The Application of Logistics as Increase Income in Small Porte Company - Case Study in Salgados Mania

Victor Azevedo Said
victor_azevedo_@hotmail.com
FAMETRO University Center – Brazil

David Barbosa de Alencar
david002870@hotmail.com
Galileo Institute of Technology and Education of the Amazon – ITEGAM

Alexandra Priscilla Tregue Costa
ptreguep@yahoo.com.br
Coordenação de Engenharia de Produção do Centro Universitário FAMETRO – Brasil

Carlos Alberto Oliveira de Freitas
caofreitas@yahoo.com.br
Instituto de Ciências Exatas e Tecnologia - Ufam - ICET – UFAM- Brasil

Abstract

Logistics challenges are present in any organization, including small businesses. If today it is indispensable in large industries, for smaller companies the reality is different, since, in general, they do not have enough structures or employees to face adversity and meet their goals. Thus, it is becoming increasingly relevant to invest in tools that can bring improvements and results. Logistics encompasses activities that deal with the flow of material, human and information resources, but micro and small entrepreneurs generally do not handle all these stages of the process, which ends up making production work, often with lower efficiency than its total capacity, generating costs and making the company less productive. Lack of planning causes damage most of the time. This involves everything from inventory control to small processes that need human monitoring to happen. Due to the tools logistics offers to implement in any industry, regardless of size, opportunities for management improvement are growing, making the small business owner eligible to plan and think bigger about their business.

Keywords: Small business; Logistic process; Material flow;

1. Introduction

In order to apply logistics tools to improve controls and processes, the small business Salgados Mania opened the door for a study based on how the company works, and how it currently manages its supplies and employees. .

Salgados Mania is a small company that works in the production of sweet and salty foods, small and large, fried and baked, for parties and buffet, and even for sale in grocery stores, convenience stores and snack bars in the city of Manaus. The organization, still small, has grown considerably in recent years, which has caused its demand to increase considerably, requiring greater attention from managers to reconcile the increase in demand with the need to adapt to what the market demands.

Founded in early 2010, the salty factory has sprung up unpretentiously. The beginning of the activities was marked by the willpower of the current owner to manually make the first salty produced by the company with high quality standard and reference in taste. This production was done in the house of the founder's own house, with the help of her husband and children. At that time, the company did not imagine the size that its products could take and being at the beginning of work, everything was done in a rudimentary way, from the purchase of materials, until the arrival of salty products to the final consumer.

This work required a lot of everyone involved. There was no fixed person to purchase the materials needed for production, just as there was no fixed person for the deliveries of the product, and so on for the different processes required to reach the end of production. All family members performed all functions, with no organization that could optimize time and cost.

Over the years, the quality of the product began to become known in some regions and places of the city, which made the demand increase even more. Given the situation, the company needed to change the way it worked and decided to invest in machinery and human resources, increasing its internal costs to meet the requests of the various customers that the company had conquered. Currently the company has 7 employees, with a decrease in the artisanal workforce and the greater use of machines for the manufacture of savory foods. About 9 months opened its first physical store, fruit of the market change and increase the flow of production.

Given the above, the general objective of the case study in the company was to verify under what logistics conditions it was, using quality tools to identify problems and implementing logistics tools to correct what was identified as something to be improved. The specific objectives are to improve the company's inventory control, improve process controls and reduce idleness and nonconformities of the products that the company is subjected to on a daily basis.

2. Theoretical References

2.1. About logistics and its application in identifying problems

Today's logistics challenges are inherent in any organization, whether large, medium or small. If in the former, adversities are present for execution, in small companies the obstacles are even greater, because the fierce competitiveness and complexity in management, lacking procedures and structuring flows between products and customers, Logistics arises to improve service levels in customer service, reducing financial costs and streamlining production, handling, transportation and distribution processes.

Logistics has a broad concept, covering various aspects of the organization, such as production, financial, economic, marketing, customer, among others, given its cross-cutting nature, emerging to foster the integration of functions, aiming at the best end result.

According to Razzolli Filho (2010, p.20):

"Logistics can be defined as part of the supply chain management process that aims to efficiently and effectively plan, implement and control the physical and information flow, as well as the storage of goods and services, from source to consumption, always keeping in mind the objectives of the company and the customers. "

In the words of Christopher (2011), logistics seeks to create a better flow of products and information through a unique plan that suits the company.

According to the Concil of Supply Chain Management (2019), logistics can be defined as the process of planning, implementing and controlling the efficient and cost-effective storage and flow of raw materials, process inventory, products and related information from the point of origin to the point of consumption for the purpose of meeting customer requirements.

In turn, Ballou (2006) defined business logistics as all handling and warehousing activities, which facilitate the flow of products from the point of purchase of raw materials to the point of final consumption, as well as information flows. that put products in motion for the purpose of providing adequate levels of customer service at a reasonable cost.

In this step, logistic development has as its starting point the integration of internal and external activities, connecting suppliers, customers, service providers, from the point of view of managing and coordinating variables, which will ensure quality performance, speed, flexibility, innovation, efficiency, economy, among others, adapting to the viable organization model.

2.2. The use of process systems to solve business problems

Given the complexity of the logistics system and the need for simultaneous management of multiple conflicting stakeholders, in-depth knowledge of both logistics (at all levels of their ecosystems) and external factors (at the corporate level whose ultimate object is customer satisfaction.

Considering that just the advancement in the processes is not enough to define the good performance of the organization, the application of the PDCA method as a tool for quality control and process improvements through four steps emerges to add value to the final product quality. to the client.

2.3 - The PDCA Cycle

The PDCA cycle is a cycle of continuous analysis and improvement, which was defined by Walter A. Shewhart, however was disseminated by Deming and is known as the Deming Cycle. The cycle consists of four basic control steps: Plan, Execute, Check and Act Correctly.

Quinquiolo (2002) defines the PDCA Cycle as a methodology that has the basic function of assisting in the diagnosis, analysis and prognosis of organizational problems, being extremely useful for problem solving. It is the method used to promote process improvements of any kind, resulting in the maintenance of results.

According to Moura (2006), the PDCA is a tool for the orientation of the sequence of activities that helps the management of a task, process or company and is based on the concepts of administration.

According to Mariani (2005) the PDCA method is used by organizations to manage their internal processes in order to ensure the achievement of established goals, taking information as a driving factor for decisions.

For Vieira (2010, p. 24) the PDCA is a method that manages decision making in order to improve the activities of an organization and is also widely explored in the pursuit of performance improvement. This

makes PDCA very important and significantly contributes to better results.

The application of the PDCA cycle is an important instrument for achieving professional excellence, as it allows identifying the problem, managing risks, costs, business benefits through quality management and process control plans and guidelines, shaping the organizational culture. that seeks the best possible results.

2.4 - Process management

For the execution of the services, it is necessary that the companies follow procedures to sequence the activities and to guarantee the attendance of the external activities.

For Lopes et Bezerra (2008), process management can be used as a basis for continuous improvement of production processes, increasing efficiency levels and reducing losses and consequently maximizing profits. Thus, it is evident the need to constantly evaluate the organizational processes, as well as continuously improve or recreate them, due to changes in the organizational context in which the management is done.

For Slack, Chambers and Johnston (2015, p. 12), operations are processes that bring together a set of input, such as inputs of a service transforming something; and output, as output of services and products, following a general model inherent in their process.

For Maximiano (2015, p. 190) a process of an organization has three main meanings, namely: process organization of any set or resource; organization as a structure resulting from a process being organizational in any company or enterprise it has in an organization; and organization as a concrete entity, even if apparent to any large company or single enterprise. Still, according to the same author, organizing is the process that has any resource collection or set of parts in a given structure, order or classification. Being classified into an organized set or ordered parts, following any criteria or an assigning organization from any structured or ordered set.

3. Tools and Methods

With the opportunity to experience the day to day life of the company, an analysis can be done with greater precision in the first visits to the factory. Everything was taken into consideration when considering the possible needs that the company demanded regarding improvements that could be applied.

Following a line of logical reasoning, according to the respective stages of the process, the main purpose of the analyzes was to gather relevant information that could determine and show where, in fact, the shortcomings of the procedures were evident. And for that, we used a quality tool that help identify operational failures so that the repair is done on multiple fronts. The tool in question was the PDCA, which facilitated the approach to the different stages of production of the company Salgados Mania, as it is focused on the control and continuous improvement of processes and products.

4. Study Application

4.1. Problem Identification and Tools Used

Firstly, the PDCA was used to gather information about the input of raw materials necessary for the beginning of salty manufacturing. In addition, this could also involve the way in which the company's inventory control was handled. The first signs that there were problems began to emerge.

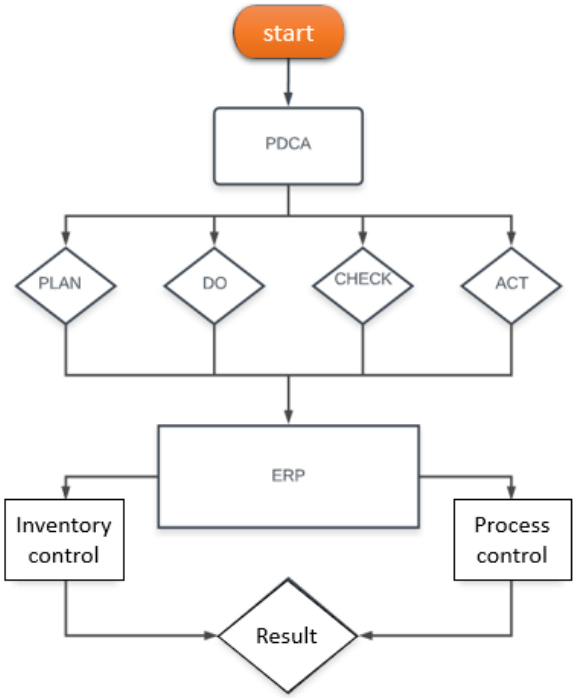

Figure 1. Initial flowchart for process analysis.
Source: Own Author

There was no ideal inventory control, purchases were made according to the absence of certain key products and thus created a large idle production due to lack of inventory. It was also found that the company had few fixed suppliers, which increased costs at some point when placing orders. Thus, the weekly spending on the purchase of groceries and waste was distributed as shown below, in reais:

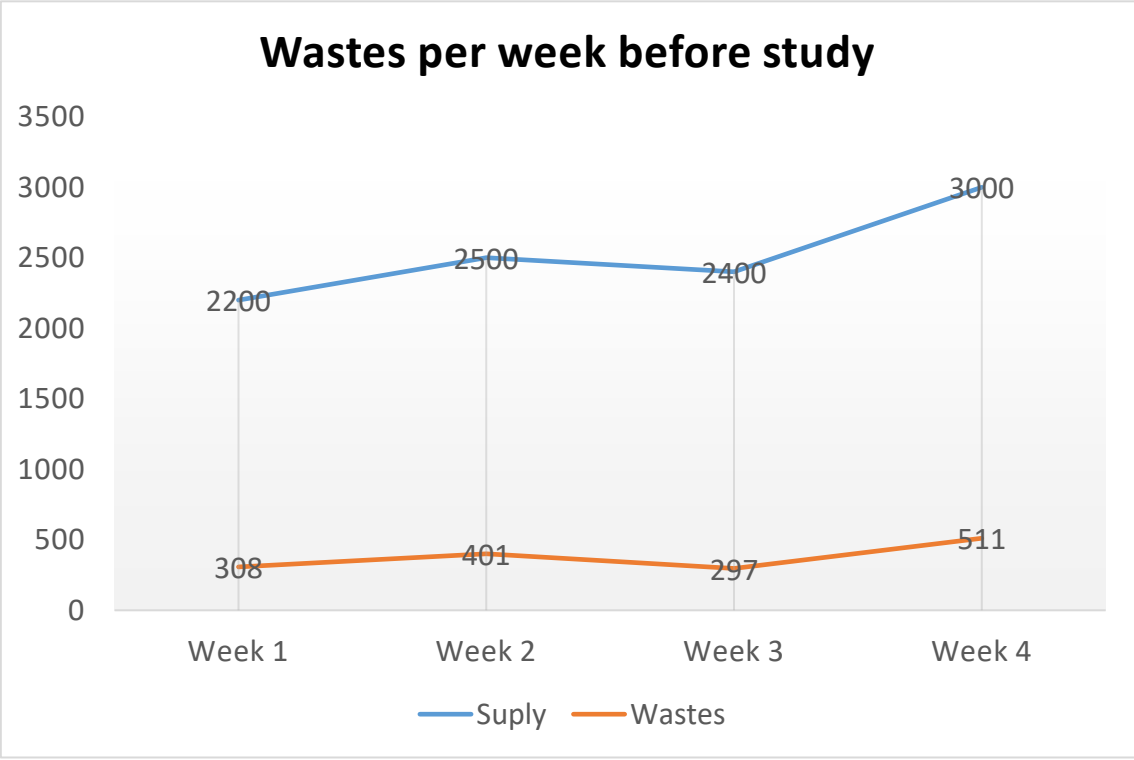

Figure 2. Expenses in R $ with groceries and waste per week before the study.
Source: Own Author

From stock production began manually, since to start the process of production of small snacks in machines, there was the need to make the masses and fillings of various types and qualities of delicacies. With only three people taking care of both the manual and operational aspects of the machine, there was a lack of sufficient manpower to speed up the process, but the company said there was no availability for staff expansion at that time. It was then that the second problem was encountered, the existence of a production bottleneck that diminished the productive capacity in relation to the capacity that the factory could present if it were operated correctly. Another point that was noteworthy was that all the production of large salted foods did not have the aid of machinery, that is, it was done entirely by hand and by hand, by the same people who worked in the process of the smaller salted foods, which showed that it did not There was an organization of different types of procedures, which resulted in wasted time and increased costs.

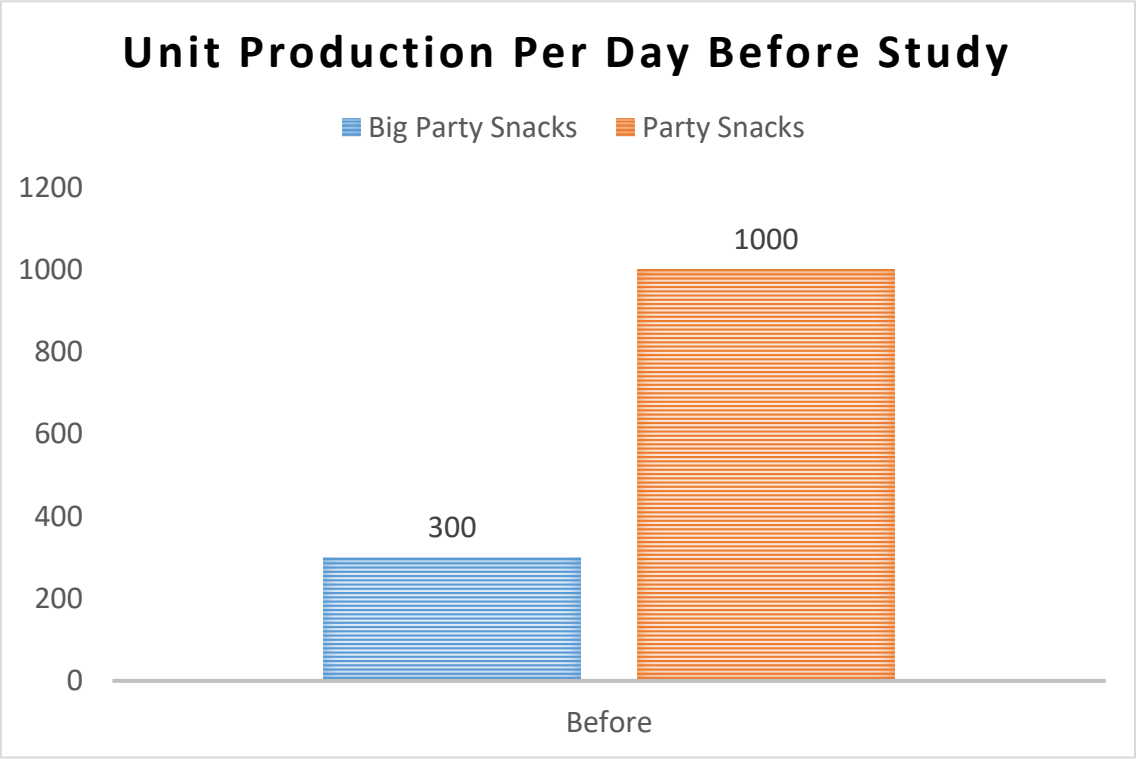

Figure 3. Production of large and small salty foods in units per day before the study.
Source: Own Author

Given the analyzes carried out in the process part, finally the last verification step was the storage and disposal of ready-to-eat products and products ready for freezing and subsequent sale. Applying the inventory controls tool and logistics tools, it can be seen that in both activities the company was in need of greater control and monitoring, which caused delays in delivery.

4.2. Proposed measures to be taken to improve processes.

From the moment the company's improvement needs were identified, the opportunity arose to apply actions that could turn into results, and for this, as proposed, the logistics tools that could have some positive effect were put into practice. within the current scenario of the company.

Based on the inventory control tool, the first part of the company to be worked on was the purchase and

storage of the raw materials necessary for the development of the processes to be performed from the production sequence required on the factory's production line. If previously there was no effective control over purchases, then the FIFO system - “First in first out” was applied. The inventory control method adopted allows companies to use raw materials with longer usage times first, and also allows the possibility of creating a stock without shortages in any unforeseen order needs, and it also allows The company is in the food business, lower losses with expired or damaged products, since the probability of this happening is great if there is not a correct storage procedure for each type of food.

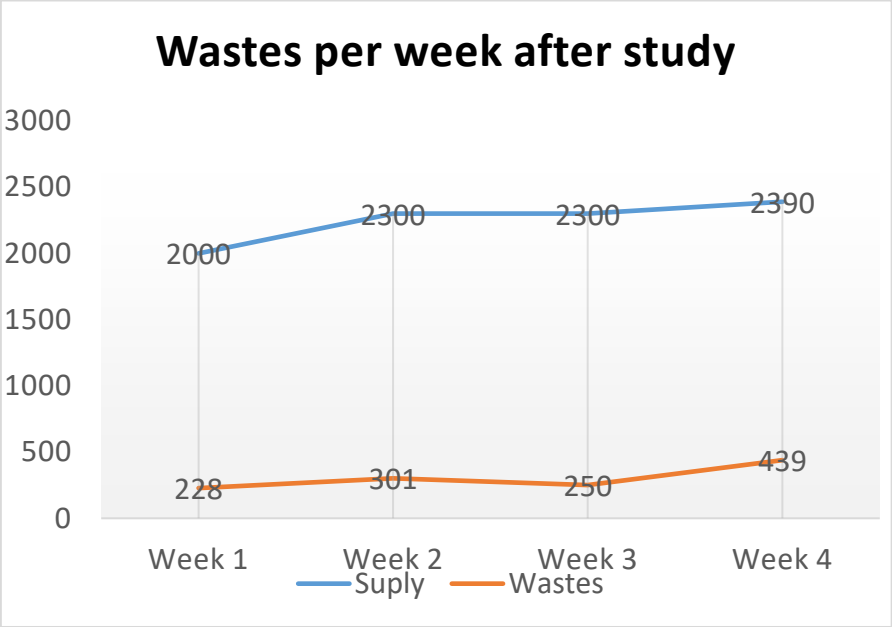

Figure 4. Expenses in R $ with groceries and waste per week after the study.
Source: Own Author

Following the line of inventory control, the company was proposed to be loyal to certain suppliers. The practice implied in purchases with volume established according to the weekly need of the company, this consequently allowed a bigger gain in relation to the discounts applied in the purchase of the goods, since in purchases of large volumes one can buy with the wholesale price.

Going against the processes adopted by the company, the application of tools to improve process controls was also started. Prior to any change initiative or proposal, it was evident that there was a need to increase the number of employees who take care of this area, so it was proposed to improve the hiring of at least one more person who could manage the machines and processes involving the production of savory foods. Still regarding the process controls, it was suggested the creation of a production schedule, establishing guidelines and goals to be fulfilled according to the seasonality of the orders that the company has, although, in certain periods of the year, have a lower production need. There was no hiring another person, but there was a relocation and assignment of tasks exclusive to certain employees. Thus, the daily production capacity has evolved significantly.

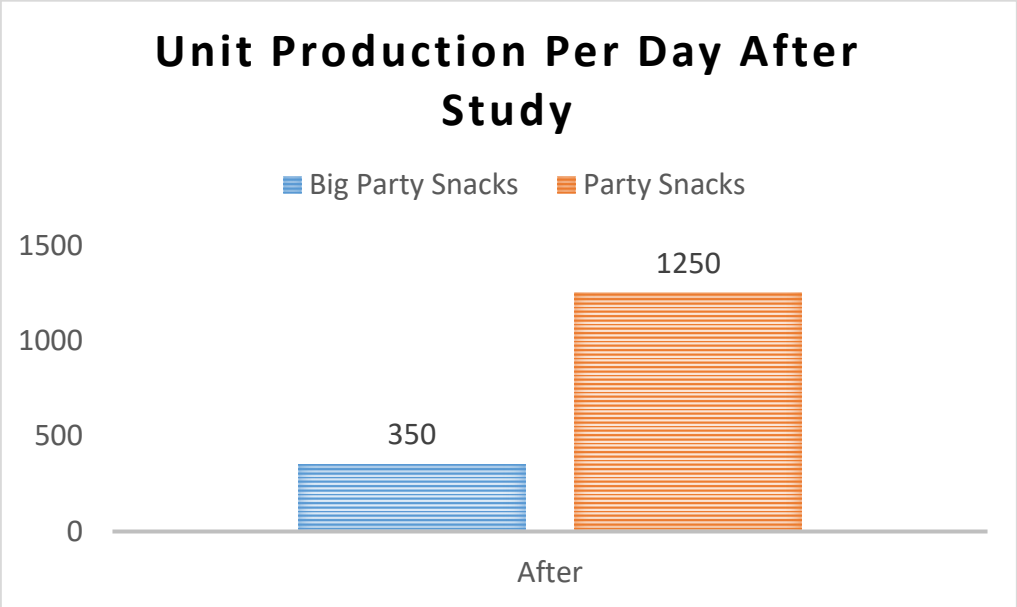

Figure 5. Production of large and small salty foods in units per day after the study.
Source: Own Author

The implementation of process control is also due to the company's ability to manage its organizational deficiencies. Due to this, a higher quality was proposed in the follow-up of the decision making in the motivational scope of the company, regarding the quality of the workforce and satisfaction in doing the best for those who make up the staff of the organization. This causes the company to have to have a favorable organizational climate that enables such conditions. Thus, it was indicated the use of the famous 5S method, which provides process improvements when working the five fundamental pillars to create a fundamental work environment for good results.

5. Results and Discussions

With the completion of data collection and the implementation of the proposed resources to improve the processes executed within the salty factory, new ways of managing the business can be put into practice, so the various positive results began to appear shortly after. the changes made in the way of production of the organization.

From this, the company's initial objective of improving financial results was achieved by implementing changes in the behavior and way of running the company and adding approximately 10% higher profit compared to before the study. Where there is a decrease in spending in all sectors of the company, especially by the organization that was exercised to put into practice all that was proposed.

Despite not being able to reach the total effective production capacity, the percentage of its delivery to large salted products rose considerably, about 14.9% higher than the previous month's production. For small savory foods, the improvement was even better, 25% above the previous average. The stock now includes frozen products set for sale with a shorter time than previously had, this reduces the cost of energy, since it stopped using one of the refrigerators, and the product is no longer waiting for more. orders, translating into better product quality.

The use of an ERP system has been ruled out. As much as it was known the gain that the tool could drive in sales and management of the company, the high cost for a small business weighed at the time of decision.

6. Final Considerations

The applied study aimed to improve financial results in a small company by applying logistics tools capable of creating improvements in various sectors of production, from the input of raw materials to the flow and storage of production. Thus, a study was proposed in the process that could identify the main points of the production line in need of changes, which caused the process as a whole, idle production and relevant losses due to inefficient management. As a result, this also led to inefficiency in the production line, making the process less standardized and considerably reducing the company's effective production capacity.

After the changes were made, the analysis of process improvements began. Using the PDCA, the "CHECK" was put in place to check if the results obtained were in accordance with the main expectations established in the planning and execution stages of the changes.

It was evident that it was possible to reach an acceptable evolution to the previous molds and results that the company had been presenting. Initially decreased inventory costs. With the way of working centrally and with fixed suppliers, losses with overdue foods were nil at certain times, which resulted in an 11.9% reduction in the amounts spent on obtaining the raw material. There was no need for hiring employees, the study was conducted with the same number of people working, however, with the assignment of functions and pre-established activities, it was noticed a decrease in machine setups, when there was the need to diversify salty types. What allowed the perception of improvements was greater control in the process, in addition to the importance of the organization established from the 5S.

For future studies, I suggest the possibility of implementing an ERP system, which would allow the whole company an integrated management follow-up, which can bring even more benefits to the company, which was not possible to study it due to the lack of resources for investment. in the tool by the company.

7. Bibliographical References

BALLOU, Ronald H. Gerenciamento da cadeia de suprimentos: logística empresarial/Ronald H. Ballou; tradução Raul Rubenich. - 5. ed. - Porto Alegre: Bookman, 2006.

BALLOU, Ronald H. Logística empresarial: transporte, administração de materiais e distribuição física. São Paulo: Atlas, 2003.

CANO, Catarina. SILVA,Gabriela Gavioli R.D.S.Introdução a Logística Empresarial. São Paulo: Senac, 2018;.

CHRISTOPHER, Martin. Logistica e gerenciamento da cadeia de suprimentos. Tradução da 4ª edição norte America. São Paulo: Cengage Learning, 2011.

COUNCIL OF SUPPLY CHAIN MANAGEMENT PROFESSIONALS. Disponível em: <https://cscmp.org/CSCMP/Academia/SCM_Definitions_and_Glossary_of_Terms/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms.aspx?hkey=60879588-f65f-4ab5-8c4b-6878815ef921>. Acesso em: 09.10.2019.

LOPES, M. A. B. et Bezerra, M. J.S. (2008), "Gestão de processos: fatores que influenciam o sucesso na

sua implantação", artigo apresentado no XXVIII ENEGEP: Encontro Nacional de Engenharia de Produção, Rio de Janeiro, 13-16 de outubro, 2008, disponível em: http://www.abepro.org. br/biblioteca/enegep2008_tn_sto_069_496_10656.pdf. Acesso em 09.10.2019.

MARIANI, C. A. Método PDCA e ferramentas da qualidade no gerenciamento e processos industriais: um estudo de caso. Revista de Administração e Renovação, São Paulo, v.2, n.2, 2005.

MAXIMIANO, A. C. A. (2015). Fundamentos da administração: Introdução à teoria Geral e aos processos da administração (3a ed.). Rio de Janeiro: LTC.

MOURA, L. R. Qualidade simplesmente total: uma abordagem simples e prática da gestão da qualidade. Rio de Janeiro: Qualitymark Ed., 2006.

PENAF,David Garcia. Gestão de produção e logística/ [texto] David Garcia Penof, Edson Correia de Melo [texto aqui] Nelson Ludovico. – 1. Ed.- São Paulo: Saraiva, 2013.

RAZZOLINI FILHO, Edelvino. Logística empresarial no Brasil: tópicos especiais. Curitiba: Ibpex, 2010.

SLACK, N., Chambers, S., & Johnston, R. (2015). Administração da produção (4a ed.). São Paulo: Atlas

VIEIRA, G., Filho (2010). Gestão da qualidade total: uma abordagem prática (3a ed.). Campinas: Alínea.

WERKEMA, M.C.C. As Ferramentas da Qualidade no Gerenciamento de Processos. Belo Horizonte: Fundação Christiano Ottoni, 1995.