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Impact of Effective Warehouse Management on Physical Distribution in Continental Warehousing Corporation Private Limited, Chennai

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ABSTRACT
A warehouse's daily activities are managed according to a set of concepts and procedures known as warehouse management. For the most part, this entails receiving and setting up warehouse space, planning labour, managing inventory, and completing orders. The study's goal is to examine how well Continental Warehousing Corporation Private Limited, in Chennai, manages its physical distribution through warehouse operations. The study only considered what consumers thought and expected. There were 217 respondents in the entire sample used for the study. The study employed convenience sampling methods. The study has made use of both primary and secondary data. In this study, correlation analysis, chi square analysis, and simple percentage analysis were all used to arrive at the study's conclusions.

KEYWORDS: Warehouse management, operations of warehouse

I. INTRODUCTION

The market for warehousing is anticipated to be worth USD 329.79 billion in 2025 and to grow at a CAGR of 11.25% to reach USD 562 billion by 2030. The core of the global logistics industry, warehousing makes a significant contribution to the management and storage of goods. Our examination of the warehouse market shows that the resurgence and growth of e-Commerce have changed the market's dynamics, leading to an increase in demand for expedited responses and the ability to organise cargo inventory loads. The worldwide market will be ready for intelligent digital evolution, including the automation of a wide range of functions, as the e-Commerce industry grows. The characteristics and operating approaches of potential warehouses will alter as a result of the logistics industry's increased propensity for digital transformation. The market is supposed to be stimulated by the rising demand for an omnichannel retailing paradigm. As a result, the size of the worldwide warehousing market will grow throughout the course of the forecast period.

Warehouse

A warehouse is a business structure that is typically used for the storage of commodities, and warehousing is the process of processing and storing cargo and items properly inside a warehouse using scientific procedures so that they are quickly and conveniently accessible when needed. In the modern day, storage is regarded as one of the most crucial elements of trade.

OBJECTIVES OF THE STUDY

Primary objective

To conduct research at Chennai's Continental Warehousing Corporation Private Limited on the effects of efficient warehouse management on physical distribution.

Secondary objective

- To research the efficiency of stock control for efficient physical distribution
- Understanding the efficient use of information technology
- Identifying the organization's physical distribution plans, and understanding network techniques for efficient physical distribution

STATEMENT OF THE PROBLEM

Companies in manufacturing industries manufacture or transform raw resources into finished goods. To meet the demands of production, raw materials purchased from suppliers will be stockpiled. Acquisition of a warehouse management

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system (WMS) is being driven by the rising pressure on distribution centres to deliver speedier turnarounds from receiving to shipping while ensuring accurate inventory accuracy. It appears likely that warehouses will outgrow ineffective operational procedures and migrate to a system that can allow rapid development given the rapid rise of WMS technology. With the development of information technology, processing existing data has gotten more simpler, especially for manufacturing warehouses and warehousing management**.** A warehouse management system, also known as a WMS, is primarily designed to manage the flow and storage of commodities inside a warehouse as well as the processing of related activities including shipping, receiving, put-away, and picking**.**

SCOPE OF THE STUDY

The goal of this study is to examine Continental Warehousing Corporation Private Limited, Chennai, in particular to investigate the logistics company's entire warehouse management system, including all of its activities and functions. The research covers every aspect of warehouse administration, including the storage of goods, inventory management, distribution of finished items, receipt and issuance, transportation of finished goods, and other associated operations. The significance of warehouse management and its contribution to the organisation are among the areas of emphasis. 217 people made up the study's sample. The study is useful in understanding how employees feel about the warehousing system.

II. RESEARCH METHODOLOGY

According to Creswell, "Research is a process of steps used to collect and analyse information to increase our understanding of a topic or issue".

The exact steps or methods used to locate, pick, analyse, and evaluate data pertaining to a topic are known as research methodology. The methodology section of a research paper gives the reader the chance to assess the general validity and dependability of a study.

In this section of the publication, the researchers' methodological decisions about the research design, data sources and sampling methods, data collection tools, and data analysis methods are presented.

Research Design

The plan or the road map for data collecting, measurement, and analysis is the research design. Research design, according to Kothari (2004), is a strategy of investigation that is planned out to answer certain research questions. Descriptive research design is employed in this study.

Data Source

To conduct this research paper, the researchers used both primary and secondary source of data.

Primary Sources

The main source of data is first-hand data that researchers have gathered. This includes questionnaires and interviews. Researchers can develop a clearer and more in-depth understanding of the current problem with the aid of primary data.

Secondary Sources

It has already been gathered and statistically processed by another party. This offers useful background data regarding the subject of the study. Books, journals, office manuals, and other sources of information fall under this category.

Population

Here population is entire employees of Continental Warehousing Corporation Private Limited, Chennai. The population of the study is 500.

Sample size

In this study, data was collected from 217 employees of Continental Warehousing Corporation Private Limited, Chennai.

Sample design

In this study, convenience sampling is employed. Simply said, a convenience sample consists of those who are easiest to reach by the researcher. Although it is quick and affordable, this method cannot yield generalizable conclusions because it is impossible to determine whether the sample is typical of the population**.**

Sample unit

A Sampling unit is one of the units selected for the purpose of sampling. Chennai is the sampling unit of this study.

Sampling tools

Convenience sampling is used as a sampling tool.

COMPANY PROFILE

Continental Warehousing Corporation (Nhava Seva) Private Limited

Continental Warehousing Corporation (Nhava Seva) Limited (CWCNSL) was incorporated on May 23rd, 1997 as a Service Sector Public Company under Companies Act 1956. Establishment of Container Freight Stations / Inland Container Depots (CFS/ICD) and PFT's combined

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with services are some of the major initiatives of this company.

CWCNSL are in the process of setting up two new ICDs and PFTs at Chennai and Bengaluru to strategically connect major production and consumption centers across India, which shall enable us to move Cargo efficiently across the nation providing us a competitive edge. These facilities shall be commissioned by Mar 2018.

CWCNSL had a steadied growth competing with major companies portraying highly operational PFTs across India. With our services and facilities combined at Chennai, Mumbai, Tuticorin, Indore, Hyderabad, Ahmadabad and Panipat, the company generated an aggregated revenue of INR 7093.99 million for the financial year 2015-2016.

III. REVIEW OF LITERATURE

Heru Hardjono (2021), in manufacturing companies, companies produce / process raw materials into finished goods. Raw materials obtained from suppliers will be stored, to meet the production needs. Warehouse as a place to store goods requires data accuracy for every transaction of goods that exist. Along with the growth of information technology, it is increasingly easy to process existing information, not least for manufacturing warehouses, especially in warehousing management. In warehousing management, existing transaction data is required for accuracy and speed in processing using a system. Warehouse Management System is now a necessity because it can improve warehouse efficiency and accuracy, thus providing solutions to problems that exist in the warehouse.

Kimball, R (2019), in book entitled "The Data Warehousing Toolkit: Practical Techniques for Building Dimensional Data Warehouses" , at Chapter first say that If the internal success factor is weak, then the likelihood is that there is an inefficient data model, not enough summarized data or the users are not well trained. If the external success factor is weak, then more resources should be put into addressing more of the needs. The success factor is therefore more than just an isolated statistic that can be reported to management, but is in itself a tool that can be used to make the data warehouse more effective for the enterprise.

Wixom et. all (2018), presented an explanation of why some organizations realize more exceptional benefits than others after data warehouse installation. The authors started by giving a basic background about a data warehouse. Then they went through the obtainable benefits gained from data warehouse installation in general by the adopters. Three case studies of data warehousing initiatives, a large manufacturing company, an internal revenue service and a financial services company, were discussed within the context of the suggested framework.

James Ang, Thompson S.H. Teo(2017), in paper entitled "Management issues in data warehousing: insights from the Housing and Development Board" at Elsevier, Decision Support Systems in 2017.In this paper, they examine data warehousing at the Housing and Development Board HDB, which is responsible for providing affordable, high-quality public housing to Singapore citizens. The HDB embarked on building a data warehouse because access to the diverse and large amount of data in its operational systems, was becoming increasingly cumbersome and time consuming By building a data warehouse.

IV. DATA ANALYSIS AND INTERPRETATION

CHI-SQUARE ANALYSIS

Chi-square is a non-parametric test of statistical significance for bivariate tabular analysis. A non-parametric test, like chi square, is a rough estimate of confidence. Chi-square is used most frequently to test the statistical significance of results reported in bivariate tables and interpreting bivariate tables is integral to interpreting the results of a chi-square test.

Chi–square test (χ^2) = $\sum \frac{(O-E)^2}{E}$

Degree of freedom = (R-1) (C-1)

Whereas,
- O = Observed frequency
- E = Expected frequency
- R = Number of rows
- C = Number of columns

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Relationship between the experience of the respondents and to identify the effective distribution planning in the organisation

Hypothesis testing

Null hypothesis (Ho): There is no significant relationship between the experience of the respondents and to identify the effective distribution planning in the organization.

Alternative hypothesis (H1): There is some significant relationship between experience of the respondents and to identify the effective distribution planning in the organization.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
EXPERIENCE OF THE RESPONDENTS * TO IDENTIFY THE EFFECTIVE DISTRIBUTION PLANNING IN THE ORGANISATION	217	100.0%	0	.0%	217	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	91.270[a]	52	.001
Likelihood Ratio	81.369	52	.006
Linear-by-Linear Association	18.972	1	.000
N of Valid Cases	217		

a. 54 cells (77.1%) have expected count less than 5. The minimum expected count is .06.

Interpretation:

As per the above table, it is inferred that the P value is 0.001; it is significant to 5% (0.05) significant level. The minimum expected count is 0.06. Thus null hypothesis is accepted and it is found that there is significant relationship between the experience of the respondents and to identify the effective distribution planning in the organization.

CORRELATION ANALYSIS

Correlation analysis is used to understand the nature of relationships between two individual variables. For example, if we aim to study the impact of foreign direct investment (FDI) on the level of economic growth in Vietnam, then two variables can be specified as the amounts of FDI and GDP for the same period.

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Correlation coefficient 'r' is calculated through the following formula:

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{\left(n\sum x^2 - (\sum x)^2\right)\left(n\sum y^2 - (\sum y)^2\right)}}$$

Relationship between the gender of the respondents and to understand the network strategies for effective distribution

Hypothesis testing

Null hypothesis (Ho):

There is no significant relationship between the gender of the respondents and to understand the network strategies for effective distribution.

Alternative hypothesis (H1):

There is some significant relationship between the gender of the respondents and to understand the network strategies for effective distribution.

Correlations

		GENDER OF THE RESPONDENTS	distribution
GENDER OF THE RESPONDENTS	Pearson Correlation	1	-.190**
	Sig. (2-tailed)		.005
	N	217	217
TO UNDERSTAND THE NETWORK STRATEGIES FOR EFFECTIVE DISTRIBUTION	Pearson Correlation	-.190**	1
	Sig. (2-tailed)	.005	
	N	217	217

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

Interpretation:

The Above table indicates that out of 217 respondents, co-efficient of correlation between the gender of the respondents and to understand the network strategies for effective distribution is -0.190. It is below 1. So there is negative relationship between this the gender of the respondents and to understand the network strategies for effective distribution.

ONE WAY ANOVA TEST

The ANOVA full form is the Analysis of variance formula, the ANOVA formula is a strong statistical technique and it is generally used to show the variation between two or more means or components through consequence tests. The ANOVA full form and by the way we define ANOVA it will help us to show a way to make multiple comparisons of several populations.

The Anova formula is used by comparing two types of variation, the variation between the sample means, as well as the variation within each of the samples. The below-mentioned formula represents one-way Anova test statistics.

The ANOVA formula is given by:

$\Rightarrow F = MST/MSE$

Where,

F - ANOVA coefficient

MST - The mean sum of all the squares due to the treatment

MSE - The mean sum of squares due to error

Equation (1) is known as the ANOVA formula and the ANOVA full form is the analysis of the variance formula.

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Age of the respondents and effectiveness in stock control for effective distribution

Impacts on Effectiveness in Stock Control for Effective Distribution

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	119.775	4	29.944	4.008	.004
Within Groups	1583.903	212	7.471		
Total	1703.677	216			

Interpretation

The table clearly shows that age of the respondents in the impact on effectiveness in stock control for effective distribution has a figure on 4.008 values and significance around .004 levels, than the sum of squares within group between group's values have 1583.903 and 119.775 respectively. Hence, the significant value is less than 0.050 for which the significant percentage is above 95%, hence rejecting null hypothesis. Thus, accepting alternative hypothesis i.e., There is some impact of age of the respondents on effectiveness in stock control for effective distribution.

V. FINDINGS

51.2% of the respondents are male, 40.6% of the respondents are in the age group of 20 - 25 years, 32.3% of the respondents have completed PG, 28.6% of the respondents have Rs. 15,001-20,000 as their income level, 35.0% of the respondents have below 5-10 years' experience, 33.2% of the respondents said that strongly agree towards facilitates protection of products from fire, sunlight, dust, theft, heat/cold.

VI. SUGGESTIONS

- The business must make sure that products are effectively protected against heat/cold, fire, sunshine, dust, and theft.
- The business is required to store or preserve perishable goods using sophisticated technology.
- For the purpose of controlling the stocks, adequate records must be kept.
- The business must support excellent security for the products it stores for its customers.
- To provide customers with exceptional service, the business must properly handle order consolidation and reconsolidation.

VII. CONCLUSION

This investigation has uncovered some crucial information for effective physical distribution warehouse management operations. A warehouse supports logistics and is essential to achieving the overall goal of the company's logistical supply chain system. A key factor in the success of physical product distribution is stock control. Implementing effective distribution planning inside the business is crucial in the context of escalating competition and to fulfil customer expectations for cost and service. The effectiveness of network solutions for efficient distribution raises the warehouse's performance bar.

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