Chapter 17
Role of Supply Chain Automation Models in Smart Cities

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ABSTRACT

Supply and demand management is integrated into supply chain management and throughout the many members and channels of the supply chain. There is an increasing demand for highly efficient supply chains and logistics systems, especially pertaining to the needs of the smart cities of today. Moreover, supply chain systems are far more complex for these modern smart cities as there is a huge supply and demand for appropriate and optimized logistics and many parameters and factors that these data-driven cities can provide for model training. Supply chain management systems can be enhanced to a greater extent by utilizing modern-day smart city parameters. The proposed work highlights the role of AI in supply chain management and the importance of data-driven solutions for smart cities. A deep learning mechanism has been introduced to make predictions related to supply chain management considering the conventional datasets with smart parameters. The model has then been used to predict various output features as a part of the entire decision system.

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1.1 INTRODUCTION

Artificial intelligence is an automation system that displays behavior that is generally perceived as requiring intelligence. Artificial intelligence is the science of employing machines to do tasks that would demand intelligence if carried out by man. Supply chain Management is not only about integrating supply and demand management inside a company when it comes to supply chain management but also across all supply chain participants and channels. In developing and developed economies, there is a rising demand for a more robust supply chain system. Smart cities, especially the metropolitan ones are hubs for tech giants as well as new businesses, and the institutions, warehousing, inventory, and logistics that are concomitant to it. An adaptable and intelligent system backed by machine learning proves to be highly lucrative for this purpose. Smart cities introduce a plethora of additional features that a traditional system would not be able to deduct optimal solutions from, some of them being efficient roadmap layouts, the fic density, population density, resource availability, and plenty more. This proves to be especially advantageous for training our model and hence making valid conclusions on various processes involved in the workflow. Succeeding in this cause will have multifarious positive impacts including optimizing logistics, reducing costs, optimizing routing and inventories, and increasing time efficiency. It also gives valuable insights into space management, fleet management, and similar benefits that follow for the overall improvement of modern cities (Azizi, 2017).

1.1.1 Artificial Intelligence

Automated decision-making and action-taking systems are the focus of this part of computer science, which is a subfield of computer science (MI). We must keep in mind that artificial intelligence is not a single technological development. Machine learning, computer vision, natural language understanding (NLU), and processing are all included under this umbrella term (NLP). Traditional software and CMOS hardware are employed in today's artificial intelligence, and the same fundamental computing processes are applied in both (AI). AI-inspired circuits and architectures that can generate data-driven decisions faster and more accurately than humans might be on the horizon (Chang and Chang, 2017). Big data is crucial to the success of artificial intelligence in its application in tech-driven cities with complex economic systems and cash flow.

1.1.2 The Purpose of Artificial Intelligence

Its goal is to augment human talents & aid in the formulation of complex judgments with wide-ranging implications. From a purely technical perspective, that's the solution. Using AI, people might have more fulfilling lives without having to put in as much time or effort as they now do, and the complex network of people, corporations, governments, and countries could be managed in a manner that benefits all of humanity (Chen et al., 2018).

All of the myriad tools and methods created over the last thousand years now serve the same purpose as artificial intelligence: to decrease human effort and help make better judgments.