Logistics And Costs Associated With The World Economy

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Abstract

Logistics in a company is of vital importance because he takes care that the inputs, have a storage suitable, quantity in stock be according to the capacities technical and monetary of the company, and in this way the deliveries or returns, do not generate losses in profits or dissatisfaction in the clients [1]. The dynamics logistics present currently, they have generated a number of challenges as companies are organized and structured to provide added value to their products or services, for such reason industries they have designed competitiveness and permanence strategies in the market, based in the planning of the DFI (distribution physical international), its costs and operations inherent to the process [2], this concept has represented a new paradigm in the Models logistic traditional, since in this case, the variables tend to be discretized from historical behavior and statistics descriptions of themselves [3]. The present article have What target realize a review of the DFI topic based on theories and cases of existence at the national and international, through a technique methodological descriptive argued for data qualitative and quantitative extracted from books, articles and online research bases.

Keywords: Activity, Cost, Distribution, DFI, Discrete, Routing

Introduction

The commercial and logistics stages of the Supply Chain within the industries are made up of different types of local, national and international markets, which can be wholesale or retail, the former being the ones that predominate or set the times and costs of the means of commercialization of products.

The retail retail market has been one of the most complex logistics centers of operation to model discreetly, due to the innate characteristics of its actors and the means in which they execute the exchange of inputs and money flows, for example small stores. neighborhood are direct agents of minor importance, who place a good amount of the product to the final consumer, however these are not the ones that mark or establish the dynamics of behavior of the plazas or collection and distribution centers [4].
Since its inception, Logistics has played an important role in the life and existence of the different manufacturing and service companies, the objective of this area within the facilities is nothing more than to provide the client with products and services that satisfy their needs, with minimum delivery and production times [5].

Traditional distribution systems were structured based on empirical models of routing and mapping of distribution and dispatch areas, in which time and costs did not play an important role, beyond that of an essential technical requirement for the process to was executed [6], in other words the sale of the product to the client, was what mattered most regardless of what could be improved or not in the same process, from this situation over the years and the appearance of technological and digital control elements, logistics systems evolved to a more technical and logical concept of action, which included a systemic analysis of all phases of the value chain and the interaction of variables according to internal and external operating agents. [7].

Each of the different variables present within business and commercial logistics, integrates the interaction of various production and operational cycles, classified according to the stage or phase of the value chain where they are located, mainly three different cycles are detailed, which are defined by Anaya;(2018) [8]:

_Provisioning cycle or input of supplies:_ It is that stage in which the raw materials or minimum flows required for the operation of machinery and processes enter the industry.

_Supply production or transformation cycle:_ It is the relationship between customer needs and the company's response capacity, based on orders or other general factors of production and transformation of raw materials.

_Distribution cycle:_ In this phase of the value chain, all those activities of storage and physical distribution of products between the company and the final consumer or other actors in the process as such are integrated.

Depending on the interaction of each of the previously mentioned cycles, a company can minimize its costs and production times, depending on some capacities or technical limitations inherent to the raison d'être of the process, however, the analysis alone does not it is enough to achieve this objective, if not on the contrary it represents or establishes an initial documentary base of qualities and quantities of the productive system in question [9].

Sales and consumer logistics are fundamental factors in logistics costing; the efficiency in the delivery of products and the means in which they are carried out interfere in the increase or reduction of the final price of the consumer [10], for this reason the logistics administrative policies have included various models of storage and retention of products according to the possibilities techniques of each organization.
The implementation of information technology has allowed some companies to structure their work plans in an efficient manner, due to this, the new transportation and delivery systems provide a different perspective of improvement in logistics supply chains and the modes in which that the process flows, since they begin their phase in the supply and end with the sale in the final consumer [11], the previously described is related to the levels of consumption and superfluous demand demanding by the final consumers, which which generates a priority need to technically carry out more frequent and efficient deliveries according to the stipulated times, for this it is also important to consider some external axes of action of the process such as transactions without errors and availability in stock [12].

Baroque pearl; (2017) highlights that companies have two ways or options when optimizing their logistics costs, the first is by negotiation, in this way it is possible to reduce prices from the timely handling of quantities of products (low volumes of materials). by supplying with suppliers and the second is an operational change, which implies a new traceability of operation which guarantees savings in the cost of transporting each unit of final product (Barrueco, 2017).

Logistics costing has usually been related to direct operation criteria, however, these represent a generalized aspect of the interaction of the variables, but not a definitive performance of these, that is, they do not provide a real overview of everything that influences the inside a process, since logistics systems have various regulations or external decisions that alter the correct behavior of the variables [14].

At present, the different technical mishaps that companies face in relation to the logistics process have enabled various theorists to structure informative debates on these situations, which for the academic field offers a number of documents and information relevant to the understanding of systems, it is according to the above that the need to be able to analyze and interpret all this knowledge is generated in order to appropriate those that best describe the logistics processes with their different costing variables.

The documentary review is an important pillar in the characterization of variables of the study object, as well as in the conceptualization of various important terminologies in understanding the behavior of the logistic system or model, some of these theories link the majority of actors in a value chain. reason for which an extensive bibliographic documentation is required, which provides an adequate technical language for the determination of conclusions and recommendations of the object of study. The objective of this article is to carry out a technical investigation of the international distribution systems, based on their costs and operating agents, for this a methodology was used, of a described type of some quantitative variables of the logistics system, which they were analyzed using diagrams and models of descriptive statistics. The information collected was based on the different indicators of international and national logistics distribution, primarily those related to the costing of merchandise and deliveries.
Method

The research methods differ according to the type of research, although it is true that, between descriptive and analytical research, there are different design methods for each of these methodologies, it can be said that in the analytical cause the writer tries to influence in one way or another in what it observes, while, on the contrary, in descriptive studies, it is limited to making recurrent observations of the moments of study. [15].

The present document was structured and designed from a _ _ appropriation literary regarding the distribution physical international , its costs and its different fields of action, for such reason was used and selected a type methodology _ descriptive , in which the different variables of the system were identified logistic , this characterization was made from a _ _ conceptualization of Silvera ; (2020) (Escudero, 2020), which was adapted and modified getting the following abstract representation taught in figure 1 .

The problem description technique is a _ _ tool important to him researcher at the moment of carrying out the interactions between variables of the object of study [17], The investigation made with methods descriptive is called research descriptive , which have What target identify , catalog and generalize the study phenomenon _ [18].

the methods descriptive They can be qualitative or quantitative . the methods qualitative are based in the use of verbal language and do not resort to quantification or numbering of variables. The main ones research methods _ descriptive are the observation direct , surveys , questionnaires or checklists and the _ _ case analysis _ unique [19].

These research models _ are usually employees when you have little information of the phenomenon a study . for this argument , investigation descriptive it ’s usually a job pre -investigation expository , since the _ knowledge of the properties of a phenomenon certain It allows give explanations to others matters they keep relationship [20]. In East same order of ideas, it is important note that two decision criteria they can to be linked and this is not necessarily establishes that one is the cause of the other , in In terms of the study , suppose that a bad inventory policy is not always the product of bad information .

Guevara; Verdesoto & Castro, (2020), establish the following research characteristics _ descriptive (Alban, Arguello, & Molina, Metodologías de investigación educativa (descriptivas, experimentales, participativas, y de investigación-acción), 2020):

the information supplied for research _ descriptive It must be clear , coherent and structured . In this is due avoid inferences _ based on the study phenomenon . The important thing is to have the observable and verifiable characteristics . For this you must have one _ research question _ It must be original and creative .
From observation direct, they are usually extract data qualitative, while when an information collection model is applied such as the survey, the results questionnaires usually provide data quantitative, while checklists produce data qualitative [22]. In the studies descriptive methods, it is not enough to present the characteristics of the study phenomenon that were obtained through the data collection methods. It is also important that you are be organized and analyzed in light of an order theoretical logical and consecutive various lines of action, the which will support the investigation [23].

In East same order of ideas, the instrument used for the collection and analysis of information is the SIPOC diagram, this diagram uses an analysis across the value chain, in terms plus technicians, The SIPOC diagram is used to trace an industrial process through the characterization of the different value chain actors (suppliers, inputs, processes, outputs and customers). Their use is not substantiated to provide too many details, but for the contrary to offer information relevant on a process to facilitate decision-making [24], figure 2 shows the diagram used in the value chain, this instrument will be employee in the identification of costs in each phase of the value chain, for this a general process will be determined, with each one of their respective variables. Identified the study factors were given for realize a search system of information sources previously mentioned, that addressed or talked about the importance of the cost logistic, the delivery times and the main decision variables of the chain logistics.

Supports theoretical data were obtained from the different sources of research information, such as Google Scholar, Scielo, Scopus, Science Direct and different repositories institutional with projects similar, the information extracted was complemented with knowledge empirical of the authors, in such a way that it could make a writing reflective of contrasting points of view, in such a way that the appreciations here present demonstrate the need for a concept plus wide distribution Logistics international.

Discussion

The DFI is the process in the what a manufacturer place a product in a foreign market, complying with a series of parameters and regulations, which are established in the agreements between seller and buyer, the main objective of the DFI is to minimize the times, distances, risks operating and costs logistics, that can be establish in any phase of the exchange of goods or services since the origin to final destination, although it is true that the theory pure relations commercial international classical and neoclassical was based in the integration of factors productive and their respective determiners main ones that affect in the ways of making a foreign market, from this are generated certain number of non-productive factors, the which in a certain way affect directly in the target primary incentive logistics commercial international of the countries [25]. In East sense, exist different studies that analyze the transport determinants international, the costs competitive, operations business and
interactions _ _ different process actors . _

Since another point of view, generically related to the operation of the transport, the importance of the aspect is highlighted technological in the performance of _ _ various logistics sectors . _ from the _ _ 2000s the tools digital are _ turning on a key basis, in the generation of profits and market expansion in the different lines of action [27]. It is important to emphasize that the Distribution physical International (DFI), contemplates innumerable variables and factors that become in costs , which in some times may go unnoticed , _ these case is done the intervention and advice of operators is necessary logistics , such as customs brokers , _ _ which have the ability to withstand processes in which the managers do not have experience , some of these events are detailed below : risks of deterioration , loss of customers , returns and destruction of value are high [28].

Commonly Entrepreneurs usually _ detail the DFI costs as a percentage on the final value of the product , but this is not so , the values monetary must be evaluated in terms of competitiveness , timeliness of delivery and customer satisfaction _ so this way you can determine the relationship between _ income profits of the company and the sales ( profitability ) of a trade operation _ international [29]. Next , we present a relationship of the costs logistic with their respective performance variables , these are extracted and adapted from a report titled “ Methodology for cost identification _ logistic in the fruit supply chain _ _ in Colombia ” [30], in figure 3, can be contemptate the costs logistics and their classification depending on the area productive within the organization , for the purposes of this study will only be contemplated those costs linked to actions logistic .

Everybody the Models logistics at the level international meet _ governed for the INCOTERMS ( Standards of exchange of products at international ); So same are regulations structure the costing or distribution model _ _ according to be the distances and means of distribution Cifuentes, (2018) defines them as :

Acceptance regulations _ voluntary between an origin (buyer) and a destination ( customer ) in an exchange international , east term is a set of acronyms of three letters that regulate and guarantee the responsibilities of the company in the sale of inputs towards the outside [31].

The Intelligence System Commercial for the management and analysis of foreign trade ( Legiscomex ), highlights that INCOTERMS are governed by three pillars of action , as described below [32] _ _

Establish the time and place _ _ the which risk transfer occurs _ on the merchandise , from the seller to the buyer .

Define the location or place of delivery of the merchandise or products in the destination market
To identify who hire and pay the transportation and insurance costs, as well same what is the documentation have to process each one of the parties.

For his part, Klawter Org, a organization international expert in logistics outsourcing in industries details the following INCOTERMS classification, the first and most simple is according to the means of transport used [33]. Depending on the convenience of transportation at the time of making a sale or export of a product for part of a business towards his final consumer, can be to find several costing models depending on the mode of transport. East case when the medium is terrestrial or maritime, the Costs that apply are shown below:

- FAS (Free alongside the Ship). The Origin company is in charge of making the delivery when the goods are placed alongside the designated Ship for the buyer.
- CFR (Cost and freight). Logistics costs are completely controllable and quantifiable, both parties take control of much of the process and there is more bargaining opportunity.

**The costs logistic in the DFI in Colombia**

In Colombia, according to various appreciations made for experts in subject logistics, it is identified that one of the mistakes plus common in industries is that they do not consider operations logistics. What part of the decisions managers of the business, it is for this, that they are not articulated with the objectives commercial and for therefore they do not develop indices or KPIs of the costs than these generate.

Nicholas Director of affairs corner of the National Association of Foreign Trade (AnalDEX), in an interview done for the Newspaper the Herald of the city of Barranquilla assures that:

2022 is evidencing a phenomenon logistic never seen, the which consists that the companies port they have decided that the import and export containers return after downloaded”, that is, if an importer receives his commodity in Cartagena and takes it to Medellín, the company saleswoman must to return the container back to the port, which implies a cost additional [34]. According to the previous situation detailed, the different agencies you are in charge of regulating these costs logistics, have promoted various supporting policies economic and technical in industries, these measures they have favored the decrease of some on costs attributed to policies public taken for the governments International or bad practices of entities national [35]

In search of greater competitiveness in the centers logistic national and international, the countries Latin Americans, including Colombia, have I have enlarge his infrastructure, livestock a modernization in the way in which carry out the provision of logistics and mobility services according to the new needs and standards technological [36]. In a poll done the year passed to 74% of companies legally constituted in Colombia, for the planning department (DNP), in which the evolution of the costs logistic in the country in the period 2018-2022, it was achieved identify that for the year 2022 is expected a decrease of 12.9%, a value similar to
that expected in 2020, which in that then was top hanging around 12.6% [37], in other words in Colombia of each hundred pesos that companies sell in average 12.6 pesos are linked to operations logistics involved in the production and distribution of its products and services.

The distribution of the costs logistic in the country is detailed below, in figure 5, here you can observe the different activities logistics that govern the country and its evolution in the years 2018 and 2020.

According to figure 5, it is achieved you identify that the activities economic in minor amount presented costs logistic in 2020 they were construction, with 8.4%, and the trade with 9.1%. Contrary to evidence in the agricultural and mining sector in which ones were presented the levels higher with 22.3% 25.1% respectively. At the industrial level the indicator increase by 12.7%, very similar to the average national measured in the survey.

The distribution Logistics commercial, requires structures physical and intangible in which it is guaranteed the continuous flow both in and out in each one of the stages of the process, within the intangible factors highlights the ability decisive for part of the responsible for the actual process and decision - making involving alterations in the behaviors system normals.

THE DFI in the Commerce international is determined for the costs logistics, identifying among these the costs of loading, delivery, insurance and transportation freight [38], from the increase of these Recently they have emerged Some questions regarding the factors of production and distribution within industries, in which raises a question relevant what's the use have a process with cost margins reduced, yes the distribution systems are high?, and therefore hence increase the final value of the product.

The DFI was structured since its inception with goal of conserving the balance between aspects legal and the distribution process, the above from an analysis progressive of its channels, prices, times and distribution routes; projecting to medium term the links they have are actions with company [39]policies. The added value, in terms logistic is certain for the transformation and delivery process products, being the main axis of utility generated on the final value with respect to that of the elements that comprise it [40].

distribution channels is it so conformed by people and industries, which maintain a relationship with process and that enable the product transfer from production to consumption [41]. manufacturing products a time manufactured elapse on a series of events individuals before being purchased for part of the final consumers, a particular element is the retention of the material in different moments (Stocks), such as waiting Present in the supplier’s warehouse, customs warehouses, in the storage centers as well. What in the buyer’s collection sites, each one of the above considerations generates a cost direct to the final price of the product [42].
According to figures granted by the Federation international transient associations in the first quarter of 2020 in full height of the SARS COVID-19 pandemic, the distribution physical international I present a reduction percentage of 17.7% in the trade volume world of goods, generating problems in all regions of the world, specifically in exports and imports of large powers world such as Japan, the EU (European Union) and the United States of America.

For his part of the OAS (operator economic authorized), entity security manager and good practices in the consignments of goods, I declare that at the level world the region that most affected was seen with this transition economic was the conformed for the countries Latin Americans and the Caribbean having accumulated, having for the first semester of the year 2020 a 26.1% in contraction of merchandise and 27.4% in its exports and imports (Logistec, 2022).

Transportation _ Maritime is the backbone of trade, since it is the mode by which the one who mobilizes about 84% of the volume commercialized worldwide (according to tons totals) and almost 70%.

Of value. At present of the 13 big ports maritime that exist in the world 9 are located in places Asians, in average 63% of the goods sent for media sea level worldwide originate from countries Asians (only China moves 26%), 19% correspond to countries Europeans and 16% of products are shipped for state united. At present, the six ports largest and most important maritime trade international is located in Singapore, Shanghai, Hong Kong, Shenzhen, Yingkou, and Pusan.

Regarding the other means of transport plus used by the DFI (air), between 2013 and Present year the increase in cargoes shipped from different countries has been 43%, which can be see reflected in the Tons indicator for Kilometer sent (CTK), in which was evidenced by 74.1% as the value of increase respect others years, in countries Central and South Americans, the increase the CTK too I surpass in 90.5% the overall average. In countries such as Mexico, Colombia, Ecuador, Peru and Brazil, the transportation aerial makes an important contribution in communication and regional economy, it is possible affirm that this sector is responsible for the generation of US$ 117 billion dollars, the equivalent of 6.7% of the GDP of the countries mentioned, below is a abstract relation of the main amounts of the means of transport previously quoted, all the data They were extracted and adapted from the page World Bank official.

Regarding the amounts sent for tributaries maritime, were achieved establish some shipping amounts according to the countries plus exporters or with a greater volume of ships in the latest year, then are displayed the main data obtained, how well it was achieved detail in the indicators above, the distribution physical international level world is supported by a number of variables, which in one way or another are linked with the costs and customer satisfaction levels consumers, having in account that the material flow requires knowledge preview.
of all activities necessary to achieve the product I arrived in optimal conditions to your destination or final consumer.

**Results**

techniques logistics focused in the various sales and distribution management practices industrialists, has come presenting a significant boom in parallel to the progress technological present in the new time, these new tools offer to the institution a gets better in the decision making process. Currently, companies looking for the balance between the inputs and outputs of goods and inputs, both in the supply phases like the delivery ones, with the objective of limiting the generation of inventory and thus use profits for growth and development business [48]. The operation of the systems logistic involved in most organizations requires resources, the which vary according to the type and size of the company, the products, the distribution channels and characteristics same of the client and his core [49]need.

The distribution cost structure is a referral and contribution to the logistics plan strategic of the companies; in This details the mission, vision, the objectives strategic and the program of actions to guide the management logistics to everything level, specifically distribution, times, distances or freight [50], the statistics of the main events logistic referring to the costs and quantities of goods sent, show that there are a number of questions eloquent to the needs of each country and the sectors in which their economy develops, that is to say in the case of countries exporters the trend is to have a ability in infrastructure elevated, which facilitates a reception significant of materials in balance with quantities sold. The distribution physical international despite having variables of type endogenous that allow the traceability of the vast majority of processes, are limited to different standards regulations, the which in some way represent a limiting according to the legal provision of the recipient or buyer of materials cousins, it's because this that the vast majority of businesses they choose for resort to systems proactive and self-sufficient which drive value chains following cross docking models in the which the generation of inventories is almost null and the times of permanence of the stocks is scarce, under this reality distribution physical international taking a relevance important since of this and the routes that the companies are chosen will be able get a minimization in their costs and sales prices.

for another side, and performing an analysis on the value chain are achieved note that in the phase in which exist plus costs is at the beginning and end of the same, being the supply processes those with the highest percentage of consumption monetary represent a company and not how you could think that it is the processing stage, then it is presented a synthesis percentage of the costs according to the phase they are located. as well described above, the value chain looks affected in those phases in which the company depends on third parties to be able get some result, for such reason cost control in the suppliers is only adjustable when distribution is integrated physical international and in is the ICIONTERMS standards, which It
depends on the means of transport chosen for the final inputs.

**Conclusions**

The distribution for level costs _业务 and industrial is integrated in its vast majority for agents determinants that integrate in procurement and distribution phases _被 are 41% of the total cost of a product, almost twice as much as the same transformation process, distribution _物理 International not only contemplate financial variables What the cost, if not for the contrary dictates others aspects relevant in production such as: packaging, packaging, machinery and equipment._

logistics markets currently _是 it so governed for the continent Asian counted this one with 63% flow trade worldwide, at the American level states United move 16% of goods at the level worldwide, being the third power regarding logistics _ in the universality of merchandise, the case Colombian is particular despite having 4 big ports (Buenaventura, Santa Marta, Cartagena and Barranquilla); the indicators commercial they have diminished progressively in comparison with others years, for the On the contrary, the transport companies, especially all the air has evidenced an increase in mobility indicators _ tourist but not CPK.

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