

Chapter 2

Methodology Proposal for Logistics Management in an Automobile Company

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ABSTRACT

Logistics impacts the costs and effectiveness of the client service system directly; therefore, it is of paramount importance to adequately design and operate warehouses in order to achieve lower costs and higher performance. The Pino Automotive México S.A de C.V for car supplies faces problems at the time of arranging goods as well as while measuring and controlling the logistics activity. This document presents a study case where the authors propose a methodology for logistics management that encloses the layout redesign and the proposal of indicators to improve the area and the company through the gathering of previous research and the use of good practices in warehouse management.

INTRODUCTION

Pino Automotive is an international enterprise specialized in passive safety components, soundproofing and thermal insulating for cars with 40 years of experience. One of the objectives of the company is to provide decent and stable jobs, protecting the environmental setting and the social progress of the territories that host the investments. Its production and development centers are certified according to IATF

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ISO / TS 16949 2016 edition and have seven production plants placed in Spain, the Czech Republic, the Republic of South Africa and the Republic of Mexico.

The Pino Automotive México S.A de C.V plant located in Puebla, Mexico was founded in 2016 is in charge of manufacturing and commercializing polyurethane (PU) and polypropylene (PP) products. In the facility where the production plant is located, there are also included the offices and the warehouse where the raw materials, finished products, intermediate products, and the waste obtained in the production with a different destination than garbage.

Volkswagen, Mexico, is the primary customer of the company. Due to the growth that the company has had since its foundation, it is desired to make its goods storage more efficient; this storage services are empirically located without defined areas. Sometimes the corridors are obstructed by stack boxes or other obstacles that prevent the free access in the facility. There are corners and areas of difficult access with obsolete or little-used merchandise, and large or repeated displacements are made from one place to another, representing operational costs, time losses, and fatigue of the workers. Also, they do not have enough indicators to evaluate the storage and control of inventories to develop corrective actions.

Warehouses play a paramount role when combining the demand for goods with the supply chain and its different levels. There is no adequate design and chain supply management if the location, design, and warehouse organization are not taken into account. Today, warehouses operate not only as storage centers but also as centers of added value (De Koster, Le-Duc, & Roodbergen, 2007). The layout should address several issues besides the assignment of items to storage locations in order for a warehouse to be able to support its operations. These considerations are supported by several reasons, among them the following. First, the number of design decisions is significant, and many of them are combinatorial problems that are difficult to solve optimally. Second, many operations (e.g., picking, dual command, cross-docking, and value-added services) and factors (e.g., demand, physical characteristics of items and unit loads, serving global markets, material handling, and just-in-time (JIT)) impact travel time, material handling cost, and throughput in a warehouse. Such operations and factors should be accounted for in a comprehensive design of warehouse layout in order that it can support them (without resorting to frequent modifications), which will complicate the design. Third, the operations mentioned above and factors interact, and such interaction should be accounted for in the design (Mohsen, 2002). Designing warehouses is a complex problem, not only due to the factors above but also because of the variety of alternatives for possible layouts. As a consequence, it is challenging, perhaps impossible, to analytically identify the “optimal” solution design (Baker & Canessa, 2009).

Readings must be kept that reflect their behavior and evolution to maintain control over the different operations or activities that make up the processes within the company. Theoretically, all processes can be measured, and those who cannot be eliminated. This rule holds great significance since what is not measured cannot be enhanced. Hence, every process must transmit its current stage, improvement possibilities, and deviation from ideal parameters. These data can only be known through indicators that show the behavior of the variables within every process (Marín, 2014).

Research proves that understanding the principles of design and warehouse management can play a fundamental role when raising operational efficiency; reducing staff's fatigue and rotation and enhancing client services levels. (De Koster, Johnson, & Roy, 2017). Market competition demands ongoing improvement in the design and operation of distribution and production networks and at the same time, more exceptional warehouse performance (Gu, Goetschalckx, & McGinnis, 2007). Nowadays, the concept of profitability that can be reached through a competitive warehouse has been included in terms of space optimization. Currently so costly, reduction of inventory levels by purging the old ones, having

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