

Influence of The External Environment on The Logistics Strategies of Industrial Organizations

Daniel Nascimento-e-Silva,

Post-Doctor in Management

Instituto Federal de Educação, Ciência e Tecnologia do Amazonas

Elenilson Bento de Sousa Júnior,

Logistics Technologist

Instituto Federal de Educação, Ciência e Tecnologia do Amazonas

Ana Lúcia Soares Machado,

Doctorate in Sustainable Development

Instituto Federal de Educação, Ciência e Tecnologia do Amazonas

Márison Luiz Soares,

Post-Doctor in Management

Universidade Federal do Espírito Santo

Gilbert Breves Martins

Doctorate in informatics

Instituto Federal de Educação, Ciência e Tecnologia do Amazonas

ABSTRACT

Context: *Environments of uncertainty and instability force organizations to modify their actions. The reason for this change is that the minimum data and information needed to establish the logic of production cannot be obtained.* **Objective:** *This study aimed to identify the impacts of the external environment on the logistics strategies of the industrial organizations operating at the Manaus Industrial Pole.* **Methodology:** *The method was the survey, which used a research protocol as a guide, and had as its subject five managers of the logistics sector of five medium and large industries operating in the industrial center of Manaus, Brazil, intentionally chosen, whose Data collection was done through semi-structured interviews and the results were generated with the aid of content analysis.* **Results:** *The results showed that a) the logistics chain is made up of foreign suppliers and domestic consumers, b) the organizations are managed by professionals with adequate technical and scientific training and solid professional experience in the area, c) the impacts of the external environment are of economic, political, ecological and political-economic natures and d) all were perceived as threats to the logistics strategies of the surveyed industries.* **Conclusion:** *The impacts of the external environment caused organizations to reduce their logistics operations.* **Contribution of the study to the logistics area:** *the confirmation that turbulent outdoor environments force organizations to reduce their production activities.*

KEYWORDS: External environment; Threats; Opportunities; Logistic strategies; Uncertainty

INTRODUCTION

Environments of uncertainty and instability force organizations to modify their actions. The reason for this change is that the minimum data and information needed to establish the logic of production cannot be obtained. Unpredictability does not, for example, make it possible to draw up an annual production plan and, consequently, to split it into master plans and operation plans, given the uncertainties concerning customer orders and their financial capabilities. As a result, organizations are prevented from maintaining their normal contingent of people, cannot predict revenues, often have difficulty honoring their commitments, among countless other negative consequences.

But the bottom line is that even though the turmoil is extremely severe, organizations need to act and react. However, for this to occur, in order to make decisions and establish courses of action, they must be aware of the impacts that the external environment will have on their global operations or, specifically, on their logistics operations. Because environmental forces are uncontrollable (Ndegwa, Kilika, & Muathe, 2019; Trisakhon, Onputtha, & Peamchai, 2018; Otache, & Mahmood, 2015), organizations need to learn to deal with them.

In this sense, this study aimed to identify the impacts of the external environment on the logistics strategies of five industrial organizations operating in the Manaus Industrial Pole, considered one of the largest in Brazil and which accounts for much of the Brazilian international trade, both demanding and offering products. The identification of these impacts allowed us to know and understand how they changed the normal course of operations of these industries.

The contribution of this article to the logistics area is to provide an explanation of the reaction of industrial organizations to highly turbulent environments in the Brazilian business and business landscape since 2015. This explanation will allow managers and entrepreneurs to be better prepared to deal with the uncertainties and high risks that these environments pose.

2. EXTERNAL ENVIRONMENT AND LOGISTICS STRATEGIES

External environment is all that involves the company and it is all that is beyond the sectoral boundaries or limits of the organization, the environments are characterized by intense competition, economic intensity, technological changes, information exchange, uncertainties about government policies and other factors that may threaten the future of the company. What characterizes the external environment is that organizations have not control over it.

Olertegui (1996) shows that the impacts of external factors are uncontrollable but can be mitigated. The main problem of organizations is the impacts that external factors may have on it, causing its performance and competitiveness to diminish. Knowing that these factors cannot be controlled, there must be enough structure and mechanisms to receive them in order to mitigate their damage, so that the complications of these sets of factors have little influence on decision making within the organization.

Sets of external factors can negatively or positively impact the organization's processes (Jacomassi, 2005). Some problems require a better understanding of the current scenario in order to reduce the impacts of

negative factors on the operation of the company's system, so that the production system is not interrupted by special causes. Understanding these sets of factors can be quite significant to broaden the manager's view of the subject, making planning for improvement more efficient.

Adverse conditions to the organization are a major problem for its growth, as they are uncontrollable (Gonçalves, 2001). Organizations are inserted in an environment where extra organizational problems are the cause of many disorders, managers seek to plan so that the impacts of these factors do not affect company performance. These conditions are beyond the internal domain of organizations, but can be foreseen, thus avoiding unforeseen events that are no longer calculated, which may help to adjust the new conditions that are required.

Supporting institutions can be of great help to avoid diminishing organizational performance (Duarte, 2012). Knowledge of the flows of the production chain is of paramount importance, as it enables complete understanding, preventing external factors from having a major influence on its performance. Improvement actions can be done through partnerships with support institutions within the legal framework, or internal research can be carried out, thus implementing continuous improvement.

The level of competitiveness in the organization's sector determines how hard it must work to survive the market (Bonassi, 2014). The current world market scenario, where globalization has a major influence on competitiveness in the environment in which organizations operate, determines that process improvement is continuous to reach the top of its sector. There may still be situations of imperfect competition, where only one company commands its sector, where they determine prices, quality, customers that must reach. Apart from this particularity, organizations are inserted in a market where the search for customers has become an endless struggle.

The consumer is the constant target of research that influences the internal environment of organizations, aiming to meet their needs (Eyerkauffer, Souza, & Boff, 2013). Consumers are the primary factor in the existence of organizations, and their needs have been improving over time. Companies are looking for strategies to improve their processes and satisfy their customers, to gain loyalty and thus can reach the largest number of consumers, as the market is in times of high competitiveness, the organization that plans the best strategy, tends to pick the largest. share of consumers in your industry.

The process of formulating organizational strategies has as its starting point the determination of the vision of the future, which represents the destiny that will order its operations. When the future ahead is distant, there is the strategic plan and the long-term strategies. The strategic plan is thus the prototypical example of how long-term strategies will be implemented (Souza, Ferroli, & Meier, 2010; Teixeira, Dantas, & Barreto, 2015).

The strategy is designed from the logical conjunction of the analysis of two groupings of variables. The first, which involves the whole organization, controls and shapes its behavior, since it is composed of forces beyond its control; The second, which is delimited by the organizational boundaries themselves, is composed of variables over which the organization can exercise control (Souza, Ferroli, & Meier, 2010; Santos et al, 2015).

The end aimed at the execution of organizational strategies is always the reach of a certain target audience from its products and services (Barbosa, 2013) from transformational courses of action (Junges, Barbiani, & Zoboli, 2015). The reason for this is that strategies are not designed so that reality remains the same,

constant. The intended result of strategies (and organizational plans) is always the transformation of reality. This explains, in part, why organizations tend to endure from (incremental or revolutionary) changes built by their social body and led by their top executives.

Just as strategies are designed for the organization as a whole, there are strategies for its parts. This is what usually happens to the logistics, financial and marketing sectors, which are often targets of strategic plans. The design of the strategies follows first the construction of future scenarios (Liu, Liu, & Li, 2015), upon which the criteria that will lead to the intended destination, such as sustainability issues (Seroka-Stolka, 2014) and the environment (Simão, Gonçalves, & Rodriguez, 2016).

The logistics is inserted in an organizational and environmental context, it is influenced by these two environments. In the case of industrial organizations, logistics represents an organizational dimension whose failure decisively compromises not only the sectoral strategy, logistics, but also the organizational macro strategies. In other words, it is the logistic strategies that most often structure the execution (and success or failure) of global, organizational strategies.

In turbulent environments this influence is even more decisive. This is why several studies have focused on seeking to understand the operation of logistics systems under conditions of uncertainty, such as Yang et al. (2016), which has focused on the analysis of contracts and relational norms in turbulent environments by Tofighi, Torabi and Mansouri (2016), focused on multiple uncertainty analysis to increase resilience of areas under natural disaster conditions, and that of Xu et al. (2015), whose objective was to reduce or eliminate the adverse effects of uncertainty in the process of supply.

These examples show the importance of knowing the influence of the external environment on logistics operations. With the knowledge generated, the possibility of success of organizational and logistic strategies increases considerably, especially when the external environment presents a high degree of uncertainty and instability. It is in this sense the contribution of this article to the logistics area, identifying the impacts of the external environment on the implementation of strategies in medium and large industrial organizations.

RESEARCH METHODOLOGY

The methodological procedures used to achieve the objectives pursued by this research are described here. First, the characteristics of the research are presented, followed by the description of the subjects, data collection strategy used, forms of analysis and interpretation of results, and presentation of research limitations.

Search features

This research is characterized by being eminently qualitative, which used the Survey method, whose purpose is to generate explanation for a given population from the study of a sample. According to the classification by Volpato, Gonçalves-de-Freitas, and Jordão (2006), this study, seeking to identify which dimensions of the external environment influence the logistical objectives of industrial organizations operating in the Manaus environment, is placed under the relational type of cause-effect. For this, it had as its unit of analysis the reality of each industrial organization so that the resulting explanation, also called

level of analysis, would be the same for the five organizations studied. Thus, there is an individual unit of analysis and level of interorganizational analysis (Nascimento-e-Silva, 2012). The perspective of analysis is synchronic, since the explanation of the causal relationship concerns the present reality that these organizations are currently living.

Subjects

The subjects of this research were the logistics managers of the industrial organizations. The reason for this choice was to obtain maximum reliability in responding to the impacts of the external environment on the logistical objectives of these organizations. Of course, other managers could also be selected, but it is likely that their answers lacked the depth and empirical basis required for this investigation.

The five selected organizations also present the breadth of situations of interrelationship with the external environment capable of accurately identifying the causal relationship that this study intends to discover. Thus, there was no mathematical system for determining the size and composition of the sample. The subjects were chosen for convenience.

Data collection and organization strategy

Data were collected from interviews conducted using a research protocol. Overall, the strategy used had seven stages, as shown in Figure 1. The first stage consisted of the elaboration of the research protocol, defining the questions that would be formulated (both demographic and explanatory) and the rules for analysis and analysis. interpretation.

The second stage aimed to select the organizations that would be contacted to provide the data and information needed to answer the central question of the study. The protocol required contact with five companies, all medium or large industries. The third step was the contact with the logistics managers of these organizations, some made, by email, and others by telephone, to schedule the date and time of the interviews.

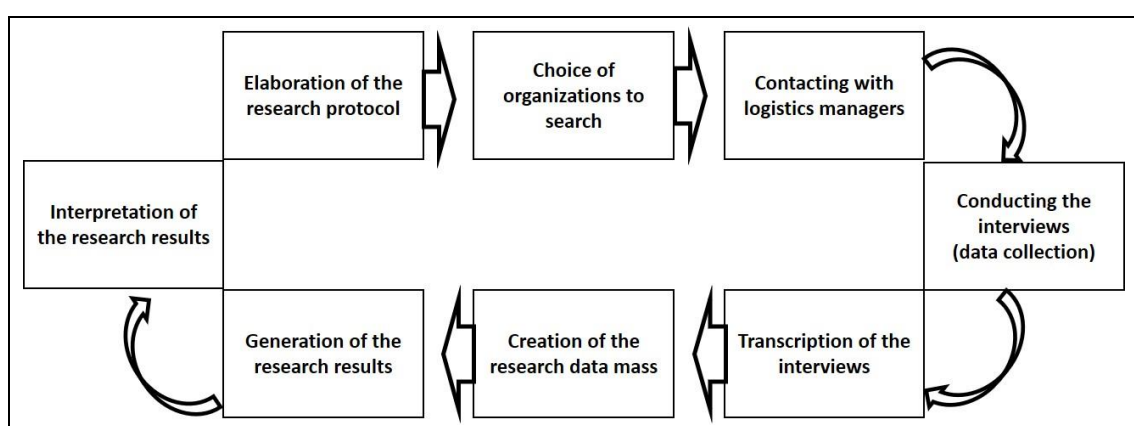


Figure 1. Data collection and organization strategy.

The fourth stage was the interview, conducted in accordance with the research protocol prepared in the first stage. The fifth step consisted of transcribing the interview in a word processor, recording each question and its consequent answer provided. The sixth and last step was the creation of the data mass, which is the

synthesis of the answers and their digitization in a spreadsheet, so that it was possible to cross the data of one question with the data of others, a fundamental condition for the generation of results of the study.

Analysis and interpretation of results

Data analysis was done individually, given the small number of answers to each question. This allowed for deeper understanding of the results generated by the individual data sets. Thus, demographic data generated results for the set of organizations analyzed, as provided for in the protocol, whose level of analysis (amplitude of responses) was interorganizational, even though the answers were obtained individually (unit of analysis).

The results of demographic issues were generated by specifying them with the organizations of which they belong. For example, the question that sought to identify the origin of the main suppliers of the surveyed industries generated a response table with two entries: one with the name of the organization and another with the sources of the suppliers.

The results related to the central research question, which sought to identify the impact of the external environment on the logistics strategies of the surveyed industries were generated as follows: first the impact cited by the respondent was identified, then this impact was framed in one of the seven analytical dimensions of the external environment (political, social, economic, legal, demographic, technological and ecological) and culminated in the impact assessment: if positive, it was considered opportunity; if not, the conceptual framework was a threat.

The choice for this type of procedure was because tables can present several organizational behaviors simultaneously, which allows one to understand not only the specific aspect of an organization, but also the simultaneity of the researched organizational set. The whole view allows the apprehension of perspectives that would otherwise be harmed.

Study limitations

Like all scientific research, this study also has some limitations, which do not invalidate its results. The first of these concerns the method. Taking too few organizations to carry out the study, the rest of the population was set aside, which allowed for a deeper and better understanding of the researched reality, but lost in inference capacity, which means that the results achieved only explain the reality of the researched organizations.

The second limitation concerns the interpretative technique used. Although the data were worked to be as objective as possible with the adoption of a research protocol, the objectification process was subjective, ie, the framing of the impacts in each analytical dimension was made according to the interpretation of the researchers. However, no other way to eliminate subjectivity in similar research has yet been found.

RESULTS AND DISCUSSION

The results of this study, whose objective is to identify the main impacts of the external environment on the logistics strategies of industries operating in the Manaus industrial hub, are organized in four parts. The first shows the main characteristics of the companies surveyed, the second highlights the findings for the

logistics systems of these companies, the third presents the impacts of the external environment on logistics strategies and the fourth compares the results with the scientific literature.

Companies characteristics

Company A operates in the market to produce cardboard packaging and corrugated paper. It has an average annual turnover of 64 million reais, generating approximately 370 direct and 100 indirect jobs. It has quality management system, with ISO 9001, ISO 14001, OHSAS 18001 and Green Partner certification. Its clients are among the largest and most important of Manaus industrial center. The company has been operating in the market for 19 years.

Company B is a Swiss organization that has been active in the Brazilian market for 54 years. Its products, highly demanded in the world of fashion and elegance, are in over 13,500 stores in all Brazilian states and employs over 1,000 employees. The company considers that its products are the result of art and technology, whose goal is to delight its customers. And it seems that this has been one of its greatest assets to constantly reinvent itself in its competitive marketplace.

Company C considers itself the world's leading provider of products and services to the automotive, marine, rail, aerospace, energy and industrial markets. It employs over 34,000 people worldwide and its worldwide turnover in 2015 was US\$ 7.4 billion. It has been operating since 2007 in the industrial hub of Manaus, employing approximately 80 employees.

Company D began operations at the Manaus industrial hub in May 1999. It manufactures electronic products for the multimedia area, with commercial, technical and managerial representation in São Paulo. By operating in a highly competitive and revolutionary change market, it prints a solid philosophy of continuous improvement in your production system. It employs approximately 700 people in its Amazon factory and has 187 units worldwide.

Company E was founded in October 1993 and today has a 7.500m² factory park built in the industrial hub of Manaus. It produces plastic parts for its customers, which operate in various sectors of the economy, such as electronics, mechanics, two wheels, entertainment, personal hygiene, computers and automotive. With the implementation of an integrated management system, it has obtained certifications of ISO 9001, ISO 14001 and ISO/TS 16949.

Logistic aspects and management

As the data in table 1 show, China is the home country of the main suppliers of the companies that participated in this study. Brazil ranks second for only two companies (A and B), while China is the top for all five. Other countries with major suppliers are Japan for company C, France for company D and South Korea and Thailand for company E.

Table 1. Countries of origin of main suppliers of companies

Companies	Suppliers: Countries of origin
A	Brazil
B	China
	Brazil

C	China Japan
D	China France
E	South Korea China Thailand

These data point to the high degree of internationalization of companies operating in the industrial hub of Manaus. In terms of strategic logistics planning, these results show that the technical requirements and knowledge of the supply market by the logistics professionals of these companies seem to be high, since the farther the suppliers are, the greater the logistical challenges that need to be met.

Regarding the distribution chain, the question concerning the countries of origin of the main clients of the surveyed companies showed that Brazil is the main demand center. Except for company C, which has in Japan the country where its main suppliers are located, all other companies indicated only Brazil as a consumer center, as shown in table 2.

Table 2. Business customer home countries.

Companies	Customers: home countries
A	Brazil
B	Brazil
C	Japan Brazil
D	Brazil
E	Brazil

These results seem to indicate that these multinational companies were established in Brazil as a logistics strategy to supply the local market. For strategic planning purposes, therefore, the proximity to the consumer market led these companies to transfer to the Amazon a production unit to alleviate the logistical challenges of producing in distant locations.

Table 3 shows the results obtained for the question that sought to identify the number of professionals working in the logistics sector of the companies surveyed. Company A had the lowest number with 8 professionals, while Company E had the largest with 100. Company B has a robust number with 78 people. Companies D and E can be considered as small quantities. Thus, the sample consisted of three small companies and two large companies. Medium companies would have between 30 and 60 logistics professionals.

Table 3. Number of companies' logistics professionals

Companies	Number of Logistics Professionals
A	8
B	78
C	21
D	12
E	100

Two companies concentrate 178 of the 219 professionals who are part of the logistics sectors of the surveyed company's sample. These companies are likely to match the size of the logistics industry to the size of their production and, by extension, to their overall size. In other words, companies B and E can be considered large companies in relation to the other industries that operate in the industrial hub of Manaus. The other three (A, C and D) are most likely midsize businesses.

Table 4 shows the results related to the professional training of the respondents, who are the professionals who at the time of data collection occupied the position of managers of the logistics sector. It is noteworthy that one of them, the manager of company B, has only completed high school, while all the others have higher education.

Table 4. Professional training of respondents

Companies	Respondent Training
A	Degree in administration Bachelor in Service Management
B	High school
C	Logistics Degree
D	Degree in administration
E	Logistics Specialization Specialization in People Management

Except for the manager of organization B, everyone else is adequately trained to operationally handle logistics challenges. The managerial competence for the logistics area is formed by knowledge, skills and attitudes of the business world, in formal baccalaureate courses such as administration, economics and production engineering or specific technological courses, such as logistics. For competence to deepen, specializations are necessary, since the focus of these courses is precisely to concentrate all their training hours focused on this. In this sense, the logistics managers of organizations A and E went beyond graduation and specialized, a decision that certainly placed them more prepared to deal with the daily logistics challenges of their organizations.

In addition to professional training, the practical experience of logistics management is fundamental. Table 5 shows the managerial exercise time of the respondents in their own company, not counting the time (which everyone has) when they performed the management function in other organizations. Thus, there

are managers, such as company A, who have been in the managerial role in the company for only seven months, while others, such as those in organizations D and E, have been for a decade.

Table 5. Time in the manager role in the company

Companies	Time in function
A	7 meses
B	2 anos
C	5 anos
D	10 anos
E	10 anos

Professional experience consolidates the technical training obtained because it allows the manager to know how to apply the knowledge gained, improve the skills obtained and take the most appropriate attitudes for the managerial exercise. Although the manager of Company A has only been in office for seven months, he has five years of logistics management practice in the market, which gives him full capacity to deal with the challenges that may come to him.

External environment and logistics strategies

Table 6 presents the impacts of the external environment on the logistics strategies of the organizations in which the interviewees are logistics managers. As can be seen at first glance, the current moment is of great impact of economic variables, with 13 references out of a total of 15 indications; Moreover, the types of impacts are quite diverse, which confirms the depth of uncertainties in the external environment of these companies. The other variables are political, with four citations, which give them the second place in importance and intensity in the production of the context of deep environmental and ecological uncertainty.

Table 6. Impacts and dimensions of the external environment

Companies	Impacts	Environmental Dimension
A	Increased air transport	Economical
	Outsourced port dependency	Economical
	Higway without traffic conditions	Economical
B	Economic slowdown	Economical
	High dollar	Economical
	Political crisis	Political
C	Political and economic crisis	Political and economic
	Lack of logistics infrastructure	Economical
	Supplier distance	Economical
D	Location	Economical
	Time	Economical
	Climate	Ecological

E	Customer diversity	Economical
	Need to buy from abroad	Economical
	Political and financial instability	Political and economical

The uncertainties of the national economy pose profound risks for the realization of organizational goals because strategies, as a path to them, become high risks. Thus, when these situations happen, organizations usually take defensive positions by taking downsizing or retaining current size strategies. Growth and development strategies are almost never followed.

Table 7 shows the assessment of the impacts of the external environment on organizational strategies made by managers. The results show that of the 15 identified variables that affect the logistics strategies of the organizations surveyed, only two were considered positive: one economic, increased air transport options, and the other ecological, climate, ie tropicity or stability of conditions. climatic conditions throughout the year.

Table 7. External environmental impact assessments

Companies	Environmental Dimensions	Impact Assessments	Classification
A	Economical	Positive	Opportunity
	Economical	Negative	Threat
	Economical	Negative	Threat
B	Economical	Negative	Threat
	Economical	Negative	Threat
	Political	Negative	Threat
C	Political and economical	Negative	Threat
	Economical	Negative	Threat
	Economical	Negative	Threat
D	Economical	Negative	Threat
	Economical	Negative	Threat
	Ecological	Positive	Threat
E	Economical	Negative	Threat
	Economical	Negative	Threat
	Political and economical	Negative	Threat

In fact, the negative translation of the impacts of the external environment on the logistics strategies of the researched organizations compromises the execution of the organizational strategic plan and the sectoral plans. Unfortunately, when the economy gains such contours, organizations, the main actors in these scenarios, become immobilized. On the one hand, they do not want to take high risks because they know returns are unsecured; on the other hand, they cannot remain static because this represents costs that sooner or later will have to be compensated. And that can diminish your competitive capabilities.

Table 8 details the reasons why respondents drew this negative picture of the external environment on their organizations' logistics strategies. The manager of company A presented as an opportunity for the company the fact that there was an increase in the number of companies providing air transport services to Manaus because this improves the purchase and sales planning. By contrast, the state's dependence on third-party ports, since most transportation is by inland waterway, and the BR-319 highway being without traffic conditions becomes threats to the achievement of your company's logistical objectives.

Table 8. Justifications for impact assessments

Companies	Impacts	Justifications
A	Increased air transport Outsourced port dependency Higway without traffic conditions	Improve buy and sell planning Dependence on other companies River transport dependency
B	Economic slowdown High dollar Political crisis	Retraction of sales and consumption Rising raw material price Inertia for investments and decisions
C	Political and economic crisis Lack of logistics infrastructure Supplier distance	Lack of investors for new projects Delay in product deliveries High inventory costs
D	Location Time Climate	Long distance suppliers It takes time to get the materials Time stability
E	Customer diversity Need to buy from abroad Political and financial instability	Costs the product and shipping cost More storage area and more costs Expenses export cost

Company B's manager presented three threats from the external environment about his company's logistics strategies. The economic slowdown, the high dollar and the political crisis, respectively, cause sales to shrink and severely limit consumption, cause the price of raw materials and other materials to rise, and make organizations inertial about investments and decisions. These three aspects, combined, prevent organizations from developing and executing consistent logistics plans.

The political-economic crisis means that in some cases investors in new projects are reduced to zero, in others they are quite small, according to the organization's logistics manager. In addition, the lack of logistics infrastructure increases delivery of materials too much, a fact that is aggravated by the very long distance from Manaus industrial center of the supply centers, which leads to the need for immobilization of high volume of capital in stock. These associated factors have also had high impacts on the company's logistics strategies.

Company D's manager had two negative impacts (threats) and one positive (opportunity) from the external environment on his company's logistics strategies. The opportunity is the fact that the industrial hub of Manaus has a single season, summer (with rain), which facilitates logistics operations. On the other hand, the location of the Manaus industrial center away from suppliers increases the company's operating costs,

since the time it takes between ordering and the actual arrival of materials in the company is extremely long.

Finally, company manager E presented three negative impacts of the external environment on logistics strategies. First, the diversity of customers and their location makes the cost of the product increase by the high transportation costs; second, that the need to buy materials from abroad and the delay in getting these products to Manaus industrial center requires more space for your company to store more products, which generates more costs; and third, political and financial instability has increased the cost of production through the high dollar, Brazilian cost, etc.

Discussion of results

The results regarding the logistic aspects show that the companies' logistics chain is made up of mostly foreign suppliers, with China ahead, as opposed to Brazilian customers. This shows that these companies, almost all multinationals, produce in Brazil to meet national needs; For this, they acquire most of the materials abroad and the rest in Brazil, mainly by law, to be installed in the industrial center of Manaus.

Because these companies are multinational, so is the supplier market. Thus, it is necessary that the management team of your logistics have the proper preparation to synchronize the arrival of materials with their production cycles. In this, except one researched organization, all others have their logistics leader with the appropriate technical background. In the case of the organization whose manager does not have this training, such demerit is offset by the high professional experience that, by the way, all other managers have.

The logistics systems of the surveyed companies are composed of mostly foreign suppliers to meet the needs of domestic customers. These schemes are strongly sensitive to national and international environmental changes, which have highly significant impacts on logistics strategies. And among these environmental forces, the economic and political, have been the ones that currently prevail in the configuration of a scenario unattractive to national production, generating uncertainties in various economic sectors and, consequently, increasing the degree of risk for investments in production.

Although the international scenario is not so threatening, the impression one gets from contact with the interviewees is that the extremely complex and turbulent national reality overlaps any external opportunity. This means that the opportunities that may have appeared are dimmed by the blunt forces of the negative variables of the local external environment. In this power play, elaborating and implementing strategies is virtually impossible.

In scenarios of extreme turbulence and instability, many organizations prefer to wait for the external environment to calm down or to regain minimal predictability before they can resume operations. This attitude, however, can be complicated if the period of turbulence and instability extends. In fact, many organizations cannot survive long periods of uncertainty and are discontinued; others shrink in size and operate on micro scales. These are organizational strategies applied to survive, few of which can take advantage of times of crisis to innovate and grow.

CONCLUSION

This study showed that the impacts that the external environment has on the logistics strategies of industrial organizations operating in the Manaus Industrial Pole are mainly economic threats. Political, ecological and political-economic threats were also identified. These results indicate that the environment of the researched organizations is one of uncertainty and instability, since the demand-supply scheme does not allow these organizations to be able to predict and operate their production systems without incurring high risks, which greatly reduce possibility of success.

Most of the economic environment of these industries is made up of foreign suppliers and domestic Brazilian customers and competitors. Internal clients are scattered among the Brazilian North, Northeast and Southeast, most notably the State of São Paulo. It can be seen from this distribution and supply chain that materials are purchased in foreign currency and production is sold in domestic currency, which places them on a high degree of exchange rate vulnerability, as the period of uncertainty oscillates upwards. the exchange rate of foreign currencies, especially the dollar, is very intense.

The managerial capacity of these organizations to deal with the turbulent and unstable environment may be considered adequate internally, but inadequate from the point of view of the organization's relationship with the external environment. The reason for this is that sector managers, such as logistics executives, do not have the organizational legal competence to negotiate, for example, long-term supply contracts. This type of negotiation involves knowledge and skills that are beyond what formally can provide undergraduate and specialization training yet have a good deal of operational experience. More in-depth knowledge and skills are needed so that other trading options and strategies can be applied to help the organization cope adequately with the unpredictability of the instability scenario.

Roughly, as it was found in this study, what medium and large organizations have been doing is reducing their size, reducing the number of people and consequently the number of inputs required and products offered, operating on a small scale. This behavior is like what occurs in nature during stormy periods: People shrink, reducing their body size in contact with wind, rain and cold. Similarly, individuals remain stationary, until the threats of thunderstorms pass or soften, so that they may continue their paths. Organizations also shrink in size and virtually stop their operations, expecting the turmoil to soften or dissipate.

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