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THE IMPORTANCE OF THE ADMINISTRATION OF MATERIALS IN THE RECEIPT AND DISPATCH OF A SMALL BUSINESS FAMILY COMPANY

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THE IMPORTANCE OF THE ADMINISTRATION OF MATERIALS IN THE RECEIPT AND DISPATCH OF A SMALL BUSINESS FAMILY COMPANY

Abstract. *This article aims to demonstrate the results obtained with the implementation of a procedure and criterion in the warehouse of a small company, thus generating a better form of control in the operation of the materials. It is based on the main concepts of Materials Management distinguishing the types of materials, the leveling of security stocks and storage. The company used for the case study is the plastic segment that produces blown packages for various types of customers: food, pharmaceutical, cosmetic and chemical. It was deprived in its warehouse due to the lack of control in the reception and the handling of its materials impacting high time of movement and transport affecting the other processes of the company, mainly production. The research methods used were the bibliographic research, normative with a qualitative approach highlighting the presentation of a case, in which it presented theoretical basis with the practice. The result achieved with a new procedure in the company's warehouse was the improvement in the organization of the stocks and reduction in the time of movement until the production.*

Keywords: *inventory and storage; materials management.*

1. INTRODUCTION

1.1 Contextualization

Over the years companies are increasingly worried about managing their industrial costs and as a consequence, they are perfecting existing techniques to control their inventories, mainly the materials used in the production processes.

Nowadays, with automated processes and modern management techniques, production overruns are becoming less important and good Materials Management is essential to maintain the balance of stocks so that raw materials and finished products are not lacking.

According to Martins et al. (2006), material management encompasses the sequence of operations that begins in the identification of the supplier, in the purchase, receipt, internal transportation and packaging, transport during the production process, storage as finished product, and finally, in its distribution to the final consumer.

Over the years, companies have sought to align their inventories at strategic levels so that there is no shortage of products or materials, have adopted as the main technique the so-called security stock, which is nothing more than to leave the minimum necessary of materials to guarantee Operation. (LAUGENI, 2010). In the current times, corporations have been concerned

with transforming their inputs into finished products only in the quantity necessary for their customers, and thus promote the handling and storage of the products in a well controlled way, using standardized equipment, information system and reducing the time spent Of movement ensuring the delivery at the right time for the customer or other internal processes.

The correct handling of products is the key to warehouse productivity for the pursuit of cost reduction in handling. The opportunity to reduce the intensity of the workforce, and to increase the productivity in the warehouses is due to the technologies of automation, research focus of the present work (BOWERSOX, 2010).

This article presents a case of a small plastic packaging business in which its processes in the management of materials from receipt, handling and storage do not have an efficient operational control causing a great loss of production time due to the disorganization and lack Of standard procedure.

1.2 Research Problems

The process of receiving, storing and moving materials is becoming more and more challenging for a Logistics team in which the big step is to organize their inputs in an organized way without wasting time. The guarantee of an effective operation is to keep the environment organized, however the company we are presenting in this article does not have its procedures in a standardized way, generating a disorganized environment and the result of this is the delay in the separation of materials for production, delay in launch Of the Fiscal Notes of entry into the system generating lack of balances consequently preventing the dispatch of the products to the customers generating the delay.

1.3 Objectives

1.3.1 General Objective

Determine a form of operational control in the receipt and movement of materials in a standardized and controlled manner, assigning inventory and storage leveling techniques, determining a standard procedure for all members of the Logistics team of the company being surveyed.

1.3.2 Specific Objectives

Establish a standard itinerary in the warehouse area for all members of the Logistics team to carry out their activities in an organized manner:

- Receive materials
- Check
- Encode

- Engage Quality team to carry out necessary tests and tests
- Move
- Store in place correctly
- Launch Tax Notes in the computerized system
- Separate materials when requested by a requisition
- Moving and delivering materials to the requesting sector
- Launch system request

1.4 Research Objectives

Demonstrate the importance of Materials Management in receiving and storing small businesses to improve internal operational control.

1.5 Delimitation

This research was delineated in gathering information and accompanying the day-to-day of a warehouse of a small company in which all its storage and handling operation is flawed due to the lack of standardization, impacting the other operational processes. It is understood that applying the correct techniques Materials Management, Stocking and Storage the whole operational process becomes more efficient, eliminating the times that do not add value in the operation.

1.6 Research Limitations

The research of this article was limited to the analysis of a small company based on bibliographical research, through articles and books published in the last 15 years, normatively with a qualitative approach based on theory and applying in practice the company in the segment of packaging Plastic.

1.7 Hypotheses

If all small businesses seek to manage their inventories, raw materials and finished product in a controlled manner and their organized deposits, then it is believed that adopting a standard procedure in receiving their materials makes the operation more efficient, reducing the time of movement and Separation from the organized area.

1.8 Rationale

With the accomplishment of the research comparing the methodology used and the hypothesis it is confirmed that the correct implantation of a standard procedure and some specific routines in the receipt of materials, the analyzed company of small family tends to gain

competitiveness in its operation due to the reduction in the Time in the movement and separation of its products keeping the balance in its operational processes in a more organized and controlled way.

1.9 Work Structures

This study is distributed through five chapters, in which chapter 1 deals with the introduction of the article giving a general approach on comparatives of Materials Management with the current day reporting the importance of control of materials and inputs in small family business Of small size. Chapter 2 presents the theoretical reference in which the opinion of several authors and articles regarding the management of inventories and storage is compared, presenting a more succinct source of research. In Chapter 3, it demonstrates the method used to elaborate the article in which the production manager identifies operational failures in its receipt and movement of materials, being a normative research with qualitative approach highlighting presentation of a case study. In Chapter 4 is the result of the implementation of a standard procedure adopted by the company researched demonstrating the gain obtained with the organization of the warehouse. In chapter 5, it presents the conclusions related to the implementation of procedures in Materials Management in which behavioral change and teamwork can influence the results of small family businesses.

2 – THEORETICAL FRAMEWORK

2.1 Materials Management

For Francischine and Gurgel (2002), the evolution of Materials Management was processed in three phases:

1. The management of materials was carried out by the owner of the company, because a good purchase was something of the business;
2. Purchases served only as support to production activities and were integrated into the production area;
3. Later, they were incorporated into the management of services involving materials, starting with the planning of raw materials and ending with the delivery of finished products, in a sector outside the productive area.

According to experts, we define materials and inputs as tangible products to be processed, purchased, distributed, used in Services, being classified as productive, unproductive materials held by third parties (ACIOLY, 2008).

- Productive materials are those employed directly in the manufacturing process that makes up the final product

- Unproductive materials are those used in the indirect manufacturing process that are not incorporated into the final product

- Materials held by third parties are materials that are directly or indirectly owned by (third party or supplier) submitted to another process or operation, but the main responsibility of the company of origin that contracted those services. (MOREIRA, 2008).

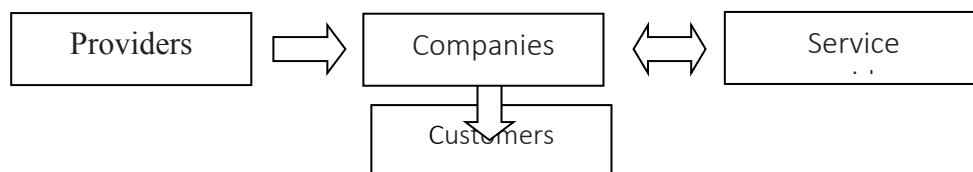


Figure 1: Basic flow of services. Source: author

For Slack (2009), there are many variables and a very great complexity that corporations have in managing and controlling these types of materials, because if they are not well controlled they can cause negative impacts throughout the operation, the most common are productive line breaks, Delays in deliveries to customers and consequently higher costs.

For Dias (2017), the logistical approach of the main objectives of Materials Management:

- minimize inventory investment;
- anticipate needs and availability of materials;
- predict market conditions;
- standardize materials, packaging and suppliers
- storing finished and semi-finished raw materials, tools and products;
- moving the materials, delivering them where they are needed;
- organize the arrangement of furniture, machinery and equipment to facilitate storage and movement.

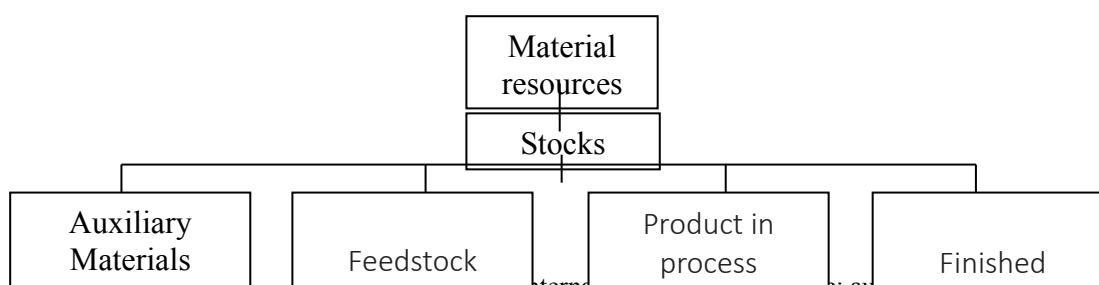


Figure 2: Internal material flow. Source: author

2.2 The role of Inventories

Equalizing the demand and supply of products in a market is a major challenge for all companies, currency fluctuations, influences on behavior and buying methods, commemorative dates, crises of global scope and other events, directly affect demand for products, as well as their production and supply (MARTINS, 2009).

According to Acioly (2008), inventories are quantities of parts and products diligently placed on a shelf or warehouse, with a lifespan where all the movement of inputs and outputs are accompanied, and the main reasons generated from inventory are:

- Speculation;
- Lack of Coordination;
- Uncertainties.

For Martins et al. (2006), the role of inventories constitutes a considerable part of corporate assets, they receive a strict accounting treatment. They are classified, mainly for accounting purposes, into five categories:

1 - Stocks of materials: are all items used in the manufacturing processes of finished products. All the materials that the company buys to use in its production process and Stores are part of the stock of materials, regardless of whether they are direct materials, such as raw materials, which are incorporated into the final product; Or indirect, such as auxiliary materials, which are not incorporated into the final product;

2 - Inventories of products in process: also known as semi finished, correspond to all the items that entered into productive process, but which have not yet been transformed into finished products; (Martins, 2009).

3 - Finished product stocks: all items that are already ready to be delivered to final consumers;

4 - Stocks in transit: correspond to all items that have already been shipped from one unit to another, usually from the same company, and that have not yet reached their final destination; are stocks being transported (DIAS, 2017).

5 - Consignment stocks: these are materials that are in other companies, but remain the property of the supplier until they are sold. Otherwise, they will be returned free of charge.

2.2.1 - The role of inventories in companies

The importance of inventories in companies is no longer unanimous after the advent of the Just-in-time philosophy, but in logistics systems, inventories were kept for: (NOVAES, 2007).

- improve customer service: supporting the marketing area, which in creating demand needs material available to realize sales;
- Economies of scale: Costs are typically lower when the product is manufactured continuously and in constant quantities.

For Dias (2017), the logistic comparisons that influence the stock in the companies are:

- Protection against price changes in times of high inflation: a high volume of purchases minimizes the impact of price increases by suppliers;

- Protection against uncertainties in demand and delivery time: consider the problem that arises from logistics systems when both customer demand behavior and supplier delivery time are not perfect.

Companies strategically reconcile their decision-based operations to hold stocks or not, it is worth remembering that inventories result in financial impact due to two main factors: (ACIOLY, 2008).

1 - Costs of obtaining: are those generated from the quotation of the product, contacts with the supplier, acquisition process, depreciation, taxes, taxes, freight, transportation, toll, financial interest, losses, losses ...

2 - Maintenance Costs: are those generated by keeping products in inventory, handling equipment, handling, (warehouse labor and warehouses), inventories, insurance, facilities, average shelf life, risk of obsolescence or shelf life.

It is necessary, therefore, to maintain inventories that are, according to Slack (2002), "the stored accumulation of material resources in a transformation system".

According to Rezende (2008), the process of planning and controlling the flows of materials, information and related values, to meet customer requirements. Through lean manufacturing philosophies such as "just in time", companies have reduced their inventories and buying and selling lots, in order to reduce their costs, requiring greater control and accuracy of information and balances

However, companies adopt the concept of average stock, according to Corrêa (2009), when we need to determine or analyze the behavior of the stock uses the average consumption (it is the movement of materials are inputs and outputs for a period of time), this way We find the Average Stock, that is, the sum of the traded products divided over a period of time. (Equation 1)

$$\text{Formula: } \frac{\text{Sum 1} + \text{sum 2} + \text{sum 3} + \text{sum 4}}{\text{Period (4)}} = \text{MS (1)}$$

The ES security stock is the minimum quantity that companies strategically adopt in their inventories so that there is no shortage of products and inputs, thus avoiding possible line stops and delays in the delivery of their customers (CORRÊA, 2009).

2.3 Storage

According to Rodrigues (2003), storage is denominated to the complex of spaces, in covered and discovered areas, destined to receive, store and protect adequately loose or packaged goods, of different types, characteristics and natures, offering total security of handling to the people and equipment Of movement.

According to Dias (2017), there are different types of warehouses:

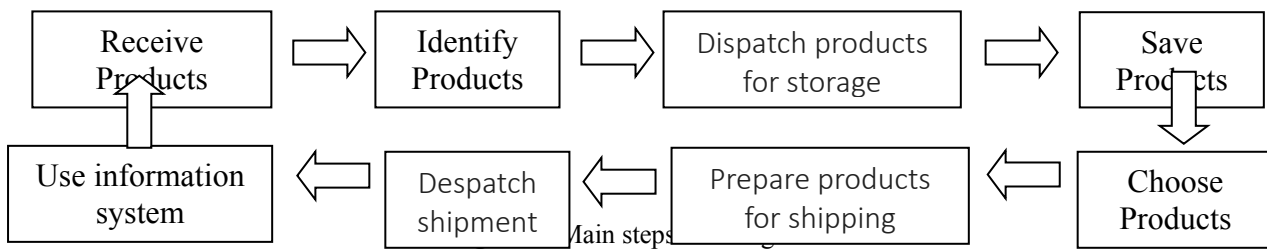
- Warehouses are the own warehouses, linked to the internal movement of a company where different types of inputs consumed during the transformation process are controlled;

- Distribution Center concentrates the distribution to the customer from large regional storage points strategically located and centrally controlled. Transport in bulk from the factory to these locations. (Martins, 2009).

- Shed covered rudimentary shed, usually located between warehouses, intended for warehouse support services.

- Courtyard paved outdoor area, with demarcated stacking zones, having access routes defined for horizontal movement and transportation equipment.

According to Rodrigues (2003), the main activities involved in the storage of products are classified according to the flow shown in figure 5



For any type of storage of materials has to take into account some important and determinant factors to manage the operation:

- Verify the entire process from receipt, storage, separation, until shipment must be under control;
- Evaluate if the handling and storage equipment is the most appropriate;
- Assess whether all storage costs are under control (material, financial, equipment, labor, IT, obsolescence). (REZENDE, 2008).

For Acioly (2008), the main structures used in storage:

- Modular Structures
- Door Pallets
- Standardized pallets
- Mesaninos
- Containers
- Stationary Silos
- Hooks



Figure 4: Modular Structures. Source: (Accioly, 2008).

Handling Equipment

- Hand-held equipment: wheelbarrow and hydraulic platforms (low cost)
- Mechanized equipment: cranes, industrial trucks, elevators, winches and forklifts (modest cost and allows good flexibility)

Automatic equipment: requires the use of information technology, such as: bar codes, trans elevators, treadmills (requires high investment, moves large volumes and comes close to complete automation) (DIAS, 2017).



Figure 5: Moving Forklift. Source: (Dias, 2017).

Novaes (2007) states that some precautions should be taken at the time of storage:

- determination of the location, in an open or closed space;
- appropriate layout definition;
- definition of a preservation policy, with packaging appropriate to the materials;
- keeping order, cleaning and cleaning constantly;
- property security, against thefts, fire, etc.

3 - METHODS

The Production Planning and Control sector reviews the Production Orders on a daily basis, in which the pertinent notes are made to the production process in which an excessive time of the machines stopped being awaited for input as raw material. Through this situation, the Production Manager began to monitor daily the movement of materials throughout the production process clearly visualizing that the root cause was in the warehouse of the company that was disorganized in all its stocks causing the delay in the supply of the Materials when requested.

It was necessary to assemble the Logistics team and present in a didactic way the time spent on internal movement and the operational impact caused by the delay in supplying the productive sectors, causing a delay in the delivery of finished products to final customers. Through this Situation the Production Manager suggested clearly to adopt a procedure that facilitates the Administration of Materials in order to better manage the stocks and to store the products in standardized shelves keeping the warehouse clean and organized, having the supplies of easy access allowing in a faster speed When requested.

The research methods used for this article were the bibliographical research, normative with a qualitative approach proposing to use the concept applied in the operational practice.

3.1 - Case Study

The analyzes were carried out at the company Maluger Indústria e Comércio de Produtos Plásticos located in Interlagos, in the south of São Paulo, a small family founded in the year 2010 with the purpose of serving the plastic packaging sector blown in polyethylene and PVC (polyvinyl chloride) Focused on the food, chemical, pharmaceutical and cosmetic segments. From the year 2015, it has developed a partnership with an American Multinational company supplying blown packages for automotive oil filling. It currently employs 94 employees distributed in three work shifts in a 2,500 m² manufacturing area. Its main production processes are blowing, injection, labeling and screen printing for industrialization.

4- RESULTS

4.1 Scenario before the implementation of the procedure

Because it is a small family business, in the last two years there has been a market growth in which the owners because they have a conservative management were not prepared to adapt the physical facilities with the quantities of materials received and moved making their spaces for storage Small, unorganized and without effective inventory control.

When received any type of materials were productive or unproductive by several suppliers,

these materials were not inspected by the Quality team, staying in a waiting area for long days, accumulating dirt, and when requested via computerized system had no available balance in stock Preventing any virtual movement of a sector to another fact for which the Logistics team had not released the Invoices in the system on the date of receipt. This disorganization generated Handling and transportation of internal materials, causing machines to stop and other sectors that are out of stock.

According to Correa (2009), linked to the concepts of the seven wastes that must be eliminated to increase efficiency, were identified initially among the seven, three that are directly related to the management of the warehouse:

- Waste by transport - handling of materials that do not add value to the product, and should be eliminated whenever possible by the physical reorganization of the company or warehouse.

- Waste by movement - corresponds to the inefficient movement during the execution of the operation, and can be eliminated by determining efficient working standards.

- Inventory waste - related to the financial costs of maintaining inventories such as obsolescence or excess.

Based on these three pillars, the Production Manager proposed the Logistics team to create a standard work procedure in the warehouse in order to direct the activities of the day to day.

4.2 - After the implementation of the procedure

The creation and implementation of the procedure in the warehouse were developed by the Production Manager who in meeting with the other Quality, Logistics and Board members presented the new work proposal with the objective of realigning the stocks, organizing the stored items and reducing waiting time Of other sectors when they request materials and inputs

To the Logistics Team - The Procedure:

- Receive materials and supplies;
- Check products and quantities with the Nota Fiscal
- Codify;
- Allocate material for inspection area;
- Communicate Quality Control for inspection and testing
- Release Tax Notes to the information system;
- Move materials approved by Quality to your storage location
- Store;
- Materials and supplies required by another department / sector
- Separate and check the required quantities of material and inputs;
- Moving and transporting materials and supplies to the requesting sector;

- Launch requisition of withdrawal in computerized system.

In the first seven days of implementation some people from the Logistics team presented resistance with the new methodology of work, because every change impacts on the day to day of any activity mainly small business of conservative style. After 30 days, these operations have become routine, people have adapted to their new daily routine by running their activities in a more organized and controlled way. The gain in time of receipt, inspection and internal movement was great, but not quantified, but attributed to the other processes in a very clear and efficient way, keeping the inventory control with greater accuracy and speed in the internal operation.

5 - CONCLUSIONS

This study aimed to present the positive results according to data collected and analysis of the operational efficiency of the Logistics team in the readjustment of the procedures adopted in the warehouse by the use of the concepts of Materials Management, Stocks and Storage, in order to organize the operational routines, reduce the Excessive movement of materials, properly store their inputs and provide the right products with the right quantities for the requesting sectors. All of this implementation involved the participation and integration of various sectors and hierarchical levels of the company.

The methodology and concepts used in the study can be used in any segment of a small family business, it should be emphasized that the correct functioning of a procedure are the results of a work carried out from the top management to the operational sector. The implementation does not require a large amount of financial resources but rather a provision for behavioral changes, it is sufficient that the partial availability of certain people in the company to execute the methodology and formation of teams committed to results and better conditions to carry out their activities on a daily basis.

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