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A Study on Impact of Implementation of Advanced Technology at Logistics in Sarvam Logistics India Pvt Ltd, Coimbatore

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ABSTRACT

The logistics sector has rapidly evolved with the adoption of advanced technologies such as IoT, big data analytics, and AI, transforming operational processes. This study analyzes the impact of technology implementation at Sarvam Logistics India Pvt Ltd, Coimbatore, using a sample of 120 respondents selected through convenience sampling. A descriptive research design and structured questionnaire were employed, with data analyzed using percentage, chi-square, and correlation methods. The findings show no significant link between employee roles and the level of IoT integration. The study recommends prioritizing AI adoption to reduce transport costs and improve efficiency. It concludes that ongoing investment in technology, along with addressing data integration and employee training, is crucial for enhancing competitiveness and operational performance in the logistics industry.

Keywords: IoT devices, operational efficiency, advanced technology, and implementation.

INTRODUCTION

The effectiveness of the supply chain depends on logistics management, which includes customer service, inventory control, warehousing, and transportation. Logistics operations are now more intelligent, quicker, and more economical thanks to the development of digital technologies. To improve performance and service delivery, businesses such as Sarvam Logistics are implementing cutting-edge techniques. The impact of such technology on logistical operations is examined in this study. It investigates how big data analytics, artificial intelligence, and the Internet of Things might improve real-time decision-making, streamline procedures, and lower operating expenses. The goal of the study is to shed light on how technological advancements can boost customer satisfaction, increase efficiency, and make logistics companies more competitive overall in a market that is changing quickly.

REVIEW OF LITERATURE

Angeleanu (2015), This study examines how new social and technological developments affect supply chains and logistics, emphasizing how they might improve workflows, output, and cost effectiveness. Through an analysis of recent research from academic, industrial, and international sources, it investigates technologies such Cloud Logistics, Super Grid Logistics, Anticipatory Logistics, Omni-Channel Logistics, and Additive Manufacturing (3D Printing). The purpose of the study is to determine whether adopting technological innovations can give multinational corporations and logistics service providers a competitive advantage. For every trend, important instances are given, conclusions are made, and areas for additional study are noted.

Muhammad Waqas (2018), Policies promoting globalization are pushing producers to create environmentally friendly goods in order to maintain a competitive edge, underscoring the need of reverse logistics and supply chains with zero waste. This study uses structural equation modeling and the Delphi Method to identify obstacles to reverse logistics implementation. 547 valid responses were obtained from a survey that was administered to government officials and supply chain experts. AMOS 21 and SPSS were used to examine the data. According to the study's severity ranking, the top five obstacles were: insufficient beginning funding, a lack of qualified reverse logistics specialists, stringent corporate regulations, poor technology and information systems, and little community pressure.

Joanna Dyczkowska (2018),This study looks at how new technologies are used in logistics in Poland and Ukraine, with a particular emphasis on the services provided by top national mail and logistics companies in the e-commerce industry. The study describes the past and present evolution of e-commerce in both nations using literature and comparative analysis. Smart supply networks have emerged as a result of trends in ecology, IT, and supply chain transformation fueled by sustainable market growth. However, there are significant variances in how the same logistics provider uses technology in the two nations, and the discrepancies between national mail systems are even more pronounced.

OBJECTIVE OF THE STUDY

Primary objective

To investigate how the use of cutting-edge technology has affected logistics at Sarvam Logistics India Pvt Ltd, Coimbatore.

Secondary objectives

- To analyze how IoT devices are integrated into logistics operations.
- To look at how big data analytics are used in logistics operations.
- To review how AI technologies are being used in logistics operations.
- To assess how the company's logistical operations are affected by the use of sophisticated technologies in terms of operational efficiency.
- To find out what the respondents think about using cutting-edge technology to improve the company's logistics operations.

STATEMENT OF THE PROBLEM

The absence of sophisticated technological integration causes inefficiencies in traditional logistics operations, which result in mistakes, hold-ups, and increased expenses in order processing, inventory control, and transportation routing. Although there are many potential advantages to technologies like IoT, big data, and AI, their underuse or incorrect application frequently leads to less than ideal results. The successful implementation of these technologies is hampered by obstacles like inadequate data integration, cybersecurity worries, and change aversion. This study explores how the logistics industry might improve operational efficiency through the strategic application of cutting-edge technologies. The study intends to give logistics stakeholders useful information by identifying the main obstacles to technology adoption and evaluating the efficacy of different technological solutions. Enhancing decision-making, streamlining operations, and eventually raising the logistics industry's overall performance are the objectives.

RESEARCH METHODOLOGY

In order to give a comprehensive understanding of how advanced technologies impact logistics operations, a descriptive research approach was chosen for this study. Sarvam Logistics India Pvt. Ltd., situated in Coimbatore, a city renowned for its industrial and logistics activity, was the site of the study. Using a convenience selection strategy, 120 employees in total were chosen as respondents, enabling the researcher to collect pertinent data effectively in the time allotted. A structured questionnaire intended to gather information on the application and impacts of technologies including artificial intelligence (AI), big data analytics, and the Internet of Things was used to gather primary data. During data collection, statistical tools such as correlation methods to determine the direction and intensity of connections between variables, chi-square tests to investigate relationships between categorical variables, and simple percentage analysis to find broad patterns were used to evaluate the data. This method made it possible to conduct a thorough assessment of how technology might improve performance and operational efficiency in the logistics industry.

DATA ANALYSIS & FINDINGS

SIMPLE PRECENTAGE ANALYSIS

GENDER OF THE RESPONDENTS

Gender	No. of the respondents	Percent
Male	72	60.0
Female	48	40.0
Total	120	100.0

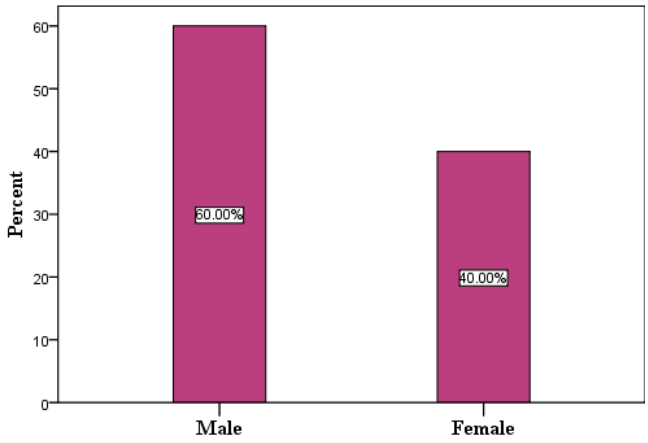
Source: Primary data

INTERPRETATION

The above table shows that 60.0% of the respondents are male and 40.0% of the respondents are female.

Thus the majority of the respondents are male.

GENDER OF THE RESPONDENTS



CHI SQUARE ANALYSIS

RELATION BETWEEN THE ROLE WITHIN THE LOGISTICS ORGANIZATION AND CURRENT LEVEL OF IOT DEVICE INTEGRATION IN LOGISTICS OPERATIONS

Null hypothesis (Ho):

There is no significance difference between the role within the logistics organization and current level of IOT device integration in logistics operations.

Alternative hypothesis (H1):

There is some significance difference between the role within the logistics organization and current level of IOT device integration in logistics operations.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
ROLE WITHIN THE LOGISTICS ORGANIZATION * CURRENT LEVEL OF IOT DEVICE INTEGRATION IN LOGISTICS OPERATIONS	120	100.0%	0	.0%	120	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.491[a]	9	.078
Likelihood Ratio	20.965	9	.013
Linear-by-Linear Association	.029	1	.864
N of Valid Cases	120		

a. 5 cells (31.3%) have expected count less than 5. The minimum expected count is 2.55.

INTERPRETATION

As per the above table, it is inferred that the P value is 0.078; it is not significant to 5% (0.05) significant level. The minimum expected count is 2.55. Thus null hypothesis is accepted and it is found that there is no significant relationship between the role within the logistics organization and current level of IOT device integration in logistics operations.

CORRELATION ANALYSIS

RELATIONSHIP BETWEEN THE GENDER OF THE RESPONDENTS AND IMPLEMENTING OF AI TECHNOLOGIES

Correlations

		GENDER OF THE RESPONDENTS	IMPLEMENTING OF AI TECHNOLOGIES
GENDER OF THE RESPONDENTS	Pearson Correlation	1	-.181*
	Sig. (2-tailed)		.048
	N	120	120
IMPLEMENTING OF AI TECHNOLOGIES	Pearson Correlation	-.181*	1
	Sig. (2-tailed)	.048	
	N	120	120

Correlation is significant at the 0.05 level (2-tailed).

INTERPRETATION

The Above table indicates that out of 120 respondents, co-efficient of correlation between the gender of the respondents and implementing of AI technologies is -0.181. It is below 1. So there is negative relationship between the gender of the respondents and implementing of AI technologies.

FINDINGS

SIMPLE PERCENTAGE ANALYSIS 60.0% of the respondents are male

CHI SQUARE ANALYSIS There is no significant relationship between the role within the logistics organization and current level of IOT device integration in logistics operations.

CORRELATION ANALYSIS There is negative relationship between the gender of the respondents and implementing of AI technologies

SUGGESTION

- The organization ought to evaluate the present state of IoT device integration and pinpoint opportunities for enhancement.
- To cover all facets of logistical operations, the organization must broaden its use of IoT devices.
- It need specialized personnel for troubleshooting and continuous support to overcome obstacles in IoT device integration.

CONCLUSION

The logistics sector in Coimbatore District has benefited from sophisticated technologies, particularly IoT, big data analytics, and artificial intelligence, according to this report. Because of its integration, demand forecasting has improved, transportation costs have decreased, delivery reliability has increased, and overall efficiency has increased. AI-powered systems have also enhanced decision-making and decreased downtime. More investment in these technologies is necessary to stay competitive. To maximize their advantages, issues like data integration and staff training must be resolved. All things considered, the study emphasizes how important technology will be in determining the direction of logistics in the future and offers insightful advice to industry participants.

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