Chapter 129

Just in time: case study in a company of the industrial center of Manaus

10.56238/tfisdwv1-129

Gabriela Vaz dos Santos
UFAM
santos.gabriellaavaz@gmail.com

Armando Araújo de Souza Júnior
UFAM
armandoaraujo@ufam.edu.br

ABSTRACT
Introduction/Problematization : Just in Time - JIT is a Japanese methodology that has been used since 1970, and has great influence to the present day in organizations by portraying the ideal of only acquiring what is necessary to meet market demand.
Objective/proposal: To value the use of JIT in a company of the Polo Industrial of Manaus (PIM), manufacturer of motorcycles.
Methodological Procedures: A case study of exploratory nature was carried out to obtain information on the subject addressed, of qualitative nature in a company of the two-wheel subsector, through participant observation and unstructured interview with the managers responsible for the management of materials
Main Results: The research company has a well-structured local supply chain, with all major suppliers installed in the Industrial Pole of Manaus, which favors the use of JIT, through an extensive categorization of components, of various models of motorcycles, which allows the alignment of the production schedule with the schedule of delivery of local supplies.
Final Considerations/Conclusion: The organization object of the study is one of the oldest and most important of the Industrial Pole of Manaus, both in the generation of direct and indirect jobs, as well as in billing. Decades- built relationships with your local suppliers make the JIT system reduce inventories at the automaker and supply chain, making it more responsive and efficient.
Contributions from Work: The results of the research indicate that Just in Time generates a great impact on the production chain, reducing inventories and allocated the raw material in the focal company according to its production planning, avoiding unnecessary inventories and extra costs, mainly considering that the environment where the research was carried out has deficiencies in logistics infrastructure, and is far from the major consumer centres. The densification of the local production chain enables the implementation of the JIT in its essence, enabling gains for the automaker and its suppliers installed in pim.

Keywords: Just in Time, Supply Chain, Toyota Production System.

1 INTRODUCTION

The market is in constant economic and financial oscillation. The country faced a major impact on the economy from 2014 to 2016, with a significant slowdown (LELIS *et al.*, 2019). These transformations also and significantly affected the companies of the Industrial Pole of Manaus - PIM, where most companies reduced their staff due to the decrease in production demand.

To adapt to this new reality, companies seek to apply management methodologies to reduce their costs and increase their productivity. One of these tools is *Just in Time* - JIT.

JIT gained strength from the 1970s, by working with the idea of production without slack and zero inventory system, because it is a method that aims to meet the demand without the accumulation of raw material, and still allow the reduction of costs and obtain shorter delay time. For Arunagiri and Gnanavelbabub (2014), *the Just in Time system* allows improvement in the process flow, by working with

the premise of how much less stock, the better and this fact still guarantees the least possible waste, where all activities and products that do not add value to the production process should be eliminated.

JIT is still used to manage activities outside the organization, such as the acquisition of raw materials and even its distribution and export of the materials after production. Thus, encompassing all parts of the process, as a way to ensure quality, less waste, using only what is necessary to avoid inventory accumulation and still trying to produce with the shortest possible delay time to meet customers with excellence (AMORIM, 2017).

In this perspective, compliance with JIT guidelines is not easy to obtain because it involves an extensive chain, especially in environments with logistical adversities, far from the large centers that supply in sums and consumers of finished products. To implement the JIT, one must be aware of the demand requested by the market and work on these already predetermined data, so that a deadline is defined for each stage of the production process throughout the chain, demanding intake at the right time, only what is necessary, in order to obtain a competitive advantage in the market. This, constantly seeks to obtain improvement s in the quality of products and services that are consumed (JÓZEFOWSKA, 2007; WAKCHAURE et al., 2006).

Previous studies such as Brandão and Santana (2017), Ludwig et al. (2016) and Melo and Saito (2016), approached the JIT in companies of various segments of the economy, presenting gains, mainly those resulting from the reduction with the capital invested in raw material acquisition, due to the reduction of waste, and even with activities that did not add to the final product.

Considering the complexity of the supply chain, because it has numerous parts, whether suppliers, carriers, employees, among other partners, it becomes a challenge for an organization to use JIT in its essence.

Andste study had as main objective to evaluate the use of JIT in a company of the Polo Industrial of Manaus, manufacturer of motorcycles.

This article divided into six parts, recounting this introduction. In the second part, the theoretical framework that supported the field research is presented. In the third part, the field of research is illustrated, including the methodological procedures that led to the performance of data collection and, soon after, the fourth part, presents the analysis of the results ofthe research performed, followed by the conclusion and references.

2 THEORETICAL FRAMEWORK

2.1 SUPPLY CHAIN MANAGEMENT

The Chain of Suprimentos (CS) makes relation to the union of given functional activities, which occur throughout the process of treatment and transformation of the raw material, until it becomes a product or service for which the consumer will enjoy. These activities are considered key, such as inventory management, transportation; or support, such as storage, packaging and other functions of control of

materials, and should be focused on the arrival of the product or customer service efficiently and effectively (BALLOU, 2009; APICS, 2016).

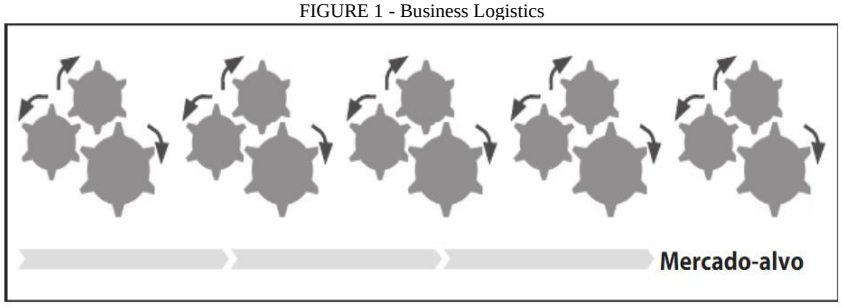
In line, Bowersox et al. (2014) state that collaboration between flow components is essential to improve process efficiency, as the association between suppliers, merchants and functional areas is necessary to bring the product and service to the customer with the best possible quality, and this fact is entitled supply chain.

In addition, Santos and Alves (2015) already argue that CS encompasses all existing processes from the moment the raw material is acquired, until the moment the customer purchases the product, that is, applies approaches between the parties, be they manufacturers, suppliers, storage and sales locations, carriers, retailers and the customers themselves. So that the process is efficient and effective, allowing the correct distribution of products and services, meeting the delivery periods and quantities already predefined.

Dias et al. (2020), already address the steps to manage the chain, be they identify risk factors, through the analysis of organization data or brainstorming with those who make up the activities for which they are being contemplated; evaluate the steps, so that priorities are verified, and this can be accomplished through further verification of the factors already defined above, and after that mitigate, respecting the financial resources and the workforce, and even the time of employees; and finally to control everything that has already been studied and applied.

In this perspective, supply chain management aims to optimize and facilitate the flow of the product and/or service by which it involves it, and thus adding value and enhancing profits by serving the consumer with quality, so that there is a sharing of information, cooperation, alignment of functions and goals, and knowledge about interconnected processes, making all those involved aware of the actions to be taken, which seek to achieve specific results (STOCK and BOYER, 2009; BULLER, 2012), as illustrated in Figure 1.

FIGURE 1 - Business Logistics



Source: Buller (2012, p. 55).

Supply chain management is seen as a management strategy for increasing the competitiveness of organizations, as well as reducing costs and still increasing the added value of products. Thus, we see an increase in competitiveness, because organizations start to develop new ways of innovating, whether

through technologies, materials and even the existing relationship between the consumer and the supplier, so that it is possible to develop the process, that is, to improve it and even develop the people involved (PIRES, 2016).

According to Lambert and Enz (2017), the processes that encompass CS are: supplier relationship management, service management, demand management, manufacturing flow, order fulfillment, product development and marketing, customer relationship management and returns management.

Nevertheless, it is worth adding that the role of supply chain managers is essential for the real effectiveness of the process, because their functions should be focused on seven topics, be they minimizing the conversion times of purchase orders into capital; the reduction of the activities performed by each organization that is in the process; give greater visibility of all activities to all involved; as well as increase the visibility of the demand for which it is requested; improve the quality of activities and products and/or services; cost reduction; and increase effectiveness in the customer loyalty process (GOVIL and PROTH, 2002).

Monczka (2010) further adds that the chain of each product will depend directly on its specifications, as each may require a larger or smaller configuration. And this fact is strictly linked to the fact that there are simple and complex chains, one with fewer relationships between various organizations and the other with more. Still, it can occur from a chain to use more than one supplier for a given material, as well as to market with multiple customers. Therefore, a given raw material can be distributed by suppliers and consequently be negotiated with numerous customers.

According to Banze and Magodo (2017), CS is concerned with adding maximum value to the organization's products and services to its customers, so that they are satisfied with the quality and are still loyal, which will consequently result in the return on fixed asset investment, that is, the capital for which one is invested in the business. However, for this it is necessary to carry out the correct use of material and financial resources, as well as to effectively manage the company's own intellectual capital, and this precisely must be present throughout the chain, from the extraction of raw material to the moment it is delivered to the consumer.

The literature points out that one of the functions of supply chain management is precisely to provide an alignment of the objectives of organizations, by which they are included in the flow of the process, so that they perform their activities together to meet the needs of customers. For this to happen, everyone must be aware of how impactful their function is in the process, because the integration between the parties, that is, between the components of the chain, makes everyone focus on their main goal, which is to serve the client (VOLLMANN and CORDON, 1996; BANZE and MAGODO, 2017).

2.2 TOYOTA PRODUCTION SYSTEM - STP

According to Shingo (1996), the Toyota Production System focuses on reducing costs, as well as eliminating losses, so that production with minimal inventory is available. Zhou (2016) adds that it should also aim at improving *profit margins, reducing lead-time, improving quality*, responsiveness and service, having a better relationship with suppliers, so that it generates greater reliability, and thus intending positive results for the organization.

Additionally, Pascal (2008) explains that more should be done with less, and the less applies to less human effort, machinery, time, space and material, and continues to meet customers' requests. Callefi and Crubellate (2020) add that the most important part of the process are the people by whom they make up the system, because their engagement will be strictly linked to the results that will be obtained. For, STP aims to manufacture products in the most efficient way possible so that in the end its biggest goal is achieved, which is profit (MONDEN, 2015).

Hines and Taylor (2000) consider five points to obtain lean thinking, be they, mapping the flow of value, creating a continuous flow, promoting pulled production, creating value for the customer and continuous search for perfection.

These principles allow the possible analysis of waste and losses, which will lead to cost reduction, yet allows a greater dedication to obtain a better relationship with the customer and thus be possible to retain, as well as generate products with lower cost, but in a way that does not compromise the quality of it and will still generate competitive advantage in front of market competitors (SHAH and KHANZODE, 2017).

Womack and Jones (1996) also affirm that the concept of lean manufacturing should not be seen only as the association of tools that must be implemented in order to increase the profits of organizations, but must pay little to the social, political and economic context so that this way is really effective. Still, it is worth adding that in order to effectively apply the STP, it is necessary to eliminate losses, for this we use data methods to map their causes and how to correct them (CARMO et al. , 2017).

From this perspective, in order to obtain the increase in profits it is necessary to reduce costs and to do so, the losses of the system must be eliminated entirely. Waste is seen as natural agents in the productive system, and this leads to them being hardly detected, and can be classified into seven classes of losses: overproduction, waiting, transportation, movement, stock, processing and defects (OHNO, 1997; NÓBREGA et al. , 2016). Table 1 provides an overview of the seven losses of STP.

TABLE 1 - The Seven Losses of STP

TYPE OF LOSS	**DESCRIPTION**
Overproduction	Losses caused due to higher than planned production (KARPINSK et al, 2009)
Losses per waiting	Loss due to no production in a certain period of time, either by the employee or the machine (ANTUNES, 1995)

Losses by transport	Loss characterized as all unnecessary material movement, which in no way adds to the product (SLACK et al, 2009)
Losses per movement	Losses due to the unnecessary movements that the employees themselves make in the activity for which they perform (PAIM et al, 2009)
Losses by processing	Losses that make in relation to manufacturing activities that add nothing to the final product (ANTUNES et al, 2008)
Loss due to defects	Losses reported through the production of services that do not meet the quality already interposed by the organization's standards and customer needs (ABREU, 2002)
Losses per stock	Loss conceptualized as excess material that causes organizations to create sheds or warehouses to store (JÚNIOR, 2008)

Source: Prepared by the authors (2021).

In addition, it is worth adding that the STP also seeks to save, be it human effort, facilities, capital investment, inventories, time, parts supply, among others. However, ensuring that the production process is effective, so that none of the actions will compromise the final product, advancing without deviations, interruptions, waits or returns.

To ensure the efficiency and effectiveness of the production process, some tools can be applied (Figure 2) and these must be directly linked to the objectives for which the organization wishes to achieve (PRADO et al., 2019).

FIGURE 2 - Lean Manufacturing Tools

Muda	O Muda visa eliminar os sete desperdícios para agregar maior valor ao processo.
Kanban	São cartões que sinalizam a retirada de um material da produção, o que significa que o mesmo precisa ser reposto.
Heijunka	Utilizada para o nivelamento da produção. Isto é, nivelar o mix de peças produzidas com o objetivo de deixar o processo mais estável e com melhor controle de qualidade.
Poka Yoke	É um dispositivo à prova de erros que consiste em evitar falhas durante o processo.

Source: https://gestaoindustrial.com/lean-manufacturing (2021).

2.3 JUST IN TIME - JIT

According to Kumar and Panneerselvam (2007), this methodology was created by Toyota Motor Company Vice President Taiichi Ohno in Japan in the 1970s. In what its purpose was the application of the Zero Stock system, which was totally contrary to what was used as a principle at the time.

Later, in the late 1980s, it was evidenced that Japanese technology was increasingly effective, as a Toyota worker had three times more results than Europeans or Americans, and this led to success both the industry and Japanese principles and their technologies (REDA, 1987; WYRWICKA and MRUGALSKA, 2017).

Simões et al. (2018) also add that inventories refer to the invested capital, in which their use will be strictly linked to the demand for the product requested by the market. As a result, it becomes more appropriate to have a better control of inventories, even so that the organization can reduce costs and still continue to meet the request.

In this way, the JIT works with the ideal of only acquiring what is necessary to meet the market demand already predetermined. As Sourd (2005) states, production must be scheduled according to the deadline of each order and the time to perform the activities, because the JIT makes use of the method that the product and/or service should only be produced, displaced and purchased at the requested times.

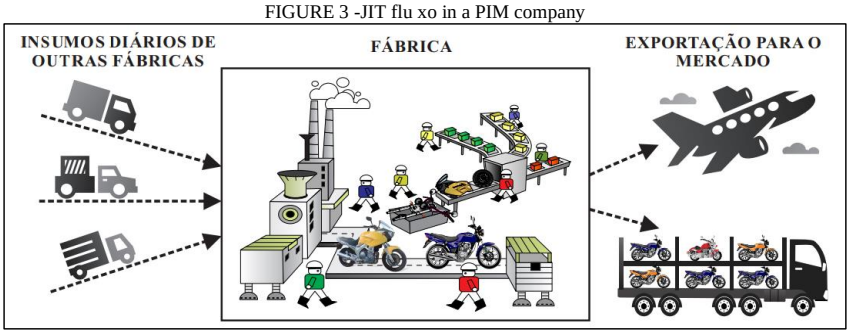
Kaminski et al. (2010) portrays that one of the characteristics of the JIT is precisely the application of pulled production, where everything that is used will only be requested at the time it is necessary, when the raw material is delivered to the production line, this fact will result in an optimization of activities, alledation of waste, as well as the reduction of costs with storage and transport, which will bring greater quality management of the entire process itself.

From this perspective, for Brandão et al. (2017), JIT proves to be much more than a production management tool, and becomes a philosophy that will manage materials, layout, product engineering and even the employees themselves who are inserted in the middle.

Amorim (2017) also states that sectors and activities focused on purchasing, maintenance and transportation need JIT control. Logistics is the great example used as an area that, when applying the method, can suffer substantial cost reduction, by helping to control information, services, people and even product flows. Thus, it becomes noticeable that JIT is able to aggregate numerous areas of an organization, such as quality, logistics, the way of managing people, whether training them or even labor relations, because it is due to these interventions and modifications carried out that it is possible to obtain higher quality, with lower cost and using less space (BRANDÃO et al. , 2017).

The JIT is also used to manage external activities that will be linked to the final product, such as the purchase of the materials needed for the production, assembly and manufacture of other supplies, as well as the conduction and export to the points of sale, as illustrated in Figure 3, which is related to the production process of a company of the Industrial Pole of Manaus - PIM (AMORIM, 2017).

FIGURE 3 -JIT flu xo in a PIM company



Source: Amorim (2017).

In this perspective, according to Machado (2009), the objectives of the JIT are concentrated in adding a lower lead time of production, producing only the essential, with the highest quality, increasing the capacity to develop new technologies, smaller waste, either by removing activities that do not add value to the final product or even using in a more controlled way the raw material in which it is obtained, better contact with suppliers and customers, fewer problems with layout, by making less space for stocks, which in the end will result in a higher return on the capital for which it is invested.

3 METHODOLOGY

The general objective of this work was to evaluate the use of *Just in Time* in a company of the industrial pole of Manaus, manufacturer of motorcycles. As for the objectives, the research has an exploratory character. The exploratory research, which according to Gil (2017) involves survey of references in national and international scientific articles, and analysis of information collected within the company, which is the object of study of this research. As well as, preliminary, it assists in obtaining information on the subject addressed, which allows the consolidation of objectives and conception of hypotheses (PRODANOV and FREITAS, 2013).

The approach used in the research was qualitative. Qualitative research is used in occasions of the elaboration of specific deductions about a phenomenon or a variable of precise deduction (BARDIN, 2016). For Yin (2016), qualitative research allows the deepening of knowledge on different topics, unlike other research specifications that are more limited.

For the purpose of operationalization of the research, a case study was carried out in a company of the two-wheeled subsector of the Industrial Pole of Manaus. For Yin (2014), the case study is a strategic way to conduct a research, in which the researcher has little reinon on a given theme and thus, it becomes possible to understand data phenomena that are inserted in the environment, so that the facts are described and/or explane.

Data were collected through participant observation with the company object of the study, and through an unstructured interview with the managers of the purchasing and material sectors of the *company*

locus of the study. According to Prodanov and Freitas (2013), the participant observation is based on the idea that the observer shares knowledge with the means by which he is inserted, a fact that makes him a member of the team, but faces the difficulty of influencing the environment without being significantly influenced.

In the unstructured interview, commonly more used in qualitative research, because it allows the interviewee to have a greater freedom to approach what he believes to be more relevant in front of the topic, and it is up to the interviewer to only pre-define the topics by which he/she wants to address during the conduct of the interview (FRASER and GONDIM, 2004). Still, according to Prodanov and Freitas (2013), by the questions being opened the content can be further explored, without knowing which note will be considered and which direction will be taken.

Managers of the logistics areas (2 managers) and the Procurement Supplies sector (2 managers) were interviewed. All interviewees signed a Free and Informed Consent Form before the interviews. Participant observation occurred in the productive areas and centers of receipt and distribution of insums, always accompanied by an employee of the company.

The information collected was organized in order to evaluate the process, which made it possible to observe the practice in the day-to-day of the organization, evaluating the use *of Just in Time in* the company, and how this influences its productive activities, what approaches are used, and what the impact of jit does not plan and organize operations .

4 ANALYSIS OF RESULTS

4.1 COMPANY PRESENTATION

The company object of this study began its activities in the state of Amazonas in 1976. Years later, it became one of the largest companies in the Industrial Pole of Manaus - PIM, for generating numerous jobs contributing to local and regional development. To date, the company has reached the milestone of more than 25 million motorcycles produced, as well as stationary engines.

In addition, it is noteworthy that the company has a philosophy of offering products with high quality, at a fair price, aiming at the satisfaction of its customers. To this do so, the organization encourages its employees to respect individuals, so that they develop initiative, equality and trust. Its management policy is the valorization of ideas, research, dreams and communication, as a way to promote a creative environment, prone to improvements and a harmonious workflow.

By promoting a harmonious work environment, your operations become more effective, efficient and consistent, so that you eliminate excesses and deviations, always having a look at the customer, and propagating the ideal that the whole should be harmonious and optimized, not just the parts. Precisely this philosophy of customer loyalty, providing dreams through products and services with extreme quality caused the company to face moments of crisis and still be market leader, having 80% *market share*.

Its production process involves a wide chain, which in the facilities present in Manaus, include from the development of molds, as the production of engines, exhausts, wheels, chassis, gears and countless other parts that come to make up a bike, having it between 110 to 1000cc.

4.2 THE JUST IN TIME PHILOSOPHY

As previously discussed, the *Just in Time* (JIT) philosophy consists of acquiring only what is necessary to meet the demand of the market already predetermined. In which the production needs to be programmed according to the deadline of each order and the time for performance of the activities, because the JIT makes use of the method that the product and /or service should only be produced, displaced and purchased at the requested moments.

When analyzing the company's supply chain, it was possible to show that everything starts in Process Engineering, the sector responsible for studying market demand and defining the production plan, whether annual, monthly or daily, taking into accountthe amount of labor required and the time to produce each model at the given time.

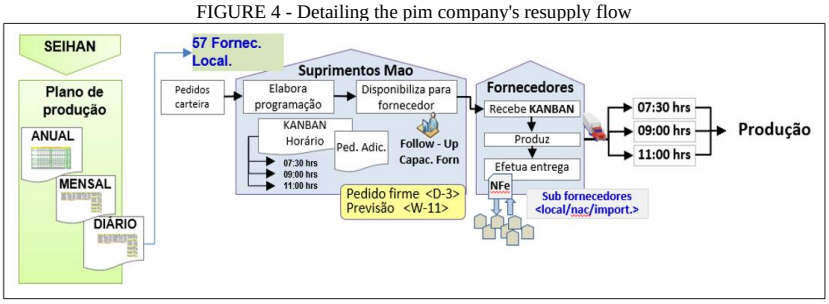
After the production plan has already been established, the PCP (Production Planning and Control) sector defines which supplies need to be produced and/or supplied at the time by which that model is being manufactured, and it is *necessary to determine the lead time* of each product or raw material, and ensure that the supply chain is international, national or local level, will not be interrupted or delayed.

It is important to highlight that only local suppliers work with the premise *of Just in Time*, all of these, installed in the Industrial Pole of Manaus. Thus, the company has a total of 57 local suppliers that support production providing more than two thousand different insums for the eight manufacturing groups that make up it, be they, Foundry, Machining, Engine Assembly, Welding, Stamping, Plastic Injection, Painting, and Final Assembly.

The Direct Purchasing sector continues the flow, specifically the Procurement area, in which it is continuously in negotiations with the various suppliers that are in charge of supplying each production area of the company, the nde together with the PCP, must present the quantity, model and time that each insum needs to be supplied in the manufacturing sector.

This schedule is sent to first-tier suppliers in advance, so that they can alsoschedule their resupply to second-tier suppliers. Each supplier must also respect the delivery time of the insums so that it does not generate large inventories in the warehouses, because it is a large organization. Figure 4 shows the details of the company's *Just in Time* flow.

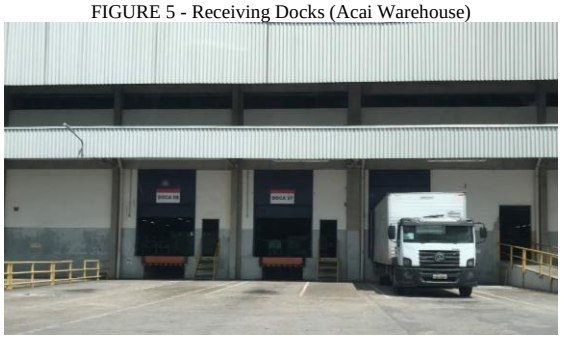
FIGURE 4 - Detailing the pim company's resupply flow



Source: Elaborated by the authors (2021).

By continuing the flow, suppliers carry out deliveries to warehouses, even at the already pre-designated dock (as shown in Figure 5), by which the insums are checked, so that the products that are delivered to the company are checked, and also analyzed for their quality, where they must meet the specifications contained in the quality standards that are brought by the company.

FIGURE 5 - Receiving Docks (Acai Warehouse)



Source: Field Research (2021).

Soon after the arrival ofthe supplies, these are forwarded to the Production Control and Feeding area (COALI), based on theProduction Plan, where each basketball receives the label that identifies the specifications of the products, such as for which model given product refers, the delivery time for production line, product code, quantity, which is the supplier, invoice number and other information, as shown in Figure 6.

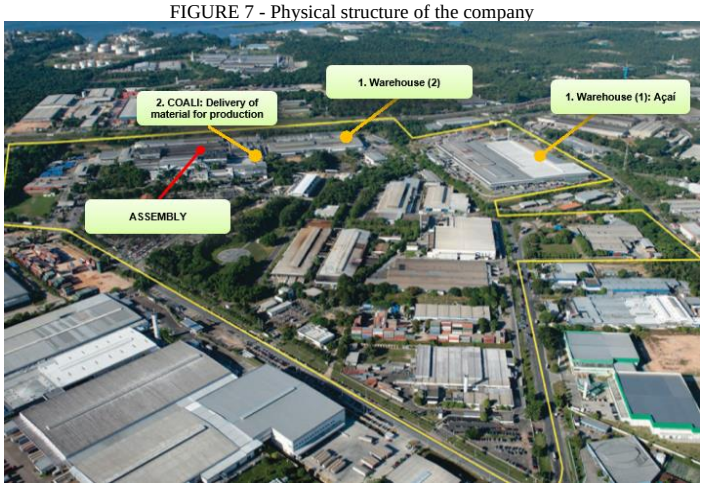
FIGURE 6 - Basketball and Product Identification Label

Source: Field Research (2021).

In addition, it should be specified that the feeding activity of the lines requires extreme concentration so that the correct product is at the right time, as well as the quantity present in basketball, in which it is based on the model by which it is currently being produced. Because quality problems have already occurred where, the nut of one model was used in another, causing the non-operation of the engine, generating a blockage of numerous motorcycles.

Continuing the flow, the basketballs received by COALI are taken to their respective productive sectors, unloaded based on the time already drawn in the Production Plan. In Figura 7, the flow of arrival to the Warehouse is presented, and after the referral to COALI, also through the internal logistics of the organization. Andm function of its huge structure is necessary to be transported by means of trucks, fed based onthe need s already predetermineds. They are then sent to the Final Assembly Lines, which is an area that has more than two hundred insums supplied by external agents, as well as by the insums manufactured by the automaker itself.

FIGURE 7 - Physical structure of the company

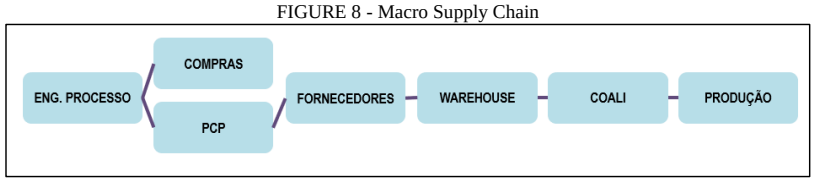


Source: Elaborated by the authors (2021).

By didactically ordering the supply chain flow of the aforementioned organization, it is possible to verify that the production flow involves 6 or more areas, but the application of the JIT is present from the moment the suppliers deliver the supplies in the *Warehouse* , that is, in internal stages. As shown in Figure 8.

Comentado [A1]: process engineer
Shopping
PCP
Providers
warehouse
COALI
Production

FIGURE 8 - Macro Supply Chain



Source: Elaboratedby the authors (2021).

The company's suppliers are responsible for supplying 2,038 items that are required for motorcyclemanufacturing, and are grouped into 9 categories, as shown in Chart 2.

TABLE 2 - Categorization of Insumos

CATEGORY	SUPPLIERS	ITEMS (Exs)	QUANTITY OF ITEMS
MOUNTING	8	shock absorber; Fairing; whip; clutch; air filter; dashboard; rearview mirror; Latches; wheel hub; Resonator; stilla and etc.	244
ENGINE	6	loofah; lid; lever; handle; stator base; connecting rod; carcass sup. accelerator; pedal support; oil pump; nut; rotor filter oil and etc.	173
ELECTRIC	7		206

		broken cable; ground cable; set lanterns; stator; main wiring; Clip; reflector; complete rotor; subwiring and etc.	
PACKING	9	motor support; smooth washer; coil; handlebar box; plate support; support plate; seat protector; protector handle; colaminate bag and etc	182
PLASTIC	6	tube ring; floor; rubber pedal; battery box; lever cover; Fairing; cushion; air duct; radiator grille; tube joint; gauntlet and etc.	382
STAMPING	7	current adjuster; clamp; leakage nozzle; plate; hook; pedal exchange; seat plate; Clip; nut; protector plate and etc	470
RAW MATERIAL	5	Blank; coil; front cover; inner plate; back cover; tube support; master batch and etc	130
RUBBER	4	air chamber; entrance duct; air filter trim; exhaust joint; tire; retainer; conductive tube and etc	21
BELT	5	Shim; belt; trigger joint; head joint; cylinder joint; knuckle cover; stop plate; nut adjustment; brand and wings etc	230
TOTAL	**57**	**TOTAL**	**2038**

Source: Elaborated by the authors (2021).

When contacting one of the suppliers, it stated that its production is carried out based on the planning sent by the automaker, that is, its need manifested in the Production Plan, so that they themselves do not generate large production stocks, that is, they also use *the methodology of Just in Time* . This applies to most suppliers, who typically have the *company locus of* this study as their largest customer, that is, much of what it produces is geared towards eventhe demand of this automaker.

Another point to be raised is precisely the fact that to keep the business healthy, the company seeks to have more than one supplier for a given product, so that, in relation to values, it always has more than one option, as well as seeking to maintain the continuity of supply, work with the certainty that they have more than one to meet the high demand of production, if something happens to one of the suppliers, thus protecting the continuity of its operations.

5 CONCLUSION

The general objective of this work was to evaluate the use *of Just in Time in* a company of the Polo Industrial of Manaus, manufacturer of motorcycles. To meet this objective, this study presents a synthesis of the organization's local supply chain, which proved to be well structured, given the high demand and turnover of supplies that are demanded by the automaker.

The JIT philosophy of the organization promotes the generation of knowledge and experiences for those who are present in the process, so that they have faced in recent years a large picture of economic and

financial instability without allowing the company to stop being a leader in the market, because they constantly seek improvements in processes and flows.

The sectors perform in-depth analysis of material needs before even forwarding to suppliers, with properly categorized and supplied in *just in time mode*. The supply chain is complex, as the automaker demands 2. 038 items from 57 different suppliers, which requires an integrated planning between assembler and suppliers, in order to manage inventories throughout the production chain, and coordinating the flow of insums that arrive in the company to be sent immediately to the productive areas, thus providing the use of JIT in its essence throughout the local supply chain.

As a limitation of the study, the research used only one single case. For future research, it is recommended to investigate more companies (study of multiple cases) of the same subsector of activities, and comparative studies with other activity subsectors considering the object of this investigation.

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