

Evolution of inventory logistics as support management in the manufacturing industry

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Abstract

This article shows the advances in inventory logistics that have been developed for several years in the manufacturing industry and the contributions of different companies and/or organizations to their objectives, allowing them to position themselves in the market and compete with their products and/or services, having that added value that makes them different and unique in the implementation of their logistics and inventory management process. The relevance of the different models at the enterprise level, are exposed, as well as the correct application of the planning, distribution and execution of logistics in its production chain, where it also presents the results in the optimization of resources both human and material and economic leading the company to a strong level of quality due to the improvement of its productivity, starting from the importance of inventory management systems as a fundamental axis to achieve success in organizations and thus achieve greater control and monitoring in the inputs and outputs of products that can avoid incurring high financial losses and that harm the same; Therefore, the different types and classification of inventories are detailed according to the needs agreed upon by the organizations to support the fulfillment and development of the objectives outlined on the road to success.

Keywords: Logistics, inventories, management, industry.

I. INTRODUCTION

Currently, organizations and/or companies have been implementing inventory logistics as a tool to support management models that allow measuring productivity indexes, as expressed by Gómez & Lopes (2013), that management models have an essential condition in the rotation of the budget or financial resource used for the product for the benefit of customers with a continuous improvement in their processes.

Most of the processes of a company must be framed in management models that allow to organize each of the moments in the production

chain getting to have clear the execution of the same delivering as a result a product and/or service with high quality indexes that make a difference in the competitiveness of the market. So, says Parada & Veloz (2017), that logistics as a management model is linked to the cycle of planning, distribution, and implementation of this with the business approach from the finished product to delivery in the hands of the customer or consumer. This leads to have a line of business activity which tends to make organizations and / or companies more competitive having an oversight in the economic resource which makes logistics more interesting.

In this sense, many companies, are responsible for improving their processes to achieve deliver better care in the processes and get to identify the fundamental to manage those resources necessary to meet and prioritize the needs in providing a better experience in products / services of great value to the competitive market imposition, which benefits organizations, having present achieve that kind of management is complex reviewing the way in each of the links in a supply chain, Footwear (2020). Clear concept when it is made known that precisely the logistics management in the field of the industrial market has had so much influence and has contributed so much in the strategic plans that organizations have in their execution for the projected activities, measuring those results of the opportunities that have the same to consolidate operational processes and achieve those advantageous competencies with reference to other companies, (Leal, 2018).

On the other hand, within the logistics management the Human Capital, has remained in a constant growth and providing sustainability to the processes in the organizations since the 80's, which this has added a representative value in the companies and organizations of the planet, thus obtaining the basics to be competitive highlighting the function of its collaborators, (Cuesta & Valencia, 2018).

In the same way Gallego & Naranjo (2020) in a more academic way manifests that the Human Capital, must be full of competences with a learning level that allows to be a key piece within the processes for the development of the organizations and that it is the axis of gear as an essential element, because the competence is not only in the quality of the production of its products/services but in the qualified hand with which it is counted to achieve the expected results.

2. INVENTORY MANAGEMENT LOGISTICS

In order to achieve the desired success, organizations must have very present in their industrial programming the implementation of inventory logistics that leads to an organized and planned development of all processes in the production chain, optimizing resources, having

greater effectiveness and significant progress in the projected objectives. (Teiler et al., 2021) emphasize that inventory management must be the continuous advancement of planning, organization and control that leads to the optimization of resources obtaining a differentiated factor between the needs of customers and the responsiveness of the company to these needs; with a reduction in costs and greater satisfaction for customers and / or consumers.

In the same sense, it is important to understand very well the meaning of logistics management to be able to apply it in the inventory that is handled in the organizations and/or companies for their production process, since the fulfillment of the purposes established by them depends on this, allowing to unify and consolidate concepts in their execution, this is how Ganoza (2018) manifests it that logistics management is called as a "system" that allows to gather several components that united and intertwined help the fulfillment of the objectives, this in the organizational industrial field is what compensates the realization of activities in specific areas in a joint way with effectiveness generating optimal solutions for the ideals of the organizations.

On the other hand, it is necessary to bear in mind that over the years, processes are undergoing changes and at the same time organizations and/or companies must keep up with these changes with their management models, adapting them to the needs that arise in the supply and production chain in order not to make mistakes and thus not to fail to comply with the requirements of customers and consumers who have become a tray of interesting data for the processes; Parada (2009), states that logistics management over the years has undergone some changes where it is reflected the importance of customers to have a participation in the provision of information to obtain the best results by providing important qualities to the product and highlighting a customer service that illustrates the continuous improvement in the processes of organizations.

In this order it is necessary to know that the management of inventory logistics should be an optimal key that helps the operation of the organization and allows those in charge of each

area to manage the management models in the production chain acquiring more learning and applicability of the processes to be in that constant continuous improvement to the needs of change that the manufacturing industry itself requires.

2.1 Human capital

During all the processes in the production chain is of utmost importance the presence of human capital or human talent trained and suitable for the variables that arise in it, having the ability to make decisions and take actions that benefit the company, it becomes a preference that the staff get that connection with the productive labor field and become familiar with the process achieving that productivity is expected by the managers and / or administrative of the organization achieving goals, as Restrepo (2005) says, everything must have an end for the fulfillment of objectives and for that it is important to know the human capacities of the personnel creating a correlation with the development of the business advances and the intellectual growth of the human capital who is one of the main actors of the production chain, achieving a vision that goes from a costly situation to a modern and innovative process from the human capacities and a potential organizational talent.

In organizations, one of the indicators that make the difference with others is the productive skills that the collaborators come to possess and the impacts that they generate in the goals achieved by the processes carried out, marking a high index of effectiveness for the entire team of the company, (Maluk et al., 2016). In the spirit of continuing to increase the productive stages of the organizations by the human capital, (Medina et al., 2021), considers of utmost importance the value that the collaborators of the organizations have been obtaining as a fundamental pillar in the processes that give a step to the development in the production, highlighting the excellent logistics system to yield the best results within the supply chain.

Therefore, human capital from the perspective of human capabilities should become that intangible asset that gives organizations an added value for the development of management models in

inventory logistics for the improvement of the production chain in compliance with the objectives projected by them.

2.2 Importance of Inventories

From the applicability of management models in inventory logistics, the importance of these models and how to evaluate their development in the production chain of the organization and/or companies should be taken into account, bearing in mind the situation of current prices and the wear of the inventory to have an outstanding activity in the market with an effective and efficient products/services, achieving an optimization of costs and providing a response to the needs of customers or final consumers within that chain, given the situation raised; the authors Jiménez & Cepeda, (2016) indicate that companies focused on production should define management models in two variants, one as the inventory status and the other as an inspection in order to be clear about the demand in production and when is the stock level.

Based on the considerations made above, for any company its pillars are framed in the purchase and sale of products and / or services, it is where it begins to have a super interesting role inventory in the same, which will allow greater monitoring of the processes obtaining a reliability of economic resources in organizations. Thus Ortega, Padilla, Torres and Ruz (2017), relate the need to keep inventories in organizations as this is considered an ability in the planning, distribution and execution in the supply chain times, providing a safeguard in inventories, avoiding a breakage of supplies, a price support and optimization of production costs.

In that order of ideas, inventories are so necessary that they have become the fundamental axis of a company to achieve a greater investment in time, space, material and human resources, unifying concepts and terms in the development of the distribution chain as a result yielding excellent productivity, as Navarrete (2019) says, the determining role that inventory management has played in organizations has resulted in visualizing a possible waste of raw materials, which leads to a systematic lack of control in the functionality of inventories within the processes. Thus, it is

necessary to indicate that inventories are the essence of the processes within the production chain avoiding cost overruns in materials, machines and unqualified human resources in the development of inventory management models, generating confidence in the planned, in the distribution and the very implementation for marketing of goods and services in the manufacturing industry.

3. EVOLUTION OF LOGISTICS

To understand more clearly what logistics has allowed to implement in companies, what it has done marked in their production processes and has generated a change of mentality and organizational vision in them, allowing to recognize that this is not something new as such because in every action that is performed is the logistics who brings them together as a system of processes that geared give me as a result as an improvement in productivity, obtaining a loyalty from customers / consumers; and it is that already years ago it was seen talking and visioning in the execution of activities to reach what in the present is known as the logistics of the present time; That is why Caballero (2021) starts by saying that logistics dates back to the 50's in the military field where in war campaigns everything related to the development of armed confrontations was seen, which caused mishaps in industrial marketing, in the acquisition of optimal raw materials for the development of products that in case of war then all the equipment of weapons and others, and then the manufacture and finally the distribution of the same with an appropriate logistics friendly to the environment, allowing a more efficient and competitive production.

Throughout this article, it has been discussed how logistics should or can be developed in a better way in organizations and / or companies, through the implementation of an inventory model to improve the performance and effectiveness of the same in the competitive market of the manufacturing industry, which for many companies has become a mechanical or a routine process that has not allowed the best performance in the company which leads to think about an adjustment in its implementation; With reference

to this (Server, 2010) states that for a long time logistics has been developed as a monotonous action in its application and that its function is important from the beginning of the supply chain in production, passing through the distribution points and finally reaching the hands of customers/consumers, which for many companies has meant a change in their production processes for others has been one more process that the organization has.

It is clearly observed that logistics in organizations and / or companies has become a key point for the development of processes to give a better performance to meet the goals proposed by the management team, with clear and relevant results in its location in the commercial market of the industry, manifesting itself as a fundamental pillar in the production companies and without any mistake in those that provide services, ensuring excellent customer service and achieving a positive perception of the organization, according to Ferrer & Rodriguez (2013), says the following "Logistics is a means to support the overall goal of the firm and achieve competitive advantage", and that is where you find a deep meaning to the indispensable role that begins to make sense in the organization and / or companies that implements them in their production processes as this concept allows them to achieve an added value when being competitive in industrial scenarios where they apply with their products / services, highlighting how important it can get to do for your goal and that are reflected directly in the perception of their consumers.

3.1 Evolution of Logistics to Supply Chain

As everything in life has a cycle and a time of existence in which you get the most out to explore, discover and apply in the different processes that are handled in organizations which makes them achieve develop and have a greater business and productive growth that make them more competitive, which goes from a purely logistical field that is often evident in the processes of companies also reach a transition where everything is known as a chain because it is joining each of the steps of production mixing the different supplies to obtain the expected result;

Nickl (2005) states that currently this new process brought with it a systematic way to apply it and that has led to the organization and companies to take the decision to replace the multiple digital systems with the internal information of the same in a unitary system that allows to group that internal information of the company, allowing to have a greater access to the information as in the best of the times for production in each of its processes with the permanent monitoring.

As mentioned above, the evolution of logistics has been constantly changing and improving its own tools that help its application in organizations, moving from analog systems to programming and digital systems, optimizing processes and resources of the same; therefore Cardozo, Chingate & Rojas (2017) specify that in the industrial many organizations are seen immersed in the struggle with challenges that allow the growth of production at an international level which has led them to have an incident participation in world markets and make part of the new strategies of logistics for their companies; the persistent changes of tools and the importance of advancing in sectors where the gears in the actions performed by the companies make sense and achieve the results expected by the partners and / or entrepreneurs.

Likewise, Muñoz, Cabeza and Lombana (2017), refer to the fact that the development phases of the processes that fall within the stages of production, logistics is reduced to the actions focused on the supervision of each section of the production chain. Hence the importance of knowing how to understand each of the aspects in which logistics will play a fundamental role in allowing companies to obtain the necessary resources to achieve the management's plans.

3.2 Human Resources in Logistics

Rodriguez (2018), launches an opinion with reference to human resources in Latin America, relating that the low levels of productivity in organizations is due to the low investment not only in the physical structure of the same which leads to an overload in the collaborators who are directly involved in each of the production processes in order to provide them with the guarantees to be

able to develop laborly in their field of action. However, everything is evolving, as it is related by Leal & García (2008) that everything is entering in a process of modifications where we stop calling human capital or personnel and we are finding terms such as Human Talent Management and/or Human Resource Management, managing to be co-responsible at the moment of facing the new challenges of the market; all this has allowed to create an office dedicated to a fundamental part of the organizations achieving a more favorable and suitable work environment in the growth and formation of the collaborators.

Precisely in the context of facing the new challenges that the business market has for organizations, it is important to remember that in the learning of employees is the constant change of thinking and open the horizons of each one of them to be seen in a more proactive and productive way always adding value to the processes, Therefore, within the human resources management (HR) to have a staff trained in social sciences and soft skills that allow to develop and guide the development of thinking so that they can speak the same organizational language and know how to manage the Human Talent from the business psychology, Correa (2013). Hence the importance of the individualization of human resources for organizations that allow personal, professional and labor development; that is why Vesga (2020) shares that in the company/organizations there must be a constant involvement of the collaborators in each of the logistics processes and that they themselves are the ones who devise mechanisms, plans and strategic actions to meet the goals of the organization, although it is usually complex since it is thought as a whole, it is necessary to be open to a relationship that individualizes the actions of the same.

For individualization to have its own meaning, it is necessary to have flexibility on the part of the collaborators that allows them to express themselves in the development of their projections in the organization, to make the internal processes more flexible and that can be reflected in the external results, that is to say, in the numbers that each of the initiatives taken for the improvement of the organization is profitable, For this, it is

necessary to know how to make good use of the talent of human resources and to know what will be the different responsibilities they will have to develop to exploit their skills and attitudes in depth, on the other hand, it is necessary to keep in mind the numerical flexibility to allow incentives in hiring and recognitions that allow improving productivity and that every time the processes are better, Sanchez, Martin and Fernandez (2015). On the other hand, Sánchez and Herrera (2016), require an integrative approach that has an echo in the collaborators linked to the processes of the company so that a structure of progressive business change can be visualized, achieving joint growth of collaborators and organization, projecting themselves to be apt in a solid competition with a sustainable value compared to the others.

3.3 Some areas of applicability of logistics

Logistics has a fundamental role in where to develop each and every one of the systems that allows organizations to have control of their processes in the supply chain, therefore one of the fields of action of it is the manufacturing sector and as an example Salcedo, Peña & Bolaños (2016), publicize the development of logistics in the manufacturing field of paper production in the Valle del Cauca, since for many years it has been intervening the best way to recycle products/materials with the aim of encouraging the care and preservation of the environment, achieving that through this process the production chain gives an additional value to what for others is no longer useful and is manipulated turning it into a usable material in manufacturing. But not only the manufacturing sector we can see it applied in this type of procedures in Colombia but abroad processes are handled as is the example of Uruguay, Silveira, Horta & Camacho (2015), found the best way to have a competitiveness in the market from logistics through the proper use of resources achieving a potential in organizations with the opportunity to form a competitive value that is linked to research and development with a clearer position of the transmission of knowledge, in other words, there is a direct relationship between resources and knowledge.

In another sector where I am seen to the strong influence of logistics is the hospital field, Aguirre, Wilches, Romero & Figueroa (2016), highlight that the production chain is identified through computer technology facilitating the processes from a health post to a larger and more advanced medium center, tracing a path for the actions from the elaboration of the products in this case medicines to their consumers, achieving advances and improvements in quality care to their customers. For Vidal, Mock-Kow, Zapata, Valentina, López & Galvis (2014), logistics in hospital systems becomes meaningful and important when there are access routes to identify the shortcomings that arise in the distribution of medicines by those responsible for getting the health products to their destinations, i.e., what is planned within the strategic matrix for the operational processes in the health entities is fulfilled.

The fundamental presence of compliance and appropriation of logistics management in organizations is equally illustrated in the perishable food sector, and this is how Gil-Lacruz, de la Cruz, López, Saz-Gil, Ramírez & Rivadeneira (2019), state that in the perishable food industry it is advisable the appropriation of knowledge with a view to quality in the provision of service without neglecting each link in the production chain, as can be seen in the fisheries sector, when the product is delicate, the whole process leads to a company/customer development in the satisfaction of the final product. And everything relevant with the supply chain is aimed at avoiding losses, that is why Paredes & Salazar (2014), emphasize that in the way in which the production reserves or production inventories are running out, the person in charge is in the obligation to start generating the respective emissions on the orders to suppliers, in the precise measure bearing in mind the flow of the product to avoid damage and meet customer requirements.

4. IMPORTANCE OF INVENTORY MANAGEMENT

Inventory management has been around for many years, since the time when the human being began

to discover what he had around him, but this did not guarantee that it was grouped into a system where everything had an organized control where the administration, directions and execution of the processes were immersed in a gear for production; on the other hand, this system model in logistics has been a focus of study with evidence in the business sector, to eventually achieve cost optimization and process improvement, setting guidelines for a competitive dynamic with approaches in mathematical models, Gomez & Lopes (2013). But in inventory management there is an important factor so that it can develop in the best way, as defined by Cejas & Garrido (2017), when they say that in inventories, the financial field plays a fundamental role for its development becoming a qualified asset as a primary element in the implementation of processes, creating an opportunity of addition between what is produced and the organization, fulfilling its customers/consumers respecting their demand.

At present there are many companies that are immersed in diverse spaces and are ready for the application of mechanisms that allow them to achieve success to always be prepared and face the challenges of modernity, making organizations stronger and more solid, ensuring their permanence in the business sector, (Pacheco, 2019). For the applicability of an inventory management as a functional control in the administration of an organization, it is convenient to distribute in a correct way the inputs and outputs of economic resources as a fixed asset, leading companies to achieve the expected goals based on their objectives through optimal inventory management leaving an effectiveness in decision making, (Apunte & Rodriguez, 2016).

Usually in organizations after a process of managing resources, personnel and handling in an optimal way the inventory management reach a level of quality that allows them to be competitive in serving their customers by relying on the correct use of inventories, since its main function is precisely to ensure in a timely manner the products required for the development of each of the processes in the supply chain until the arrival of the final product to its consumers in favorable conditions, Miguél, Acevedo & Salas (2017). For Bastidas & Toro (2011), the application of

inventory management is formed of determinant character in decision making by setting the guidelines of the amount of material/products that are destined to be marketed in the distribution axes of the organization and on the other hand the behavior that influences the dynamism of the constant changes that occur around the organization obtaining an excellent recognition in competitiveness with a high expectation in consumers.

5. DISCUSSION AND RESULTS

In logistics it is essential to have an analytical control of the processes that is directly related to the development of production, which allows having reliable and truthful data at the time of business decisions to generate the expected impact, Moreno & Bonilla (2019). For considerations within the development of inventory logistics, Ojeda & Antún (2004) analyze everything from a concept known some time ago and called "Benchmarking", which refers to examine and guide the practices in inventories focused on modern trends of the strategic plans drawn by the organization for its execution. In his own words, Causado (2015), ratifies that inventories are for organizations the final product within the whole supply chain processes and considers the most transcendental for a company, marking keys to choose the best proposals to direct the paths of the same; independent of the focus of a product/service everything ends up being important assets for the organization, supporting the demand with its supply. The success of inventory logistics in companies is based on taking care of, managing, and making good use of the resources available to the company; personnel, raw materials, and finances distributed very well by each of the areas involved in the production processes, all this is what leads to meet the goals proposed by the organization, Bustos & Chacón (2007). Nothing would have an optimal sense in the logistics processes without having a trained staff with the right skills that are the key piece in the development of the challenges that organizations face every day to achieve their goals, a human capital willing to always do the best to contribute what is necessary for that

relationship with the continuous improvement of logistics, (Herrera et al., 2020).

Likewise, it is necessary to indicate that all the systems in an organization are subjected to changes and different experiences to see the reaction to the frequent processes that they face and in has fundamental pate as logistics begins to evolve to provide more and better initiatives that allow to guide the economy of the companies in these practices of performance in the processes and procedures of production, so that this evolution has a sense of addressing organizational plans and operational methods in the correct application of logistics, based on many occasions in models of operations research; Cuervo, Martínez & Orjuela (2021), because the more links are implemented in the production process chain, the more complicated it becomes to analyze and study the situations presented in the decision making process. Within the changes involved in the evolution is present everything related to the area of purchase of assets of the organization, which has been budgeted from the beginning to give progress to the different processes with inputs and materials, being relevant with the wrong stops in production; that is why logistics makes a qualitative leap in the management of the supply chain that is reflected in the operation of the processes of the organization profiling it in achieving efficiency and productivity from its principles and easy access to the needs of the product/service in the transformation of the manufacturing sector, (Nogales 2007).

Paredes (2015), states that in this process of transition of logistics processes there is always a co-responsibility with senior management and the entire team dedicated to the direction of the processes given to employees in their training to be relevant to lead the different production proposals and thus allow them to emerge and grow in the personal, professional and labor areas, obtaining from them strategic allies in their process of change. It is important to achieve the training of all human resources (HR) personnel, since this will help continuous improvement, as expressed by Montero, Ruiz, Alvarez, Vasquez & Garcia (2008), in every method there is an influence on the way to obtain results as a differentiating factor in the evaluation of

indicators and always be very alert to the variations that occur in the supply chain for the fields of interference where logistics is present, and this is directly reflected in the productivity of organizations.

In the context of the importance of inventory management is directly related to the development of the logistics system of an organization and ends up being the most complex of the process, since its main shortcoming is based on the administration of all resources that influence production because of what you have, with how much can be done and how much inventory is left after all in the manufacturing chain of products/services, leading to an optimization of resources, minimizing costs and obtaining greater productivity in their organizational processes (Cifuentes et al., 2012).

CONCLUSIONS

Any organization that has in its ideals to achieve success in their production processes, achieving a considerable decrease in time, lack in the development of the capabilities of its employees, optimizing resources and above all leading the organization to a level of effectiveness that makes a difference in reference to their direct competencies that allows them to be measured and evaluated at all times, because if this is not done, there is no continuous improvement of the plans proposed by the top management in the fulfillment of its principles and the achievement of the projected profits so that it can be competitive not only in the logistics of production, nor in the distribution of the products, but that the quality can be its standard and added value so that its clients/consumers become loyal to them.

The guarantee of the results that can be obtained is based on the dedication and empowerment that companies exercise in their human talent or personnel that they have to row together in the seas of manufacturing markets that carry the certainty that all navigating the same waters and speaking the same business language is what will allow them to obtain benefits, results and above all the recognition to continue creating impact from their organizations to their internal and external customers as the same suppliers that are part of the achievements harvested.

The changes at the beginning will always be uncomfortable and more when they touch so important fiber as the comfort zone, where the processes are developing well, but the needs of organizations to cover deeper ground in the industrial field lead them to experience scenarios in the manufacturing sector where the demand of the markets make them become competitive to be at the height with the offer that as a company they are in the disposition to produce or implement in the distribution processes until it reaches the hands of customers / consumers with optimal quality standards, achieving to position the organization in higher business scales where it is recognized that for there to be an excellent supply chain in the logistics process must have a trained human resource, prepared and super motivated to leave an individual thought and have business behavior that are no longer simple collaborators of an organization but are those fundamental allies to achieve the fulfillment of the goals successfully, recognizing that every time things are done well, there will always be a space to do it better.

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