

EFFECTS OF GREEN LOGISTICS PRACTICES ON WAREHOUSE MANAGEMENT

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ABSTRACT

Growing demands and obstacles to enhance economic and environmental performance have prompted developing nations generally, and automakers specifically, to think about and begin executing green supply chain management. It is becoming recognized as a significant strategy that benefits manufacturers monetarily while simultaneously reducing environmental problems. Studies on performance reviews are scarce, nevertheless. Using fuzzy set theory and decision-making, this study investigates the factors that affect the performance of the auto manufacturing sector. Using a hybrid approach, the manufacturers' green performance is improved by evaluating its performance and identifying critical criteria. Results indicate that the most important and influential factor is the rise in the cost of buying environmentally friendly materials, while the most important and influential factor is the implementation of pollution control programs. Concluding remarks are provided and managerial ramifications are deliberated.

Keywords: lowers environmental problems, green supply chain management, economic and environmental performance, automotive manufacturing sector

1. INTRODUCTION

This study focuses on how supply chain sustainability and economic performance are affected by green warehousing, logistics optimization, and social values and ethics. The study also looks at how supply chain sustainability influences the relationship between social values and ethics, green warehousing, and economic performance.

The study uses a quantitative research methodology, gathering survey data from 200 managers in Ghanaian manufacturing organizations. Smart PLS, a program for partial least square structural equation modelling, is used to analyse the dataset.

About Green Warehousing

As the Information Age progresses and climate change continues to affect the planet, knowledgeable customers want firms to take environmental and social responsibility seriously, including green warehousing. Increased consumer loyalty can result from businesses that practice sustainability and care for the environment and people.

Adding green logistics to the supply chain and employing warehousing as a component can also increase efficiency and boost a company's profitability.

Challenges Facing Green Logistics Recent Days

It's challenging to integrate green activities throughout the supply chain. However, businesses can face a variety of obstacles with the appropriate resources and managerial techniques:

The size of the worldwide supply chain: A vast range of shipment kinds, routes, sizes, configurations, and other factors are covered by supply chain logistics. Reducing the network's overall environmental impact can be difficult.

Less eco-friendly warehousing options: There are less environmentally friendly options for warehousing than there are for other aspects of the supply chain, such transportation. However, a rising number of remedies are becoming available and many of them prove to be beneficial.

The upfront expenses associated with green warehousing solutions: These expenses may deter some businesses from making the switch. On the other hand, the initial outlay for green logistics frequently pays dividends over time.

2. STATEMENT OF THE PROBLEM

As of now, India is the principal Automobile delivering country in the world. It provides many individuals all across the world with business options. Automobile companies are sourcing and utilizing a lot of trend-setting advances in response to their requirement to keep an eye on things and fight back against the other players.

The delegate's working approach has changed in the new year as the automobile territory modernizes with the selection of new advancements. In the current highly automated environment, neither the automotive industry nor the general public place much emphasis on the readiness and advancement requirements of the specialist. Since auto manufacturers believe that if more time is spent setting up, the company's proficiency will undoubtedly decline.

3. OBJECTIVES OF THE STUDY

- To determine the key performance indicators (KPIs) that warehouse managers can use to gauge how well green logistics is working.
- To calculate the possible advantages of implementing green logistics in storage operations.
- To contrast green logistics with conventional warehouse management techniques in terms of their effects on the environment.

SCOPE AND SIGNIFICANCE OF THE STUDY

- This study focuses on the Rydon business's warehouse management examination.
- It aims to determine the level of satisfaction that the organization's specialists see with regard to warehouse management.
- The findings and investigation will be helpful in advancing worker preparation provided by the automobile.
- The investigations reduce representative turnover and increase the overall sense of fulfilment inside the firm.

LIMITATIONS OF THE STUDY

- The workers were preoccupied with their job plan, making it difficult to obtain data from them.
- The respondents did not provide sufficient information to take into account.
- The examination season lasted for a very short time.
- In this case, the investigation's test size was 123 respondents.

4. REVIEW OF LITERATURE

Budiman (2017) has taken into account the global trend regarding the price of a typical car. It has been noted that the primary problem facing the global auto industry and trade is the price of a typical car, since these vehicles now play a larger social role in the lives of over 30 million smallholders globally. The Plantation has completed a thorough study on the development of the car sector in India, capital construction, vehicle advertising, and area with limited possessions.

UshaDevi (2018) has dissected the official and institutional plans for enhancing the acceptance of innovation in Kerala's automotive sector, as well as the effects of specialized selection on yield and cost and the advancement of conventional car showcasing, as well as recommendations for specialized appropriations. According to the inquiry, the automotive industry's adoption and diffusion of modern innovation has played a significant role in boosting Kerala's economy, especially when it comes to addressing the concerns of small manufacturers.

Baby's (2019) analysis of the commercialization of agriculture through automobile plantations, approximately 60,000 hectares of land are currently under automobile development. Over the next five years, this area will increase to 70% of India's total automobile production, or ribbed-smoke sheets (RSS).

RESEARCH METHODOLOGY

The precise steps or methods used to find, pick, process, and evaluate data on a subject are known as research methodology. The methodology part of a research article gives the reader the opportunity to assess the general validity and reliability of the study.

a. Study area: The study area is Hosur.

b. The study's design: The framework of a researcher's chosen study methods and techniques is known as research design. In this work, descriptive research is used. The goal of descriptive research is to precisely and methodically characterize a population, circumstance, or phenomena. It can respond to inquiries about what, where, when, and how, but not why.

c. Source of the data

Any place we can locate statistics, figures, or other pertinent information to back up the research is a data source. There are two sources of data that can be obtained: internal and external. "Primary data" refers to information obtained from internal sources, whereas "secondary data" refers to information obtained from external sources.

Primary Data Source:

These are new data that have just been gathered. The interview schedule questionnaire was the main method of data collecting employed in this study.

Secondary Data Source:

Information gathered specifically for the study but already existing elsewhere is referred to as secondary data. The

primary sources of secondary data for the project are the organization's yearly reports, the internet, journals, and magazines.

d. Method of research:

An overall strategy and procedure for conducting the study might be thought of as a research approach. A deductive methodology is used in this investigation.

e. Tool for research

One tool for gathering, calculating, and analysing data about research interests is a research instrument.

f. The technique of sampling

The name of the particular procedure used to choose the sample's entities, or some other means of identification, is a sampling technique. Random sampling is the sampling procedure used in the survey. Random sampling is used for the selection of a homogeneous sample for the study. The use of simple random sampling removes all hints of bias or at least it should.

g. Unit of example company personnel serve as the sampling unit.

h. The amount of the sample

The survey just included the opinions of the company's workers. A total of 123 respondents' samples were collected for the study.

i. Methods and tools for analysis

The following statistical techniques are frequently employed for data analysis:

1. Percentage analysis
2. Analysis of Chi Square test
3. Analysis of correlation
4. Anova

5. DATA ANALYSIS AND INTERPRETATION

Correlation

The relationship between two or more variables is the focus of correlation analysis. It provides no information regarding a cause-and-effect relationship. Correlation can be categorized or described in various ways. Pearson's coefficient of correlation is the common term used to describe Karl Pearson's approach. The letter "r" stands for it.

Karl Pearson's coefficient formula is $r = \frac{\sum XY}{\sqrt{(\sum X^2)(\sum Y^2)}}$.

The coefficient of correlation, as determined by the formula above, will always have a value between +1 and -1. A complete positive correlation exists between the variables when $r = 1$. There is perfect negative correlation between the variables when $r = -1$. There is no link between the variables when $r = 0$.

Relationship between experience in years of the respondents and ecological impact of logistics activities.

Hypothesis testing

Null hypothesis (Ho):

There is no significant relationship between experience in years of the respondents and ecological impact of logistics activities.

Alternative hypothesis (H1):

There is some significant relationship between experience in years of the respondents and ecological impact of logistics activities.

Correlations			
Experience in years	Pearson Correlation	1	.943**
	Sig. (2-tailed)		.000
	N	123	123
Ecological impact of logistics activities	Pearson Correlation	.943**	1
	Sig. (2-tailed)	.000	
	N	123	123

** . Correlation is significant at the 0.01 level (2-tailed).

Interpretation:

According to the above data, there is a 0.943 coefficient of association between the year of experience and the opinion of the quality of the service. It is less than one. Thus, there is a favourable correlation between the year of experience and the perception of service quality.

CHI-SQUARE ANALYSIS

In statistics, chi-square analysis is used to evaluate the goodness of fit between the observed data distribution and the theoretical distribution that is assumed. As such, it is a metric for analysing the difference between actual and predicted frequencies. Regarding the population being sampled, no assumptions are made by it. The amount known as χ^2 (chi-square) is used to express how much theory and observation differ. The observed and anticipated frequencies entirely coincide if χ^2 is zero. The difference between observed and predicted frequencies would be larger the higher the value of χ^2 . The following formula can be used to calculate Chi-Square (χ^2).

where E_i is the expected frequency and O_i is the observed frequency.

The computed χ^2 value is contrasted with the χ^2 table for the provided degrees of freedom at the designated significance level. It is deemed significant when the discrepancy between theory and observation is more than the table value, as indicated by the calculated value of χ^2 . Conversely, if the computed χ^2 value is smaller than the table value, then the discrepancy between observation and theory is not deemed statistically significant. The number of observed frequencies, "n," represents the degrees of freedom, which are $(n - 1)$.

Relationship between Educational Qualification and Impact of logistics network and deliver

Hypothesis testing

Null hypothesis (H_0):

There is no significant relationship between educational qualification and impact of logistics network and deliver

Alternative hypothesis (H_1):

There is some significant relationship between educational qualification and impact of logistics network and deliver

Educational Qualification * Impact of logistics network and deliver Crosstabulation							
Educational Qualification	Diploma	28	0	0	0	0	28
	Graduate	25	22	0	0	0	47
	Technical skills only	0	7	19	4	0	30
	Others	0	0	0	8	7	15
Total		53	29	19	12	7	123
Chi-Square Tests							
		Value	df	Asymp. Sig. (2-sided)			
Pearson Chi-Square		2.029E2 ^a	12	.000			
Likelihood Ratio		194.533	12	.000			
Linear-by-Linear Association		94.932	1	.000			
N of Valid Cases		123					
a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .88.							

Interpretation

The aforementioned table suggests that the P value is 0.001 and the Pearson Chi-Square value is 2.029, indicating that the data is not significant at the 5% (0.05) significance level. 0.9.3 is the bare minimum predicted count. Consequently, the null hypothesis is accepted, and it is discovered that there is no meaningful correlation between educational background and the influence of logistical networks and delivery

ONE WAY ANOVA

The process of separating variation attributable to one set of causes from variation attributable to another set of causes is known as the analysis of variance. The two halves of the overall variation are as follows:

(a) Variability within sample subgroups

(b) Disparities between the sample subgroups

ANOVA is the term used to describe the analysis of variance method. An ANOVA table is a table that includes the F-ratio formula, degrees of freedom, mean square (variance), and the source of variation.

1.Variance between samples equals the F-statistic.

2.Variation among the samples

Hypothesis testing

Null Hypothesis (Ho):

There is no significant relationship between experiences of the respondents and utilizing in navigating sustainable logistics.

Alternative Hypothesis (H1):

There is a significant relationship between experiences of the respondents and utilizing in navigating sustainable logistics.

ANOVA								
			Occupations	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		123.713	4	30.928	250.261	.000	
	Linear Term	Unweighted	88.066	1	88.066	712.605	.000	
		Weighted	118.231	1	118.231	956.688	.000	
		Deviation	5.482	3	1.827	14.786	.000	
Within Groups			14.212	115	.124			
Total			137.925	119				

Interpretation

The age of the respondents is clearly displayed in the table, and their thoughts regarding the logistics of the company's relationship with their superiors are shown to have a figure of 712.605, with a significance level around.366. In contrast, the values of the sum of squares within each group between groups are 123.713 and 14.212, respectively. Accepting the alternative hypothesis, the significant value is less than 0.05 and the significant percentage is above 95%. Consequently, the null hypothesis—that is, the idea that there is no meaningful correlation between respondent experiences and using sustainable logistics is rejected.

6. RESULT

From the above analysis, we find that calculated value of the F-value is a positive 345.211 value, so H1 accept. Since the P value 0.000 is less than < 0.05 regarding there is a significant relationship between experiences of the respondents and utilizing in navigating sustainable logistics. The results are significant at 4 % level.

7. FINDINGS

- Regarding the gender of the respondents, men make up 72.5% of the sample.
- Regarding the age range of the respondents, 40.0% fall between 25 and 35 years old.
- Regarding the respondents' marital status, 68.3% of them are married.
- Regarding the respondents' educational qualifications, 39.2% of them are qualified as undergrads.
- Regarding the respondents' monthly income, 38.3% of them make less than Rs. 15,000.
- A sustainable warehouse with lower energy costs is selected by 43.3% of respondents because it offers several advantages.

8. SUGGESTIONS

The managers of automakers and other associated businesses can use this report to prioritize implementing green supply chain management. This can help reduce toxic chemicals and effluent waste, which can help accomplish sustainable goals and improve environmental efficiency throughout the supply chain. Improved transactional procedures, improved supply chains, product and service design with particular considerations, improved waste-free

circuits, improved recycling, raw material reclamation, and easier access to repurposed items are more examples of what this can include.

9. CONCLUSION

The purpose of the study is to comprehend logistics—its necessity in the present situation and its effects on the environment. The study also examined the green logistics preferences of the automotive industry and the steps the government has taken to reduce pollution and its effects on the environment. In order to determine the areas of green logistics, the literature evaluation is conducted through previously conducted research and relevant periodicals. In order to determine the innovative approach used, its concrete and intangible benefits, their degree of motivation, and the challenges encountered in implementing green logistics practices, a case study is also conducted in one of the top automotive sectors. Several businesses in the automotive sector may use comparable procedures.

Additional research can be conducted to comprehend the connection between supply chain and green logistics as well as overall performance of the organization.

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