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## Level of knowledge and formalization of logistics and SCM in the Brazilian automotive industries suppliers

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**Abstract.** The companies of vanguard understood that the real competition is not made among companies, but among supply chains. The supply chain management (SCM) concept is the logistics extension, while the logistics management is concerned with the organization flows optimization. This paper intends to divulge the level of the knowledge and the formalization of logistics and SCM already set up by the suppliers of Brazilian automotive industries. The SCM recognized that the internal integration is not enough for the competitiveness achievement. The automotive segment can be considered representative in logistics and SCM practices in Brazil deserves to be noticeable. In order to achieve this, it was accomplished an applied, exploratory, descriptive and qualitative survey, through inductive approach. The technical procedure used was a survey. The data collection was carried out through questionnaires sent to fifty representative suppliers of automotive industry, with the return of 64% answers. The results of the survey showed that the main impediment in the implementation of the SCM concept is precisely the incoherence in the culture of the companies surveyed about the logistics and SCM, concerning the partnerships and the exchange of information.

**Keywords.** Supply chain management, automakers, suppliers, partnership, enterprise culture

### 1 Introduction

Presently, the trend is the integration of all logistics activities in the companies, since the client's order to the supplier until the delivery to final consumer, involved by services and information that aggregate value. In order to make feasible this integration, the supply chain management – SCM concept is paramount. This concept cover, not only the business processes, but also the relationships between clients and suppliers, aiming the strategic partnerships, benefiting all the members of the supply chain.

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The automotive segment can be considered prominent in this sense, because presents important initiatives in the supply chain management. According to [5], during the last one hundred years, the Brazilian automotive industry developed its potential and became one of the more representative manufacturing segments. Moreover, some reports show that approximately 10% of global trade occurs in the automotive industries. Due to its pioneering and competitiveness level, it becomes a truth reference to industrial environment in terms of technological and managerial innovations.

Brazil had, during the last ten years, approximately US\$ 30 billions of foreign investments in the automobile industries. One part of this amount was applied in the technological upgrade of the existing industrial plants. However, the major part was driven to build new and innovated plants with the SCM perspective. To sum up, this fact makes possible to Brazil, becomes a world example, because has industry installations of all the great brand of automotive automakers, which is very up-to-date in terms of logistics processes and SCM.

The supply chain of automotive industries involves automakers, suppliers, retailers and the final consumer. One simple delay generated by any members could cause production stops, and consequently, high damages. Due to the complexity of operations, pieces and components for the automotive industry, is more than necessary to obtain success in the supply chain management, mainly reducing logistics costs and integrating the members. The automakers tend to coordinate this supply chain, while the suppliers work in the product development and in the execution of assembly processes.

This paper intends to divulge the level of the knowledge and the formalization of logistics and SCM already set up by the suppliers of automotive industries. In order to answer this question, it was accomplished an applied, exploratory, descriptive and qualitative research, through inductive approach. The technical procedure used was a survey. The data collection was carried out through questionnaires sent to fifty representative suppliers and also to twenty three automakers.

The results of the survey showed that the main impediment in the implementation of the SCM concept is precisely the incoherence in the culture of the companies surveyed about the logistics and SCM, concerning the partnerships and the exchange of information.

## **2 Logistics *versus* Supply Chain Management**

Presently, the logistics management searches the integration of company activities and the intense information interchange, because all these activities form an only process, which main objective is to satisfy the final consumer needs. There are no reasons to manage these activities separately, incurring in unnecessary risks to the company.

According to [2], the high performance of integrated logistics chain, requires greater quality in processes, focus in service needs to client, providing

improvement in the cost structure through all the process, and reduction of delivery time.

The concept of integrated logistics, according to [1], is an organized form of perceive all the processes that generate value to final client, regardless where the process has been executed, it can be in own company or in other to which maintains some kind of relationship.

The supply chain management is the compartment of the business key-processes with other members of supply chain that requires a conceptual change in the behavior of the companies to how to manage the relation with the goods offered to the market [1].

In the integrated logistics management, the processes involved are: Plan, Supply, Make and Delivery. The Plan starts the logistics process; the Supply is inserted in the Supply Logistics; Make is treated in the Production Logistics, and Delivery is managed in the Distribution Logistics. In another hand, [6] asserts that, the SCM, is a more complex task than the logistics management of goods, information, and services flow related to origin point to consumer point.

To sum up, this concept involves, besides the integrated logistics management, strategies of relationships with suppliers and customers aiming greater life span in business, through the partnerships based in trust and collaboration. These factors generate sustainable competitive advantages, where many companies discovered that through these partnerships could improve the product project, marketing strategies and service to clients, and besides that, discover forms to work more efficiently together. A close relationship between supplier and buyer allows that the both skills will be applied to mutual benefit.

Thus, according to [4], one of the main SCM objectives is to attend the final client with greater efficiency, through costs reduction and add more value to final products. The cost reduction has been obtained through reduction of transactions, paperwork and information sizeable, besides the reduction of transports and stocks, elimination of the quality control points and demand variability of products and services. The creation of goods and services customized, the joint development between suppliers and clients of competences through productive chain, add value to products and increase the profitability to all the chain.

In automotive industry, approximately, 12% of materials costs to automakers are accounted by suppliers logistics costs. Thus, when the reason is the lack of integration between suppliers and automakers, there is a great opportunity to costs reduction. In the traditional relationship of opponents, the automaker could reduce the materials costs exerting pressure on profit share of components suppliers [3].

### **3 Data collection and analysis**

The data collection of this research was carried out sending questionnaires to 23 automakers and 50 suppliers of automotive industry, which were selected in the site of ANFAVEA – National Association of Auto Motors Vehicles Automakers,

due to the accessibility rather than statistics methods. The questionnaires were sent by conventional and electronic post informing about the deadline to the answerers. However, as this deadline was not carried out, this was extended. As a conclusion, it was obtained a return of 9 questionnaires from automakers, representing 39%, and 32 questionnaires from suppliers, which constitute 64%.

It is important to emphasize that this research did not have statistics awareness, thus it was not intended to assert that this is the reality of industries population of the segment researched, with the limited intention to demonstrate the trend of behavior. In the Chart 01 are the results found, besides the comparison between automakers and suppliers.

**Chart 1.** Knowledge and formalization

Items researched	Automaker %	Supplier %
<b>Knowledge of logistics concept:</b>		
Enough knowledge	44	44
High knowledge	44	25
Medium level of knowledge	12	19
Low knowledge	-	9
No knowledge	-	3
<b>Knowledge of SCM concept:</b>		
Enough knowledge	67	44
High knowledge	33	28
Medium level of knowledge	-	19
Low knowledge	-	9
No knowledge	-	-

Source: The author (2006).

Through Chart 01 is possible to visualize that 44% of automakers asserted that has enough knowledge about logistics, 44% demonstrate that have high knowledge, and only 12% a medium level of knowledge. These results are similar to suppliers, 44% asserted to have enough knowledge, while 25% alleged to have a high level, and 19% a medium level.

On the other hand, regarding to SCM concept, 67% of automakers asserts to have a sufficient level, 33% denoted a high knowledge, while 44% of suppliers researched, answered to have enough knowledge, 28% a high level, and 19% a medium level of knowledge. These results demonstrate that the majority of suppliers believe to know these two concepts, these concepts intrinsically linked, will yield greater profitability to supply chain members. However, it perceived that in the automakers segments the SCM concept is more consolidated, because the most of them are foreign companies.

**Chart 2.** Formalization and adoption

Items researched	Automaker %	Supplier %
<b>Formalization of logistics and SCM:</b>		
There is a logistics department	56	71
There is a SCM department	22	3
There are both	22	13
There are not both	-	13
<b>Adoption of SCM concept:</b>		
Yes, partially	56	59
Yes, totally	44	25
Not	-	16

Source: The author (2006).

Regarding to logistics and SCM formalization, 56% of automakers have a structured Logistics department, while only 22% have a SCM department, and also 22% have both. Furthermore, 71% of suppliers have a Logistics department, only 3% have a SCM department, 13% have both, and 13% have no one.

When these results are compared, is possible to verify that suppliers have not yet formalized the SCM activities like automakers. Meanwhile, it has denoted that the most of suppliers formalize the logistics management in their processes, however, still there are suppliers that have neither one nor the other, whereby this fact can prejudice the production supply.

Analyzing the SCM concept adoption by the automakers, 56% asserted to adopt partially and 44% of them totally. Likewise, regarding to suppliers it was noted that 59% adopt partially, 25% adopt totally, and 16% do not adopt. It was perceived that the suppliers do not adopt the SCM concept totally, which can be considered an aggravating scenario. The SCM concept requires that both members of supply chain work conjointly, otherwise the automakers can not adopt the SCM concept successfully. This concept is relatively recent in the business environment and needs to mature by the time to come. This reason is justified why it was not implemented totally, however it is important to emphasize that according to the literature, the automotive segment is still that demonstrates greater success in the implementation of SCM.

**Chart 3.** Motivators factors and planning of adoption

<b>Items researched</b>	<b>Automaker %</b>	<b>Supplier %</b>
<b>Factors motivators the logistics adoption:</b>		
New business	4	21
Resources rationalization	32	68
Technological development	7	7
Satisfaction and/or demand of clients	4	71
Reduction of logistics costs with transports	21	54
Reduction of logistics costs with stocks	32	79
Market trends	-	29
No one	-	-
<b>Factors motivators of SCM adoption:</b>		
New business	3	4
Optimization and integration of the company processes	38	18
Integration with clients and suppliers	21	20
Satisfaction and/or demand of clients	-	11
Obtaining of competitive advantage	17	12
Market trends	-	7
Elimination of costs and activities that not aggregate value	21	25
Co-production	-	2
No one	-	-
<b>Term perspective to implementation of SCM:</b>		
Short term (until 2 years)	55	47
Medium term (2 to 5 years)	34	41
Long term (more than 5 years)	10	6
Without perspective	-	6
<b>Factors that drive the companies to planning of the SCM adoption:</b>		
Demand of suppliers/clients	5	19
Market trends	-	10
Optimization of company processes	39	27
Obtaining of competitive advantage	26	20
Costs reduction	30	24
No one	-	-

Source: The author (2006).

Regarding to the main motivator factors to adopt the logistics management by companies researched, it was noticed that: 32% of automakers assert to be the resource rationalization, 32% confirmed to be the reduction of logistics costs with stocks, and 21% the reduction of logistics costs with transports. Furthermore, 79% of suppliers have the intention to reduce their logistics costs with stocks, 71% by satisfaction and demand of clients (automakers), 68% by resource rationalization, and 54% due to reduction of logistics costs with transports.

These results confirm the data collected in the bibliographic research, where emphasize that activities of stocks and transports management are the major generators of costs to companies, so that impacts directly in the service level offered to clients. These activities if well managed, rationalize financial assets, human and time resources. However, the suppliers present a high level of interest in this adoption, by satisfaction and demand of clients (automakers). This fact

demonstrates that the evolution and improvement of suppliers is motivated or pulled by automakers.

It also was researched the interests by adoption of SCM concept, in which the automakers point out, respectively, the factors: optimization and integration of company processes with 38% of answers, elimination of costs and activities that not aggregate value, with 21%, and integration with clients and suppliers also with 21%. The suppliers emphasize the following factors: 25% by elimination of costs and activities that not aggregate value, 20% with the purpose to integrate clients and suppliers, and 18% to optimize and integrate the company processes. These results confirm the theory about the theme, that point out as main factors in the SCM adoption, the integration between suppliers and clients aiming partnerships and the optimization of company and their partners processes. Besides the reduction of costs and unnecessary activities, always having as main purpose to satisfy the final client, it maximizes the profitability of the supply chain. In this sense, both automakers and suppliers have the same view, which is favorable to both, and means a positive factor to success to consolidate the SCM concept.

Concerning to perspective of SCM concept implementation, and consequently, the logistics management, it has noted that 55% of automakers will do in short term, 34% medium term, and only 10% has the intention to implement in long term. Regarding to suppliers, 47% asserted that will implement in short term, 41% in medium term, 6% in long term and also 6% do not have perspective of implementation. Therefore, the suppliers and automakers converge in their perspective of SCM implementation.

The research also verified about the factors that drive to SCM concept adoption, that the interest of automakers is motivated mainly to optimize the company processes. One of the factors was chosen by 39% of the companies researched; by the interest to reduce costs, the option was by 30%, and obtaining the competitive advantage with the option of 26% of the companies researched. In this context, 27% of suppliers believe that the optimization of company processes is the main driver factor to adopt SCM concept, 24% pointed out the costs reduction as relevant factor, whereas 20% the obtaining of competitive advantage, and 19% to attend the demand of clients and suppliers.

#### **4 Final Considerations**

The automakers incorporate the logistics management in their activities as essential requirement to appropriate development of their processes and also as competitive advantage source. Aims to attend the client with short terms, quality, reliability, and reduced costs. Regarding to the size of suppliers researched, the most are of medium size, whereby it was noticed that they adopt the logistics management in their processes. Also, the main reasons that drive to adopt this technique were the costs reduction with stocks and transports, also the necessity to satisfy the automakers demand.

However, concerning to the SCM concept, it was noticed that the suppliers still not have a satisfactory knowledge; many of them understand that logistics is the same as SCM. It is noted that still there is certain confusion in those concepts. In the automakers companies, this concept is more defined, and all they adopt the concept with their suppliers, mainly regarding to productive and business processes integration, incentivating the building of partnerships. In another hand, the suppliers do not perceive total interest of automakers in building the partnerships demonstrating the incompatibility of ideas.

Great part of suppliers believes that the SCM concept adoption is important, mainly to make possible the processes optimization, costs and stocks reduction, and to attend the automakers demand, besides that they pretend to implement the concept in short and medium terms in their operations. This fact can be considered positive because generates favorable environment for changes.

Despite the SCM concept still is not that much diffused in Brazil, considering that the automotive segment is pioneer in this sense, it can be concluded that there are some points to be developed, mainly regarding to partnerships and suppliers development. Probably, there are a distorted view of the SCM presuppose, since the partnership requires an intense cooperation among supply chain members and not only the responsibilities to transfer, as an example, automakers stocks being transferred to next supply chain link.

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