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Influence of IOT and its advantages

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Abstract

The main objective of this study is to ascertain how the Internet of Things (IoT) can be used effectively in smart logistics. Logistics industry can harmonize the function rather than applying manpower to entire procedures. The development of smart logistics focuses on the assessment of outcome realise the surveillance of logistics functions. Modern IoT will provide a broad opportunity in supply chain forecasting. The research objectives were framed to evaluate the impact of the independent variables on the smart logistics in and out functions. Secondary data were collected based on findings and online sources. The three independent variables are IoT, sustainability and smart warehousing with predictive system designs are used for inventory control, especially to address the material backorder problem. IoT has been identified as the most dominant tool in future logistics; its common name is intelligent logistics. Smart and structured operations currently exist in smart logistics.

Keywords: IoT, Sustainability, Smart warehousing

1. Introduction

The concept of the Internet of Things (IoT) is widely discussed and interpretated differently across various sources. According to Atzori et al., IoT represents a technology paradigm where various devices are interconnected and capable of being switched on and off from the internet, utilizing software and automation for intelligent applications. Unquestionably, IoT plays a key role in the execution of smart logistics. Over time, this will obviously transform the logistics operations method and the architecture of the logistics system and will eventually result in risk-free and prompt service, including end-to-end visibility, expanded logistics transportation, warehousing, distribution and information services, and it can save time and money (Chin et al., n.d.; Pandian, 2019).

2. Research Problems and Questions.

This research is based on the feedback from clients, logisticians and logistics management teams on the advantages and the crisis. The following research questions were identified

a) How to apply IoT in various supply chain management ecosystem?
b) How IoT can improve sustainability in smart logistics?
c) How to ensure cargo tracking in smart warehousing using IoT

3. Research objectives

To explore the research problems, the following objectives were developed:

a. To discover the efficiency of smart logistics,
b. To Study the effectiveness of IoT at the management level
c. To examine IoT technology for a sustainable supply chain ecosystem

4. Scope of study

The focus of this study is limited to a qualitative analysis of the smart logistics platform's use in the supply chain ecosystem. The conceptual framework was developed by rigorously assessing independent factors, research difficulties, research aims, outcomes, and a more in-depth review of the results. The present research gaps are used to develop independent elements, issue statements, and research objectives for exploring the application of smart logistics systems in the supply chain environment. Propositions are inferred from results in qualitative analysis.

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5. Literature Review

As part of the literature review, the latest research papers, papers, journals, and industry reports on IoT in Logistics management are studied. Growth in every industry relies on effective trade support and well-structured framework. Logistics is an integral aspect of commercial activities, closely linked to technological advancements. Progressive and qualitative correlations will ultimately create new opportunities. Expanding logistics within businesses can contribute to the growth of the national economy. Implementing Smart logistics enhances logistic performance and the integration of IoT can drive management efficiency. The adoption of smart logistics benefits all end users, while technology implementation improves overall sector outcomes. The introduction of smart logistics will benefit all end users. Technology implementation will have a favorable impact on results, benefiting the entire sector outcomes. By leveraging smart technologies, supply chain management becomes more efficient through optimized resource utilization, cost reduction, increased simplicity and flexibility, and enhanced system sustainability. Digitalization plays a key function due to the increase in client demand. (Chin et al., 2020; Bano et al. 2025)

This study is conducted by evaluating independent variables prompting the advantages of

- IoT
- Sustainability
- Smart warehousing

A. IoT

The Internet of Things (IoT) is transforming business by seamlessly connecting equipment, processes, and people in unprecedented ways. It enhances efficiency, boosts productivity, and simplifies everyday operations, making them more convenient. IoT enhances logistics by providing greater supply chain visibility, optimizing routes, and ensuring data integrity in warehouse management. The incorporation of IoT into logistics and supply chain management marks a significant transformation, enhancing efficiency, transparency, and responsiveness in operations.

Advantages of IoT

1. Enhanced operational efficiency
2. Business innovation and new opportunities
3. Improved inventory Management
4. Environmental Benefits
5. Cost efficiency

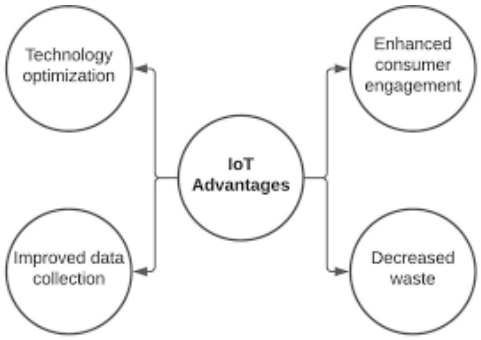

Figure 5.1. Advantages of IoT.

Disadvantages of IoT

1. Unemployment
2. Security and Privacy issues
3. Interoperability and complexity
4. Infrastructure and reliability challenges
5. Ethical and social implications

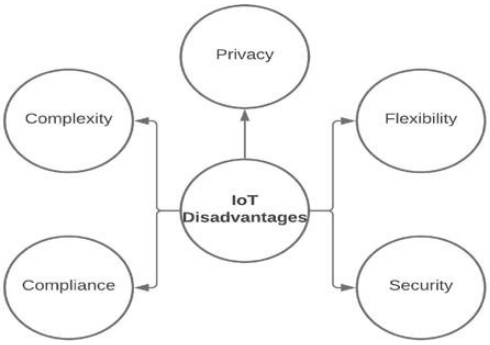

Figure 5.2. Disadvantages of IoT

IoT goes well beyond radio frequency identification (RFID) technology in logistics. RFID can provide updates on deliveries when a product arrives at a destination, but it cannot make frequent statements about the events that happen along the way. However, IoT solutions can play a major role in that. IoT makes the impossible possible, from shipping to delivery (Mythily, 2020; Jam et al. 2025). IoT can create smart warehousing, where inventories can be

monitored by sensors under real-time conditions. The efficiency of smart logistics mainly depends on system security.

Sustainability

Sustainability in logistics offers a transformative opportunity to enhance resource efficiency, which refers to the practice of managing the flow of goods in a way that minimize environmental impact, conserves resources, and promotes social and economic responsibility. By adopting sustainable logistics practices, significant environmental, economic and social benefits can be achieved.

Smart warehousing

As technology and business practices evolve, warehousing becomes increasingly sophisticated and vital. This includes optimizing space, analyzing the warehouse environment, and improving product management processes. The warehouse is effectively managed by an IoT-based system using data analytics and computational methodologies. Enterprise resource planning systems provide effective management solutions for dynamic inventory, efficient storage, and improved product management.

6. Research Methodology

Three independent variables were identified, and research articles from the previous five years were critically analyzed to identify the relevant findings. Research challenges and objectives are formed from research gaps and the scope of future research. The systematic literature evaluation was carried out by logically categorizing the study papers. Gap variables were determined based on the current study limitations and the scope of future studies. To obtain three independent variables, the frequency distribution of the gap variables was used. Based on the analysis of these gaps' variables, a research framework was established to conduct a qualitative study on logistic platform usage in the supply chain environment.

7. Research framework

The indicated conceptual framework was utilized to evaluate the sustainable supply chain system based on the concept of smart logistics through IoT and sustainability.

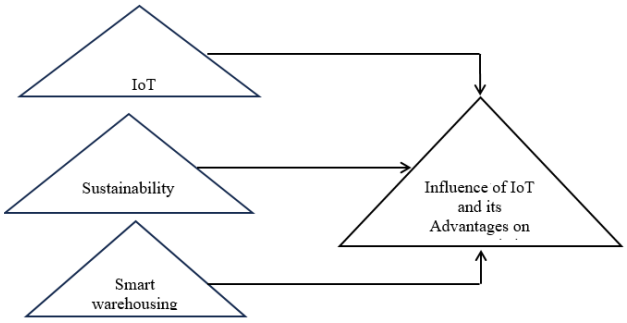

Figure 7.1-Research framework

8.Description analysis outcome and proposition

The introduction of new and efficient technologies helps customers save time and money. Especially when it comes to essential commodities, on-time departure and arrival is mandatory. Previously, customer tracking was based on the expected time of departure and expected time of arrival only. However, with the implementation of smart logistics, cargo tracking is monitored by IoT. Hence, customers are updated without any assistance from the shipping or logistics companies. Smart logistics is an effective way to meet the challenges of fast-changing customer expectations, take advantage of opportunities brought by new technologies and facilitate new business models.

IoT

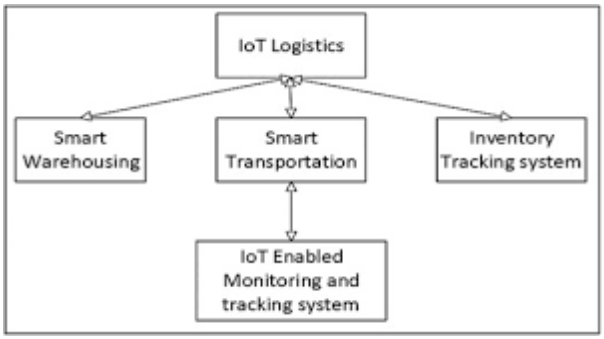

Figure 8.1

Outcome

Internet of Things (IoT) technologies in smart logistics are offering unparalleled opportunities to

boost efficiency and lower expenses in the current logistics sector framework

Proposition

Influence of IoT in smart logistics transforming traditional logistics into a more agile and data driven ecosystem.

Sustainability

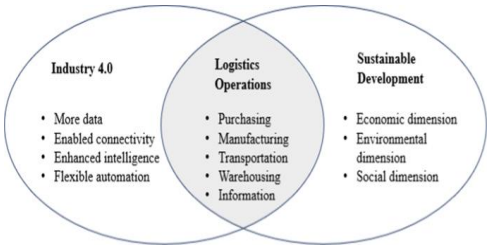

Figure 8.2

Outcome

The sustainability of smart logistics involves optimizing resources use, reducing environmental impact, and ensuring operational efficiency which can contribute long term benefits in logistics industry

Proposition

Sustainable smart logistics enhances transparency across the supply chain. This fosters greater accountability and trust between stakeholders and improves decision – making based on reliable data.

Smart warehousing

Figure 8.3

Outcomes

IoT enabled security measures can significantly reduce the risk of theft and unauthorized access.

Proposition

Smart warehousing is closely linked to the application of IoT in smart logistics, particularly through warehouse management efficiency, tracking, robotics and automation, all of which contribute to improved scalability in smart warehousing.

9. Theoretical and practical implications

This study provides insights for service providers in the logistics sector, addressing challenges such as rising freight costs, customer service quality and the tracking and tracing of goods in transit. Smart logistics brings technological innovations that streamline operations, reduce costs, and create a more responsive and customer focused logistics ecosystem. In essence, smart logistics is reshaping both theoretical concepts in supply chain management and the practical realities of modern logistics, driving efficiency, sustainability, and innovation.

10. Limitations and future research scope

In the context of smart logistics and the influence of IoT, there are few limitations to be addressed that are data security privacy, adoption and resistance. By addressing these limitations future research can help to optimize the application of IoT in smart logistics, making it more efficient, secure and sustainable for future

11. Conclusion

Rather than just simple upgrades, smart logistics should involve a comprehensive system overhaul. This includes implementing efficient and user-friendly solutions for data collection, visualization, warehousing, and time management. This paper has explored how IoT technologies, such as IoT, Sustainability and smart warehouses. IoT fosters enhanced decision -making, operational agility, and sustainability in logistics operations. The findings suggest that IoT not only addresses the challenges of traditional logistics system but also opens new opportunities for innovation, scalability, and competitiveness in the global market. Future research could focus on the full potential of IoT

integration, the barriers to its adoption, and the evolving trends in smart logistics, ensuring that stakeholders can harness the complete benefits of this transformative technology.

References

1. Smart Logistics- A Literature Review Andrea Resch and Thorsten Blacker-(2021)
2. Ravi, N., Seetharaman, A., & Jayaraman, V. (2023). Influence of IoT on Smart Logistics. *Soc. Ser. Soc. Sci., no. November* 2023. DOI-https://doi.org/10.20319/pijss.2023.92.
3. Dr Mythily, Ajin Anto, Arun Kumar, Naveen Kumar R.S & Vignesh E. (2020). An RFID based smart logistics management system for monitoring perishable goods using Internet of Things
4. Logistics, S. (2021). A Literature Review Andrea Resch and Thorsten Blacker.
5. Hamid Bagheri, Abdulsalam Abdullah Shaltoooki. (2018). Big Data challenges, opportunities and cloud-based solutions.
6. Bo Feng, Qiwen Ye (2021). Operations Management of smart logistics- A Literature review and future research
7. Khan, Y., Su'ud, M. B. M., Alam, M. M., Ahmad, S. F., Ahmad, A. Y. B., & Khan, N. (2022). Application of internet of things (IoT) in sustainable supply chain management. *Sustainability*, *15*(1), 694.
8. Chiara Cimini, Alexandra Lagorio, David Romero, Sergio Cavlieri & John Stahre (2020.12.2818)
9. Himanshu K. Shee, Shah.J.Miah (10-12-2019) The impact of smart logistics on smart logistics performance
10. Wai Peng Wong & Chor Foon TangGurusamy,(2018) International Journal of Logistics Research and Applications, 21:4, 431-443, DOI: 0.1080/13675567.2018.1438377
11. Ruzieh, A. S. (2025). Advancing Middle East Construction Sustainability: A Framework for Addressing Logistics Challenges Through Solutions and Critical Success Factors. *Sustainability*, *17*(2), 533.
12. 1Yangke Ding, Mingzhou Jin, Sen Li & Dingzhong FengTo cite this article: Yangke Ding, Mingzhou Jin, Sen Li & Dingzhong Feng 2021) Smart logisticsbased on the internet of things technology: anoverview, International Journal of Logistics Research and Applications, 24:4, 323-345, DOI: 10.1080/13675567.2020.1757053
13. The effect of internet of things on supply chain integration and performance: An organizational capability perspective Tharaka De Vass Himanshu Shee &Sha Miah (2018)
14. Smart Logistics as a basis for the development of the smart city- Sabina Kauf-(2019)
15. The major determinants of Logistic performance in a global perspective: evidence from panel data analysis, Wai Peng Womg & Chor Foon Tang (2018)
16. Automation and artificial intelligence in business logistics systems: human reactions and collaboration requirements. Matthias Klumpp(2017)
17. 1Application research of smart logistics based on blockchain technology Haidi Tang (2020)
18. Paužuolienė, J., Kaveckė, I., & Pyra, M. (2024). Smart Technologies Integration and Challenges in the Context of Logistics Companies. *European Research Studies Journal*, *27*(4), 2081-2100.
19. Artificial Intelligence Application in the new model of logistics development based on wireless Communication Technology Shuaiqi Wang (2021)
20. The Application of Artificial Intelligence in Logistics and supply chain Zhandark Khalife Soltani (2021)
21. Artificial Intelligence Application in Smart Warehousing Environment for Automated Logistics Dr.A.Paumpan Pandian (2019)
22. Smart Logistics in Evolution of the Logistics-Izabela Dembinsca-(2018)
23. Jam, F. A., Ali, I., Albishri, N., Mammadov, A., & Mohapatra, A. K. (2025). How does the adoption of digital technologies in supply chain management enhance supply chain performance? A mediated and moderated model. Technological Forecasting and Social Change, 219, 124225.
24. Bano, A., Hafiz, E. B., & Hamzah, S. H. (2025). Unlocking Activity in Inactive Children: A Gender-Based Comparison of Three Physical Training Interventions. Journal of Management Practices, Humanities and Social Sciences, 9(3), 158-174.