goodfellow, Bengio & Courville, 2016). Expert systems, on the other hand, are software applications that simulate the expertise of a specialist. These systems can be used to optimize purchasing decisions by analyzing multiple complex criteria, such as cost, lead times, or supplier quality (Shokouhyar *et al*, 2019).

b. Applications of AI in purchasingsing

i. Automation and Optimization of Processes

AI allows for the automation and optimization of processes that previously required manual management. These technologies include tools for spend analysis, performance and contract management, as well as automation of communications via chatbots (Allal-Chérif & Maira, 2011):

- Spend analysis: AI segments spending based on multiple variables (e.g., by supplier, project, etc.), helping to identify excessive costs and opportunities for savings (Salminen, Ruohomaa, & Kantola, 2017);

- Performance tracking: By analyzing real-time indicators such as cost and quality, AI alerts managers to discrepancies, thus helping to meet performance objectives (Foresti *et al*, 2020);

- Chatbots and interactions: Chatbots manage routine communications with suppliers, including requests for quotes and RFIs, providing quick and standardized responses to a large number of queries (Garimella & Paruchuri, 2015). Chatbots also facilitate order management automation, ensuring continuous relationships even with non-selected partners.

ii. Supplier Selection and Matching Systems

Supplier selection is significantly optimized using matching systems based on algorithms capable of comparing many offers and parameters (Asthana & Gupta, 2015). These systems, inspired by dating platforms, seek the best match between buyers and suppliers (Legenvre & Gualandris, 2018):

- Matching systems: With matching systems, buyers can evaluate not only tangible supplier characteristics but also intangible factors such as cultural compatibility or commitment to sustainability (Lu & Hong, 2019);

- Purchase aggregation: Companies can aggregate their purchases by item families or specific programs, simplifying inventory management and reducing the number of suppliers without compromising innovation (Chung, Ko, Joung, & Kim, 2020).

iii. Predictive Purchasing and Decision Support Tools

By analyzing big data, AI enables buyers to anticipate market trends and make strategic decisions. The analysis of internal and external data provides buyers with the necessary information to optimize their decisions (Baryannis, Validi, Dani, & Antoniou, 2019):

- Weak signal analysis: By continuously scanning thousands of information sources, AI helps buyers identify weak trends and potential risks, such as regulatory changes impacting the supply chain (Bienhaus & Haddud, 2018);

- Comparison of supplier practices: Buyers can compare supplier practices, ensuring decisions align with company values, particularly in sustainability and ethics (Choi & Krause, 2006);

- Anomaly detection: By identifying inconsistencies and malfunctions before they become problematic, AI enables companies to prevent disruptions in the supply chain (Bleda & Chicot, 2020).

iv. Supplier Relationship Management

Supplier relationship management becomes more complex with the increasing number and diversity of partners, but AI simplifies this management through real-time data analysis, ensuring performance and partner satisfaction (Batran, Erben, Schulz, & Sperl, 2017):

- Supplier satisfaction evaluation: AI continuously collects data to measure supplier satisfaction through automated surveys and feedback, ensuring trust-based relationships (Aragon-Mendoza, Pardo del Val, & Roig-Dobon, 2016);

- Emergency management: Strengthened relationships with key suppliers enable companies to receive priority treatment during critical situations, such as high demand or unexpected supply shortages (Yang, Zhang, & Xie, 2017).

v. Collaborative Project Management and Open Innovation

AI fosters collaborative management by enabling companies and their suppliers to work in interconnected ecosystems, enhancing open innovation (Aragon-Mendoza *et al*, 2016):

- Collaborative ecosystems: AI-managed collaboration platforms centralize information and facilitate exchanges, allowing stakeholders to interact smoothly and transparently (Baryannis *et al*, 2019);

- Coordination of multifunctional projects: AI coordinates teams from various backgrounds, cultures, and technologies, thereby improving collaboration efficiency in strategic projects (Mikalef *et al*, 2018).

c. Challenges and Barriers to AI Adoption in Purchasing

The adoption of AI in purchasing presents significant challenges, such as technical skill requirements, change management, and ethical concerns:

- Skills and training: AI integration requires advanced skills in data analysis and technology management, which are often scarce within purchasing teams (Mikalef *et al*, 2018);

- Resistance to change: Some teams may fear the technology due to concerns about job replacement, requiring change management strategies for a smooth transition (Chien & Chen, 2016);

- Ethical issues and governance: Algorithm transparency, data protection, and fairness of decisions made by AI are major concerns to ensure ethical and sustainable AI adoption in purchasing (Liebowitz, 2001).

3. Methodology: Multiple Case Study in the Moroccan Context

Given the various potential applications of artificial intelligence (AI) in purchasing functions, two research questions arise: How can AI facilitate purchasing decision-making? And what improvements could make AI systems more efficient and effective? These questions align with management research that examines organizational learning processes aimed at enhancing business competitiveness (Kotnour, 1999). Specifically, in the context of AI, these learning processes are partially influenced by machine learning technologies (MLT) through feedback from interactions between MLT, as well as between MLT and human users.

This exploratory qualitative study adopts a multiple case study methodology, justified by the emerging nature of AI in purchasing. Yin (1993) states that this approach is particularly suitable for analyzing emerging technologies, such as AI, whose impact on management practices remains difficult to assess due to their rapid and recent development. This method was chosen to capture the nuances of AI adoption in different sectoral contexts in Morocco. To ensure the validity of our conclusions, we triangulated the collected data by comparing various sources of testimonies, data, and independent theories (Denzin & Lincoln, 2011). Triangulation, which enhances the study's rigor, is achieved through a combination of document analysis, non-participant observations, and interviews with regular users of the studied systems (Miles & Huberman, 1994).

The study examines five leading Moroccan companies across different sectors that have integrated AI into their purchasing processes. The selection criteria were as follows:

- Sectoral Representativity: The companies belong to key economic sectors in Morocco, ensuring diverse perspectives on AI integration in purchasing;

- Digital Maturity: Companies were selected based on their progress in digital transformation, allowing for an analysis of AI's impact in organizations where its adoption is already advanced;

- Data Accessibility: The availability of information and cooperation from purchasing managers ensured reliable data collection.

The five cases studied are:

- Sidi Ali (Agri-food industry): This demand forecasting system relies on AI algorithms to optimize raw material purchasing by analyzing historical trends and consumer behavior, minimizing costs, and ensuring product availability.

- Marjane (Retail): Using an AI-driven system to automate restocking and inventory optimization, Marjane adjusts its orders in real-time to reduce stockouts and improve purchasing costs.

- Renault Maroc (Automotive industry): This supplier price analysis system utilizes AI tools to detect anomalies in the supply chain, facilitating negotiations and strategic partner selection.

- Tassali (Textile industry): This AI-based supply chain management system optimizes raw material purchasing by considering demand forecasts and production lead times.

- Samsung Maroc (Electronics): An AI software analyzes supplier and market data, enabling better anticipation of needs, order adjustments, and more effective supplier negotiations.

Each case study explores the specific applications of AI and MLT in purchasing decision-making and their benefits in terms of cost reduction, delivery time optimization, and supplier relationship improvement.

4. Case Studies

In Morocco, certain companies stand out in their integration of AI technologies for purchasing management, automating processes, and enhancing decision-making through advanced data analytics. These industry-leading companies illustrate AI's potential to optimize purchasing processes while adapting to the specificities of the Moroccan market.

a. Sidi Ali's Demand Forecasting System

Sidi Ali has integrated an AI-powered software solution specialized in demand forecasting and supply chain management. This system analyzes historical data and consumption trends in real-time, allowing for better anticipation of raw material needs and reduced inventory costs. Through machine learning algorithms, the software provides forecasts adjusted to seasonal fluctuations and demand variations, ensuring continuous product availability while minimizing excess stock. The system also offers recommendations for inventory adjustments based on delivery timelines and production constraints, making the supply chain more flexible and responsive. As a result, Sidi Ali has improved forecast accuracy by 15%, leading to a significant reduction in inventory costs.

b. Marjane's Inventory Optimization System

The Marjane Group employs an AI-based inventory optimization system that uses predictive management algorithms to optimize replenishment and stock management for thousands of products across its stores in Morocco. This solution takes into account real-time data such as demand fluctuations, regional preferences, and purchasing behaviors to adjust supplier orders accordingly. The system also includes a supplier management module, facilitating access to updated catalogs and ensuring compliance with framework agreements at each retail location. This system has enabled Marjane to reduce stockouts by 25% while lowering warehousing costs.

c. Renault Maroc's Price Analysis and Anomaly Detection System

Renault Maroc utilizes an AI system for supplier relationship management and price analysis of parts and components required for production. This system detects anomalies in supplier transactions by comparing current prices with historical data and market benchmarks. Through automatic alerts in case of unjustified price variations or changes in supply conditions, Renault Maroc's purchasing team can quickly intervene to negotiate and adjust contract terms. This system enhances purchasing transparency and ensures greater compliance, reducing supply chain risks while optimizing costs.

d. Tassali's Supply Chain Management System

Tassali, a player in the textile industry, employs an AI-powered supply chain management platform that optimizes raw material purchasing based on production forecasts and market prices. This system analyzes real-time price fluctuations, supplier availability, and quality constraints to recommend the best suppliers for each order. With this system, Tassali can rapidly adapt to market changes, reducing raw material purchasing costs by an average of 10% while maintaining high-quality standards. The platform also improves product traceability throughout the supply chain, enhancing transparency and sustainability.

e. Samsung Maroc's Supplier Data Analysis System

Samsung Maroc leverages an AI system for advanced supplier data analysis, improving risk management and anticipating potential issues. Using a predictive analytics module, the system evaluates past and current supplier performance, identifying risks such as delivery delays or quality fluctuations. The system monitors thousands of public and private information sources to assess financial, operational, and environmental risks associated with suppliers. This allows Samsung Maroc's purchasing team to anticipate potential supplier failures, ensuring a stable and secure supply chain.

These case studies highlight how Moroccan companies are adopting advanced AI technologies to optimize purchasing processes, strengthen supplier relationships, and reduce costs and risks. By combining predictive analytics, automated inventory management, and improved supplier

collaboration, these companies demonstrate how AI can transform purchasing practices in Morocco.

5. Results

The analysis of intelligent purchasing systems has led to several key conclusions: artificial intelligence (AI) is transforming purchasing functions by making them more strategic and less operational; it equips buyers with new skills and strengthens the purchasing function; it also enhances the cross-functional role of purchasing as an interface with external stakeholders; finally, AI adoption faces certain limitations, and its effectiveness should not be overestimated.

a. Evolution of Buyers' Responsibilities

The integration of AI marks a turning point in purchasing, transforming the department into a proactive entity capable of anticipating and analyzing trends. This shift from a reactive approach to a predictive strategy allows companies not only to anticipate events but also to optimize their agility in a competitive environment. While purchasing forecasting is often associated with demand and expenses, AI offers a forward-looking capability that extends beyond these dimensions (Mikalef *et al*, 2018). Its key contributions include anticipating socio-economic disruptions, optimizing corporate social responsibility (CSR) policies, and managing supplier relationships. With technologies developed by players such as Synertrade, Silex, SAP Ariba, Jaggaer, and Ideapoke, buyers are better equipped to select appropriate partners, optimize business relationships, mitigate risks, and make informed decisions at the right time.

Jean-Baptiste Allemand, Head of Purchasing Tools and Processes at Bouygues Telecom, illustrates this evolution by stating that "SAP Ariba is a turnkey solution that covers the entire negotiation process, providing a 360-degree view of supplier relationships."

However, to fully leverage these predictive technologies, buyers must also have access to tools for analyzing past data and managing current operations (Aragon-Mendoza *et al*, 2016). Comparative analysis of internal data with external sources, such as suppliers and other market players, is conducted through data mining algorithms, which establish correlations, generate statistics, identify trends, detect anomalies, and extract relevant insights. Although this approach remains underutilized, it requires a cross-functional vision and a coherent management of information systems.

Predictive purchasing enables the identification of potential supplier failures and the implementation of preventive measures to mitigate their consequences. With AI, buyers can now manage all dimensions of supplier risk in real-time, including ethical, environmental, climate, geopolitical, logistical, financial, and quality-related risks (Yang *et al*, 2017).

b. Toward Augmented Buyers

AI fosters the emergence of intelligent, predictive, and augmented purchasing. Buyers leveraging AI become more responsive, agile, and efficient. The supplier selection and contracting process is reduced to a few weeks instead of several months. The augmented buyer no longer perceives suppliers solely in their current state but also envisions their growth potential. The buyer identifies not only the value a supplier can bring to the company but also the value created through a successful collaboration (Batran *et al*, 2017).

By using AI, buyers can attract suppliers who might be hesitant to collaborate due to various reasons, such as low business volumes or disagreements over corporate values. Recognizing these obstacles, buyers are encouraged to promote their company proactively through targeted marketing efforts, thereby creating favorable conditions for reaching agreements.

However, many buyers express concerns about the time spent on operational tasks and urgent matters, preventing them from focusing on strategic issues. Andrea Murani, Purchasing Director at Mondadori Group, highlights the effectiveness of Synertrade, stating that "*we need to be quick in analyzing, understanding what is happening, and reacting. Synertrade is easy to adopt, flexible, and significantly reduces time waste while providing spending indicators to management.*"

AI offers a solution to this dilemma by handling operational activities, allowing buyers to concentrate on strategic priorities. Intelligent agents deployed in the studied technologies replace multiple buyers, performing tasks that would otherwise be beyond their reach, such as analyzing thousands of contracts, invoices, and deliveries. These agents can answer most queries from colleagues and suppliers, learning to replicate buyer practices. As technology evolves, these agents become increasingly sophisticated, understanding different linguistic registers, including industry jargon and codes, and adapting discussions to provide relevant responses.

c. Interdependence with Other Departments

One of AI's major advantages is its ability to provide an integrated approach for various departments and stakeholders by considering a vast number of parameters and simulating new business models that incorporate multiple organizations, available resources, and potential benefits. While the purchasing department is central to this process—being cross-functional, externally focused, and proactive—AI initiatives risk remaining limited if not coordinated with other departments.

For example, Ideapoke emphasizes its coordination capabilities by stating that "*[Ideapoke] redefines how organizations innovate by providing software tools and a business platform to easily access global technology information, connect with technology experts, and collaborate with technology partners.*"

A significant flow of information passes through the purchasing department due to its multifunctional role, its connection to all company departments, and its position as an interface between internal and external stakeholders. Therefore, the purchasing department cannot implement AI-based solutions without effective coordination with other departments. It is crucial to integrate purchasing information systems with those used elsewhere in the company. Given that purchasing lags behind other departments such as marketing, sales, finance, and human resources in AI adoption, it must adapt and select tools capable of connecting with existing systems.

As the purchasing function matures within large multinational corporations, it tends to decentralize, making subsidiaries and sites more independent. Intelligent systems can ensure coordination between these entities by preventing non-compliance, providing recommendations, and alerting relevant buyers when necessary. AI enables senior buyers to demonstrate the value of their role and their contribution to the company's overall performance. By placing purchasing at the heart of innovation, buyers can propose ideas to the research and development (R&D) department, which can integrate them into its projects, as well as to the marketing department, which is constantly seeking new ways to meet customer needs (Bleda & Chicot, 2020).

d. Notable Limitations

Currently, most companies are not yet ready to integrate AI into their purchasing processes due to a lack of relevant experience. The processes involved must be complete, consolidated, automated, and shared among all stakeholders. In this context, AI can intervene to manage

certain steps, improve efficiency, monitor performance, and predict outcomes (Bienhaus & Haddud, 2018). This ensures that data analysis is reliable, systematic, and meaningful.

However, AI cannot solve all purchasing-related problems and may even create additional challenges if the organization, department, or buyers are not adequately prepared. Sometimes, algorithms may suggest overly obvious or predictable solutions, lacking boldness and creativity. These solutions reinforce organizations' comfort zones, minimizing risk and maximizing short-term value creation. AI tends to favor safe choices and well-established paths, leaving little room for imagination and innovation. Yet, the greatest entrepreneurial and industrial successes often emerge from the unexpected (Gieure *et al*, 2019).

6. Conclusion

The integration of artificial intelligence (AI) in purchasing services represents a significant transformation, positioning this function as a key strategic lever. As highlighted by several studies (Allal-Chérif *et al*, 2021; Bienhaus & Haddud, 2018), AI optimizes operational processes while enhancing strategic decision-making through predictive and collaborative tools. The analyzed examples demonstrate that AI facilitates risk anticipation, improves supplier relationships, and enables better management of internal and external data (Mikalef *et al*, 2018).

However, this transformation does not come without challenges. Resistance to change, the lack of specialized skills within purchasing teams, and ethical concerns remain major obstacles to widespread adoption (Chien & Chen, 2016; Liebowitz, 2001). Furthermore, as noted by Bleda & Chicot (2020), AI, despite its power, can sometimes lack creativity, limiting innovation by favoring predictable solutions. These limitations suggest that AI is not a one-size-fits-all solution but rather a tool whose effectiveness depends on successful cultural and structural integration.

In conclusion, while this study has identified promising use cases and significant benefits, further research is needed. Future studies should include quantitative analyses of AI's impact on purchasing performance, using financial or operational indicators, and explore organizational contexts with lower levels of maturity (Yang *et al*, 2017). By addressing these challenges, companies can maximize AI's potential to create a sustainable competitive advantage while ensuring a responsible and inclusive transformation (Borges *et al*, 2009).

7. References

- Allal-Chérif, O., & Maira, S. (2011). Collaboration as an anti-crisis solution: the role of the procurement function. *International journal of physical distribution & logistics management*, *41*(9), 860-877.
- Allal-Chérif, O., Simón-Moya, V., & Ballester, A. C. C. (2021). Intelligent purchasing: How artificial intelligence can redefine the purchasing function. Journal of Business Research, 124, 69-76.
- Asthana, N., & Gupta, M. (2015). Supplier selection using artificial neural network and genetic algorithm. *International Journal of Indian Culture and Business Management*, *11*(4), 457-472.
- Aragon-Mendoza, J., del Val, M. P., & Roig-Dobón, S. (2016). The influence of institutions development in venture creation decision: A cognitive view. Journal of Business Research, 69(11), 4941-4946.
- Baryannis, G., Validi, S., Dani, S., & Antoniou, G. (2019). Supply chain risk management and artificial intelligence: state of the art and future research directions. International journal of production research, 57(7), 2179-2202.

- Batran, A., Erben, A., Schulz, R., & Sperl, F. (2017). Procurement 4.0: A survival guide in a digital, disruptive world. Campus Verlag.
- Bienhaus, F., & Haddud, A. (2018). Procurement 4.0: factors influencing the digitisation of procurement and supply chains. Business Process Management Journal, 24(4), 965-984.
- Bleda, M., & Chicot, J. (2020). The role of public procurement in the formation of markets for innovation. Journal of Business Research, 107, 186-196.
- Borges, M., Hoppen, N., & Luce, F. B. (2009). Information technology impact on market orientation in e-business. Journal of business research, 62(9), 883-890.
- Chi, L. M., Lin, L. M., Chen, C. L., Wang, S. F., Lai, H. L., & Peng, T. C. (2016). The effectiveness of cupping therapy on relieving chronic neck and shoulder pain: a randomized controlled trial. Evidence-Based Complementary and Alternative Medicine, 2016(1), 7358918.
- Choi, T. Y., & Krause, D. R. (2006). The supply base and its complexity: Implications for transaction costs, risks, responsiveness, and innovation. Journal of operations management, 24(5), 637-652.
- Chung, M., Ko, E., Joung, H., & Kim, S. J. (2020). Chatbot e-service and customer satisfaction regarding luxury brands. Journal of Business Research, 117, 587-595.
- Constant, François and Berre, Max, "Perceived Benefits of Adopting Artificial Intelligence Technologies in Purchasing Processes" (2024). *CACAIS 2024 Proceedings*. 12. https://aisel.aisnet.org/cacais2024/12Dauvergne, P. (2020). AI in the Wild: Sustainability in the Age of Artificial Intelligence. MIT Press.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). The Sage handbook of qualitative research. sage.
- Flechsig, C., Anslinger, F., & Lasch, R. (2022). Robotic Process Automation in purchasing and supply management: A multiple case study on potentials, barriers, and implementation. Journal of Purchasing and Supply Management, 28(1), 100718.
- Foresti, R., Rossi, S., Magnani, M., Bianco, C. G. L., & Delmonte, N. (2020). Smart society and artificial intelligence: big data scheduling and the global standard method applied to smart maintenance. Engineering, 6(7), 835-846.
- Garimella, U., & Paruchuri, P. (2015). ^ 2: An agent for helping HR with recruitment. International Journal of Agent Technologies and Systems (IJATS), 7(3), 67-85.
- Gieure, C., Benavides-Espinosa, M. D. M., & Roig-Dobón, S. (2019). Entrepreneurial intentions in an international university environment. International journal of Entrepreneurial Behavior & research, 25(8), 1605-1620.
- Goodfellow, I., Bengio, Y., & Courville, A. (2016). Convolutional networks. Deep learning, 2016, 330-372.
- Gualandris, J., Legenvre, H., & Kalchschmidt, M. (2018). Exploration and exploitation within supply networks: examining purchasing ambidexterity and its multiple performance implications. International Journal of Operations & Production Management, 38(3), 667-689. https://aisel.aisnet.org/cacais2024/12
- Königstorfer, F., & Thalmann, S. (2020). Applications of Artificial Intelligence in commercial banks–A research agenda for behavioral finance. Journal of behavioral and experimental finance, 27, 100352.
- Kotnour, T. (1999). A learning framework for project management. Project management journal, 30(2), 32-38.

- Kreutzer, R. T., & Sirrenberg, M. (2020). Understanding artificial intelligence. Berlin, Germany: Springer International Publishing.
- Liebowitz, J. (2001). Knowledge management and its link to artificial intelligence. Expert systems with applications, 20(1), 1-6.
- Liebregts, W., Darnihamedani, P., Postma, E., & Atzmueller, M. (2020). The promise of social signal processing for research on decision-making in entrepreneurial contexts. Small business economics, 55(3), 589-605.
- Mikalef, P., Pappas, I. O., Krogstie, J., & Giannakos, M. (2018). Big data analytics capabilities: a systematic literature review and research agenda. Information systems and e-business management, 16, 547-578.
- Miles, M. B. (1994). Qualitative data analysis: An expanded sourcebook. Thousand Oaks.
- Pappas, I. O., Mikalef, P., Giannakos, M. N., Krogstie, J., & Lekakos, G. (2018). Big data and business analytics ecosystems: paving the way towards digital transformation and sustainable societies. Information systems and e-business management, 16(3), 479-491.
- Potage, J. (2017). Managing procurement value creation with a maturity model. *Logistique & Management*, *25*(4), 303-315.
- Reis, C., Ruivo, P., Oliveira, T., & Faroleiro, P. (2020). Assessing the drivers of machine learning business value. Journal of Business Research, 117, 232-243.
- Salminen, V., Ruohomaa, H., Kantola, J. (2017). Digitalization and Big Data Supporting Responsible Business Co-evolution. In: Kantola, J., Barath, T., Nazir, S., Andre, T. (eds) Advances in Human Factors, Business Management, Training and Education. Advances in Intelligent Systems and Computing, vol 498. Springer, Cham. https://doi.org/10.1007/978-3-319-42070-7_96
- Shokouhyar, S., Pahlevani, N., & Mir Mohammad Sadeghi, F. (2019). Scenario analysis of smart, sustainable supply chain on the basis of a fuzzy cognitive map. Management research review, 43(4), 463-496.
- Sundarakani, B., Ajaykumar, A., & Gunasekaran, A. (2021). Big data driven supply chain design and applications for blockchain: An action research using case study approach. Omega, 102, 102452.
- van der Heiden, P., Pohl, C., Mansor, S. B., & van Genderen, J. (2015). The role of education and training in absorptive capacity of international technology transfer in the aerospace sector. Progress in Aerospace Sciences, 76, 42-54.
- Wu, S., Lu, H., & Bai, Y. (2019). Nrf2 in cancers: A double-edged sword. Cancer medicine, 8(5), 2252-2267.
- Wu, Z., & Pagell, M. (2011). Balancing priorities: Decision-making in sustainable supply chain management. Journal of operations management, 29(6), 577-590.
- Wu, S., Lu, H., & Bai, Y. (2019). Nrf2 in cancers: A double-edged sword. *Cancer medicine*, *8*(5), 2252-2267.
- Xia, L., Huang, W., Bellani, M., Seidman, M. M., Wu, K., Fan, D., ... & Baylin, S. B. (2017). CHD4 has oncogenic functions in initiating and maintaining epigenetic suppression of multiple tumor suppressor genes. Cancer cell, 31(5), 653-668.
- Yang, B., Fu, X., Sidiropoulos, N. D., & Hong, M. (2017, July). Towards k-means-friendly spaces: Simultaneous deep learning and clustering. In international conference on machine learning (pp. 3861-3870). PMLR.
- Yin, R. K. (1993). Applications of case study research. Newbury Park, CA: Sage
- Zghaida, A., Aachaach, H., & Taqi, A. (2022). L'intégration et le développement des fournisseurs comme levier de performance des fonctions achats des entreprises

marocaines: La reconnaissance comme variable médiatrice. Alternatives Managériales Economiques, 4(4), 1-18.

- Zghaida, A., Aachaach, H., & Taqi, A. (2024). Impact of the status and maturity of the purchasing function on the performance of companies in terms of cost saving: a PLS approach. International Journal of Procurement Management, 19(3), 354-385.