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SUPPLY CHAIN IMPROVEMENT OF RMC PLANT THROUGH QUESTIONNAIRE SURVEY METHOD

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ABSTRACT

Ready-mixed concrete (RMC) is a widely used material in the building sector due to its high demand. The production, delivery, and placement process of RMC is a matter of interest to both contractors and material suppliers due of its unique properties and stringent quality criteria. The dispatching schedule for delivery trucks is one of the elements impacting the RMC supply performance, and it directly affects the overall operation time. Uncertainties in traffic and unloading activity are the main barriers to identifying the best dispatching intervals. It's crucial to establish a delivery truck inventory in the supply chain in order to counteract the negative effects of these uncertainties. In order to optimize the supply chain from the views of both the contractor and the supplier, this thesis offers a model where inventory control policies work on an RMC delivery process.

Keywords: RMC, Supply performance, Dispatching interval, Supply chain, Inventory control.

1. INTRODUCTION

To guarantee the condition of the raw supplies, the finished result, the supplier relationship, and satisfaction of customers, supply chain management must be used in the manufacturing of ready-mix concrete. The delivery schedule for ready-mix concrete and Material logistics planning, a decision-process for effectively managing the acquisition, transit, and storage of goods, is fundamental to production, and the management of raw material storage, managed to finish product inventory, and information flows within the company and its marketing initiatives in such a way that present and future profitability is maximized through effective order fulfilment. For this research, there are two different ways to obtain information: through interviews and through questionnaire surveys. In order to gather all the information required for this project, an interview with a specific responder who is involved in the production and delivery of ready-mixed concrete was done. In order to get input on the significance of supply chain management in the creation and distribution of ready mixed concrete, a questionnaire survey was also conducted.

2. METHODOLOGY

Information gathered during a site engineer interview at a ready-mix concrete batching plant. To determine the value of supply chain management for the manufacturing and distribution of ready-mixed concrete, a survey approach was used.

2.1 Questionnaire Survey:

A number of questionnaires were distributed to the intended responders who worked on the production and supply of such ready-mixed concrete. Following that, the data were analyzed using a method for analyzing survey results. The primary focus of the questionnaire study was the significance of supply chain management throughout the production & distribution of such ready mixed concrete. It was created with the intention of evaluating the workers' degree of comprehension of supply chain management implementation and the advantages that result from it. Frequency analysis and the "Relative Index" (RI) technique were used to analyses the survey data that was gathered. RI was calculated using the following formula:

$$RI = \frac{\Sigma\ (1x1+2x2+3x3+4x4+5x5)}{5\ (x1+x2+x3+x4+x5)}$$

Table-1: Different Categories for RI

0.20-0.35	Very Low
0.36-0.51	Low
0.52-0.67	Neutral
0.68-0.83	High
0.84-1.0	Very high

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3. MODELING AND ANALYSIS

The data were gathered for the questionnaire survey, and they were analyzed using relativity index and frequency analysis. In contrast, the executive plant manager's verbal information was acquired, and this chapter's information was recorded utilizing an interviewing technique. The frequency analysis and relative index were used to analyses the survey data in order to gauge the relative relevance of each item. The surveys were answered by 10 chosen respondents. The following figures contain a presentation of the questionnaire's findings

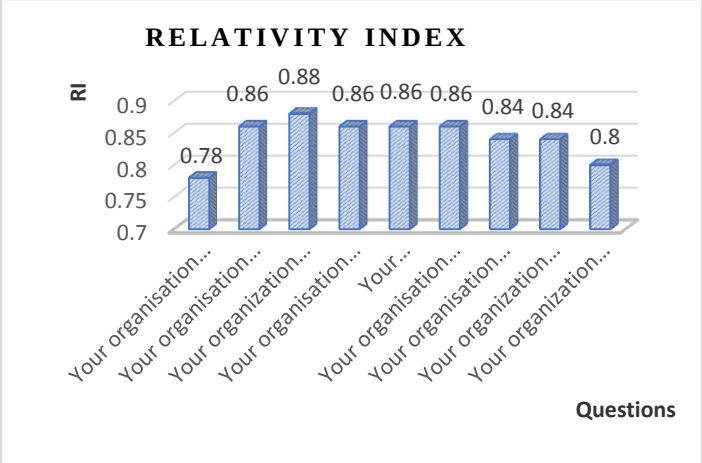

Figure 1: RI for the value of high-quality goods and reliable providers

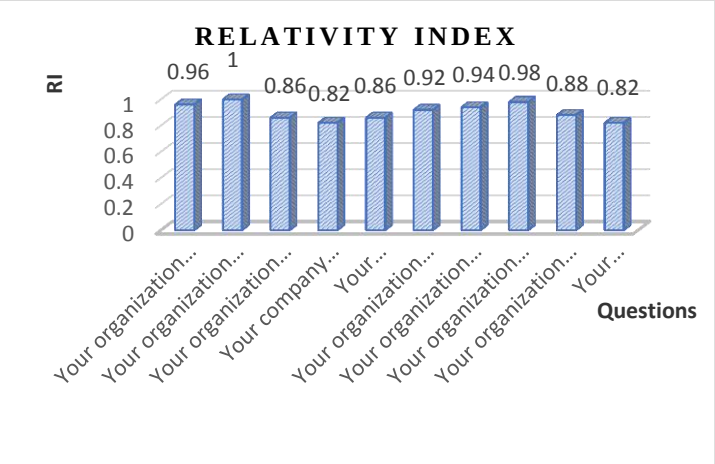

Figure 2: RI on the methods used by organization to Guarantee the efficiency of supply chain

4. RESULTS AND DISCUSSION

Four suppliers are involved in the supply chain, according to the interview. Aggregate, sand, admixture, and cement suppliers are examples of different types of suppliers. Every supply of raw materials, including aggregate, sand, cement, and additive, has a single provider. The primary issue for the producer of ready mixed concrete appears to be the poor quality and insufficient quantity of raw materials given to the concrete batching plant. For instance, occasionally the aggregate supplier will send the aggregate to the batching but the size of the aggregate does not satisfy the specifications specified by the manufacturer. The provider must deliver aggregate that is between 5 and 20 mm in size. To ensure that the quality of the sand given by the provider is of high quality, it is crucial to verify its moisture level, organic content, and silt content. This is due to the possibility that the supplier could mislead the manufacturer through giving them sand that is of poor quality.

5. CONCLUSION

Modern technology can be used to create applications that will streamline the supply chain. The manufacturer needs to utilizes SAP Business One Software to manage and record all types of data in order to keep raw data such as customer information and records of purchase orders. The software streamlines the creation of electronic invoices, coordinates distribution of product information, and organizes inventory data. There is a need of inventory audit every first of the month to ensure that the materials coming in and going out match the information in the book stock. The manufacturer's most frequent inventory-related problem and difficulty is loss and gain of inventory stock. Due to a

scarcity of raw materials supplied by the suppliers, the overall loss can occasionally exceed the total gain. To avoid any loss, it's crucial to gradually update the inventory stock checklist.

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