Chapter 6

Logistics With the Internet of Things:
Challenges, Perspectives, and Applications

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ABSTRACT

The objective of logistics is to meet client demands in a timely and economical manner. The internet of things (IoT) vision allows numerous embedded, resource-constrained devices, things, and people to connect via the Internet protocol for constant data exchange. In this vision, logistics is a crucial player positioned to achieve complete visibility and transparency by utilizing pervasive interconnectivity to gather reliable and secure real-time data. It is essential for all retailers and logistics companies who want to preserve their leading positions to stay on top of logistical challenges and trends. A global supply chain disruption resulted from COVID-19's imbalance in the supply and demand for goods. 2020 saw a decrease in global productivity because of the pandemic and the lockdown. Due to this, the idea of digital transformation has gained traction during the past two years.

1. INTRODUCTION

We also discuss what IoT security is and why it matters. We also discuss how to secure networks, devices, and data in IoT environments. Development teams wish to ensure that their IoT projects are properly secured (J. Li, 2017, M. Liu, C. Qiu 2019). Read more about logistics challenges, IoT solutions, and IoT adoption outcomes. IoT adoption is high in industries with many assets, such as manufacturing, transportation, and utilities (L. Barreto, A. Trappey, S. Jeschke, 2017). Together with warehousing, these two industries were the front-runners in embedding connected systems even before the term "Internet of Things" was coined. These industries were thriving because of their (T. Qu, 2016, Y. Zhang, 2018) early adoption, which freed up other industrial segments to restructure their supply chain management. (T. Gregor, T. Gregor, Angelopoulos, 2017). The fact that IoT technology is complex and time-consuming contributes to the paucity of studies on the relationship between IoT and warehousing. Given that it forms the foundation for the strategy, how it will be implemented, and organisational traditions, this price must be far higher than the cost (Ramli, R. M., 2017, Meiyanti, R., Alguliyev, R., 2018). The value that a chain creates is necessary for every firm to exist. Understanding and meeting the value-based approach, or the demands of the customers, is at the heart of the company's strategy.

Customer attitudes have drastically changed from the last time as IoT utilisation has increased. Still, the topic hasn't been given a thorough investigation. The empirical studies from the papers chosen for this review discuss decision analysis. The deployment of IoT-related technology must be overseen by the logistics and warehousing sector. It is necessary to determine which technological systems are used the most frequently so their utility can be more thoroughly examined (Dhonju, G. R., Yang, L., Abebe, B. 2019). It's also critical to consider the implementation needs closely related to the ambition to seize fresh opportunities for expansion in logistics and industry. Some metrics that can be used for evaluation include stockout rate, orders despatched on time, shipment accuracy, and throughput. The majority of IoT technology studies also integrate data from several industries, leading to more conclusive findings that apply to a specific area (Alharmoodi, B. Y. R, Gouveia, L. B., 2020, Sharma, 2021). On the other hand, using data from multiple situations increases the possibility of confounding effects, which might result in incorrect results. Therefore, future studies utilising varied company data will be required to address this problem. They thus quickly recognised the advantages of new sensor types, communication technology, and service-oriented architecture. E-commerce has rapidly expanded in the global market in recent years, and logistics has had to contend with rising demand and a labour shortage and cheap wages. (Liu, D., Agbozo, E., Albrahim, R., 2018), Finding creative ways to optimize important

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