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- How to structure a Conclusion.

I confirm that I have not used any AI generated text as my own work. I confirm I have copies of my drafts, notes, and other resources I used before and after the use of AI which I may be asked to provide in evidence.

I acknowledge the use of Microsoft CoPilot ([Microsoft Copilot: Your AI companion](#)) on 14th November 2025 to research my topic using the prompt(s):

- AI in Supply Chain Management.
- Positives and Negatives of AI in Supply Chains.

I confirm that I have not used any AI generated text as my own work. I confirm I have copies of my drafts, notes, and other resources I used before and after the use of AI which I may be asked to provide in evidence.

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Abstract

Artificial intelligence is tasked with creating systems to perform activities in a more efficient and effective way. AI creates new technologies and strategies for the future, with the desire of automating many jobs, projects and numerous other ventures that require the interaction of humans. The implementation of AI in Supply Chain includes demand forecasting, logistics and route optimisation, sustainability and inventory management. Supply Chain and logistics is the overall process of maintaining planning, distribution, sourcing, manufacturing, and ensuring strategies to meet every customer's needs. It is important to understand the intricacies of Supply Chain as it is necessary that it is well managed to ensure maximum efficiency. It is also very important that customer satisfaction is a top priority as it is crucial that parts are in perfect condition and distributed promptly.

1.0 Introduction

In this report, we will look at how AI contributes to the process of Supply Chain and Logistics, examining in-depth strategies and its numerous benefits. Supply Chain and Logistics involves the movement of materials and parts from suppliers to customers. It involves the overall process of shipments, distribution of goods and services from the point of origin to point of consumption. We will cover the key applications that can prove both advantages and disadvantages within this industry. AI has the objective of modernisation, which is the

procedure of upgrading something to become more productive and to work more effectively. AI is transforming Supply Chain and Logistics by using its advanced analytics and forecasting, predictive maintenance and much more. The objective is not to replace humans but to enhance their capabilities and to prevent common mistakes before they develop into larger issues.

“The evolution of Supply Chain Management (SCM) has been marked by a shift from traditional manual processes to sophisticated information systems, which has been facilitated by the advent of AI technologies’ (Xiyao Lin, 2024).

Supply Chains are at the heart of countless businesses. They support growth and success, but they can also be the most complicated and vulnerable area of your company (SAP.com 2024).

2.0 Benefits of AI in Supply chain

2.1 Enhanced Visibility and Transparency

AI allows live tracking of the goods and services across Supply Chain, using tracking devices such as GPS. This provides the unique transparency for the distributions as it offers immediate location of the goods. This massively improves the collaboration between suppliers and consumers. Many recent studies on training machine learning and network models for forecasting have demonstrated that AI can perform several intelligent business activities. (Helo, P et al. 2021). Automated Insights into the distributions would automatically detect issues such as delays and estimated arrival times. Therefore, customers would be notified about these issues, enhancing the communication. Additionally, this also reduces pressure on employees, allowing them to concentrate on higher-priority responsibilities. “Recognising the potential of AI-driven predictive analysis to optimise Supply Chains by forecast demand, managing inventory, and improving overall response to market changes is a key step in identifying the main advantages and difficulties in integrating AI within Supply Chains” (Nzeako, 2024).

2.2 Risk Management and Resilience

AI enhances Supply Chain risk management and resilience by offering risk and disruption identifications, this is done by using predictive analysis. AI would do this by analysing any previous issues using historical data and external factors such as delays, weather, transportation, and events that pose a potential risk to the smooth distributions. Using AI in Supply Chain would liberate human resources by its strategic decision support. Ultimately,

this process has many benefits in ensuring a smoothly run and efficient Supply Chain. “Supply Chain risk management has become a crucial element of organizational strategy in today's global and interconnected economy” (Gurtu & Johny, 2021).

2.3 Inventory Management

AI in Inventory management optimises stock levels and inventory by identifying missing components. This improves inventory management as AI will automatically reorder any products needed when the stock levels reach a certain level. The AI will also avoid overstocking. This will minimize costs as accidental overstocking can be costly. Historical data will be used to identify any upcoming demands and customer orders allowing the manufacturing and distributions to run time efficiently. The Supply Chain agent uses dynamic inventory control and various reinforcement studying techniques to adapt dynamically to the adapting environment created by competing agents (Alexandra Brintrup, 2020).

2.4 Sustainability

Sustainability is becoming a major contributor to positive change in society, addressing the resolution of many global challenges. AI strengthens sustainability in Supply Chain by optimising logistics. This includes transportation routes, vehicle capacity, and fuel consumption.

“The adoption of lean management and just-in-time philosophy in production and logistics may have increased efficiency but have left Supply Chains vulnerable to adverse events since they leave little room for error and change” (Synder et al. 2016).

Global Market report 2024 – 2029 expectations. The AI in Logistics Market Size is expected to see exceptional growth throughout the upcoming years.

2.5 Logistics and Operations

Logistics is the part of Supply Chain that deals with the movement of goods; it ensures that they arrive at their dedicated destinations, in the correct condition and to the right customer. The key functions of logistics are transportation, distribution, and warehousing. The ways in

which AI can effectively contribute to these processes are route optimisation, warehouse automation, and predictive maintenance. AI analyses current conditions such as weather, traffic, and most strategic delivery routes. This can help with emissions and transportation costs. “This technology saves millions of miles of driving, reducing fuel consumption and operational costs whilst improving reliability and predictability of delivery times” (SAP.com. 2024). By automating the warehouses, there will be fewer errors, an increase in productivity and a greater use of space. This would arise by automated picking and sorting systems as the stock levels would be tracked. By analysing data from sensors on equipment, AI can predict machine failures before they occur, allowing more time to overcome issues and reduce the risk of delayed manufacturing and distribution.

3.0 Challenges of AI in Supply Chain

3.1 Data Quality

Data in Supply Chain includes information that contributes to the organization of a business, maximises resource efficiency and helps make educated and informed decisions. It is especially important that the data is precise. Ensuring the quality of input data is correct for the productiveness of AI. AI can create incorrect demand forecasts as a result of former data. This can lead to huge issues, such as line stoppages. It is also a risk that operational staff can ignore ideas and recommendations suggested by AI. Another issue is that the actions of AI cannot be explained or clarified within an investigation or audit.

“Implementing AI in Supply Chain is not simply a matter of installing software, it requires preparation on the data layer, the human layer, and the system architecture. Done improperly, it can create more noise than signal.” (Jim Frazer, 2025).

3.2 Security and Privacy

Security is critical in today's society. Many businesses rely on the intricate networks of vendors, logistics providers, and suppliers. Research from the UK government recognizes that about 70% of businesses throughout the UK rely on suppliers also located in the UK. Disruptions within this sector can lead to devastating issues. These include financial issues, operational issues, and damage to reputations. AI systems create new attack surfaces, this can include data leakages and unauthorised access into systems and finance accounts. These actions can expose sensitive and confidential information, that if leaked, could ruin a business's stance.

3.3 Integration Complexity

Integration complexity in Supply Chain refers to the complex interconnections between a variety of components in the industry. These components can be areas such as distribution centres or places of manufacturing. AI operates alongside pre-existing systems, the issue is they may not have been designed to support how AI works. When integrating, it often needs significant engineering actions and can delay initiatives that contribute to long term profitability.

Business operating without integration can often face many challenges including Data Silos. These are disconnected systems that lead to fragmented information resulting in difficulty to make well informed decisions. (Tina Romero, 2024).

3.4 Organizational Resilience and Skills Gap

When AI is used within Supply Chain, it introduces new ways of working which might not comply with the official routines and may conflict them. Organisational resilience points out the reluctance or unenthusiastic attitude that employees may face while working alongside AI. These issues can spread from several factors, such as ethical or bias concerns, lack of trust, pre-established processes of working and a fear of losing their job. The factor that is becoming a wider worry is the fear of job displacement. Employees might be fearful that AI will replace their roles which would result in them being made redundant. This can also affect self-esteem and cause confidence issues. Resistance often begins from the fear of job displacement or deficiency on understanding how AI supports, not replaces human activities. (Jim Frazer, 2025).

4.0 Conclusion

Throughout this detailed analysis, this report has covered the main principles of AI within Supply Chain Management. Ranging from the many positives to the negatives that both create a broad perspective on this subject. Evidence suggests that AI in Supply Chain enhances visibility, improves inventory management, lowers costs, provides more accurate forecasting and refines logistics operations. However, AI still has its challenges within this industry, especially data security and privacy. Nonetheless, as AI is continuously advancing, its success rate will overcome these challenges without question. Regardless of this, AI manages to pull through by implementing various strategies that can significantly improve the functioning of many Supply Chains, leaving no doubt about its advantages. This

technology is a huge asset to the future and will continue to elevate its competence as time goes on. “For happy customers, consistency and quality of product or service delivery are important, and Supply Chains play a critical role in making that happen.” (Sarkar, S. 2017).