

Chapter 5 Empirical analysis of the applicability of alternative solutions to Automotive Supplier Parks

Automotive suppliers located in supplier parks have an enormous advantage of being geographically proximate to the car manufacturer's plant in order to assure effective JIT-delivery. But what happens with suppliers who are not as proximate to the OEM and still have to deliver the goods on a JIT-basis? How do they assure the punctual supply of their goods? Remembering the 5 alternative concepts to ASPs, the first part is going to deal with the applicability of these alternatives, based on the comments from the suppliers. Besides, as freight forwarders become more and more important in the delivery of goods, the second part is dealing with the view of freight forwarders in the JIT-delivery of the automobile sector by citing the example of ABX Logistics.

5.1 Analysis Automotive suppliers

The main goal through this analysis is to determine the applicability of one of the 5 alternative solutions to supplier parks in the Mexican environment. The analysis therefore is structured as follows:

The first part is used to determine the supplier's location and the car parts they are supplying. Followed by the determination of the transport of the goods to the car manufacturer's plant, with particular emphasis in the JIT-delivery.

In the final part the emphasis is put on the determination of the key factors for a good communication and collaboration between the OEM and the suppliers.

The part concerning the freight forwarder's place in the JIT-delivery will be analyzed in Part 5.2.

Part 1 General questions

Demographic characteristics

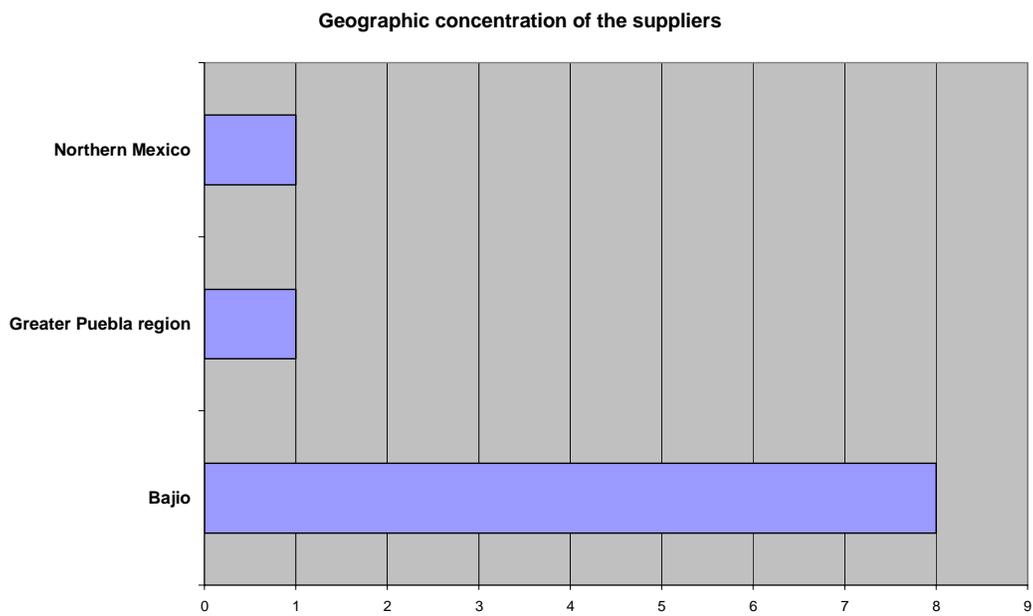


Fig. 19

Source: Proper elaboration

The first graph shows the geographic concentration of the suppliers asked in this investigation. As one can see, there is certainly a big concentration of suppliers in the Bajio-Region¹. During the approach it became evident that various Tier-1 suppliers, often Mexican subsidiaries of global-acting companies, are located in this region, especially in Queretaro and Guanajuato.

¹ El Bajío is the name for a region in Central Mexico and consists of the federal states of Guanajuato, Queretaro, San Luis Potosi and Aguascalientes.

Companies' origin

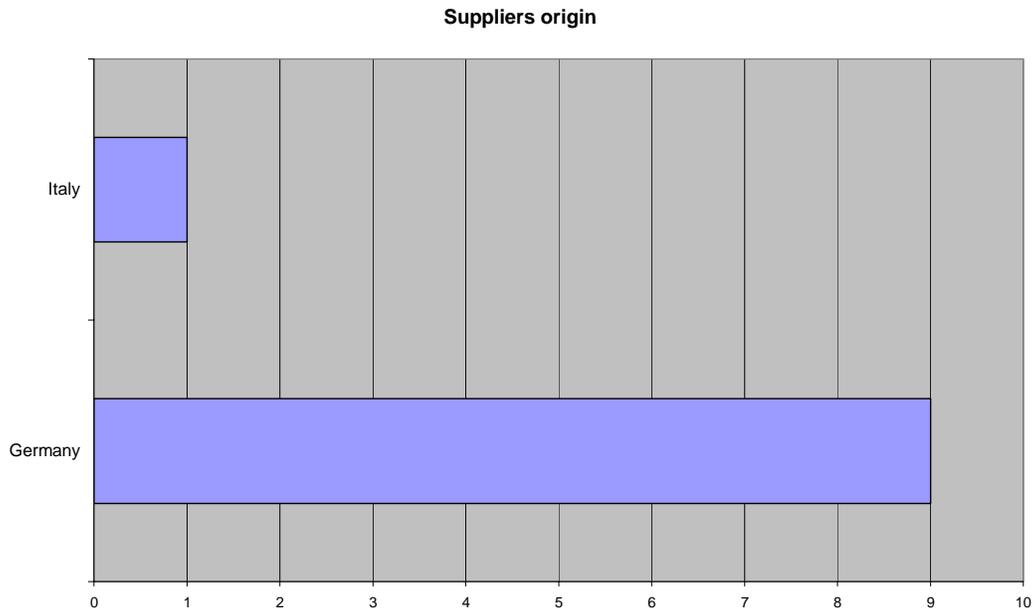


Fig. 20

Source: Proper elaboration

The chart illustrates the companies' origin, i.e. the location of their parent plant. The great majority of the suppliers have their origin in Germany. As already mentioned, this is primarily due to contact numbers received from the CAMEXA-Handbook and webpage, and from ABX Logistics. It is also caused by the multitude of German automotive suppliers who opened their subsidiaries due to the settlement of the big German car manufacturers & their pressure on the suppliers to invest in the NAFTA-region. The supplier from Italy resulted from a Joint-Venture between an Italian and German Tier-1-supplier.

Number of car manufactures supplied

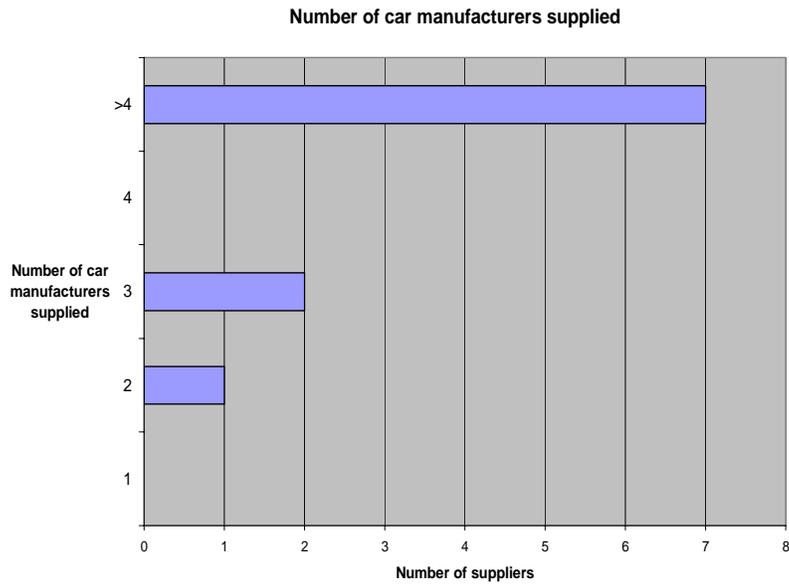


Fig. 21

Source: Proper elaboration

The grand majority of the suppliers asked in this elaboration supply more than 4 car manufacturers. Furthermore, none of the companies have only one OEM to supply. This can be seen as an evidence that suppliers located farer away from the OEM are not as dependent on one specific client as those located in supplier parks in immediate proximity of the car manufacturer's plant.

Reason for the location settlement

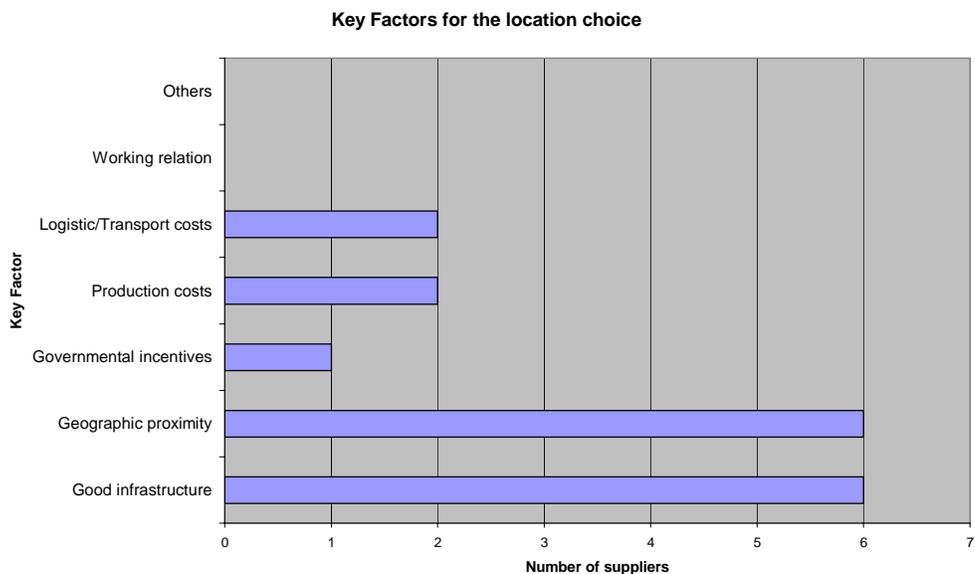


Fig. 22

Source: Proper elaboration

This chart mentions the key factors for the supplier’s choice of the location. The most important reason is the geographic proximity between their plant and the OEM. This is somehow astonishing as most of the supplier’s plants are generally more than 100 kilometers away from the car manufacturer. It can be interpreted as a different view of geographic proximity. Furthermore, during some telephone interviews the responsible of the suppliers explained that their goal is to be more or less close to each car manufacturer they supply so therefore they choose a spot which is approximately in the same distance to them.

Not very surprising, a good infrastructure (accessibility to highways, good street conditions, safe and modern transport facilities) plays also a very important role as the suppliers have to overcome the distances to their suppliers in the rapidest and safest way.

In addition, a smaller amount of suppliers considered production and logistic costs as a key factor in choosing their location, which is particularly important for smaller suppliers in order to save costs and to be competitive.

Part II Transportation and JIT-delivery

Transportation modes

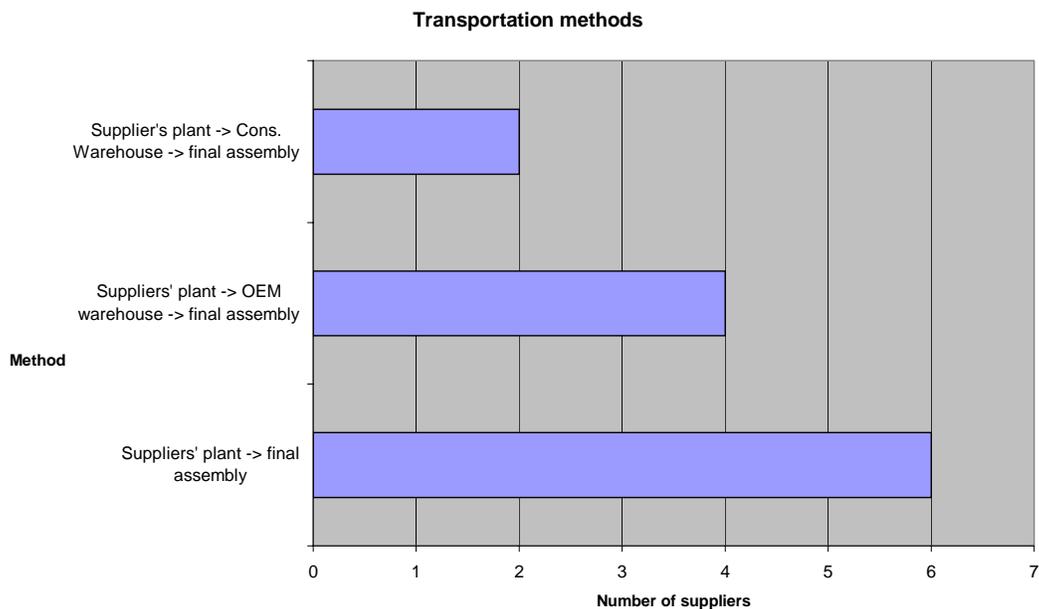


Fig. 23

Source: Proper elaboration

A very important issue in the survey is the mode the goods are transported. As the graph shows, the goods are either transported directly form the supplier to the final assembly of the OEM or first from the supplier to a warehouse of the OEM to stuff the goods temporarily before taking them to the final assembly. Another option some suppliers used is the transport from the supplier's plant to a (public) consolidation warehouse and from this warehouse to the final assembly.

Concerning the consolidation warehouses I asked the suppliers more specifically about the functioning of those warehouses and they answered the following:

- A 3PL / freight forwarder delivers the car parts of the suppliers to the warehouse
- Thereafter the goods are bundled to bigger lots and transported to the OEM
- The suppliers are satisfied with the consolidation warehouse and point out that it functions very well and they maintain a lower inventory level in their own plant so they do not need extra large facilities in their plant.

Responsibility of transportation

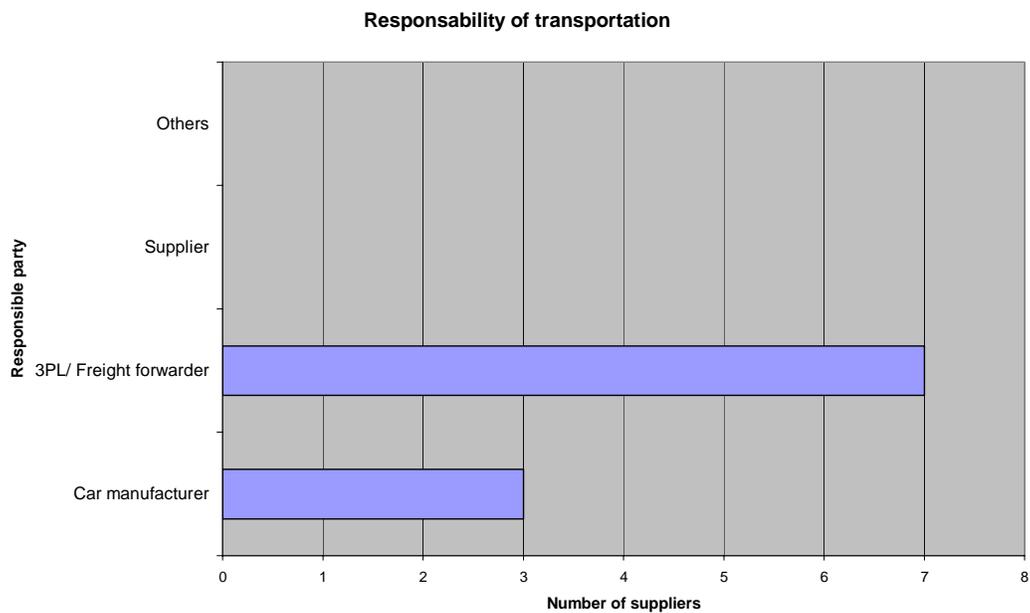


Fig. 24

Source: Proper elaboration

This chart shows the responsible parties for the transportation of the car parts. The responsibility of the transportation from the supplier's plant to the OEM is mainly carried out by a 3PL or a freight forwarder. As the interview partner commented in the telephone interviews, the carrying is executed mainly by local transport companies.

The fact that 3PL's or freight forwarders are taking charge of the transportation illustrates the trend of both car manufacturer and suppliers to focus on their core competences and therefore to put the transportation in the hands of 3PLs who are able to offer specialized and customer-oriented services.

Key factors of JIT-delivery

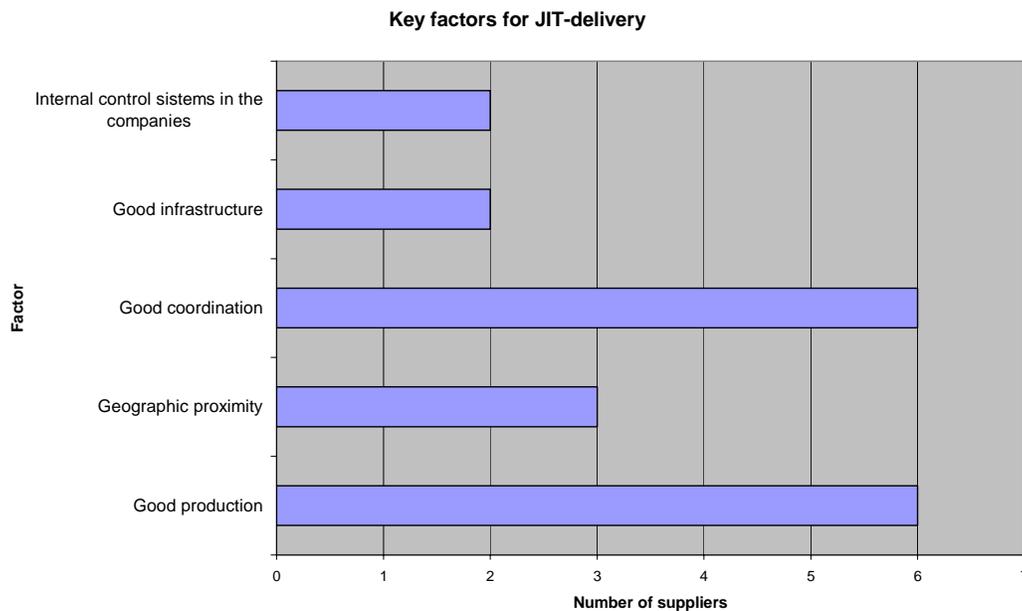


Fig. 25

Source: Proper elaboration

Asking the suppliers about the key factor in order to assure a JIT-delivery, the answers obtained are quite widespread. As this chart shows, the main factor to achieve a delivery JIT is a good functioning of the supplier's production & a good coordination between the OEM and its suppliers.

The fact that neither geographic proximity nor a good infrastructure plays a significant role in JIT-deliveries can be interpreted as evidence that they might use as a helpful tool, but not as an indispensable criteria for JIT-delivery.

Obstacles for JIT-delivery



Fig. 26

Source: Proper elaboration

Concerning the main obstacles for JIT-delivery, one can observe that a lack of adequate communication between OEM and suppliers is considered to be the principal hurdle, followed by sudden short-term demands of the OEM. As one supplier commented, those short-term demands are often delivered with express releases either by the supplier itself or with the help of freight forwarders. One supplier mentioned the customs clearance as a main obstacle for the company to deliver JIT due to their location in the proximity to the border of the United States

and to the fact that the company is mostly supply car manufacturers settled the USA.

Methods to assure JIT-delivery

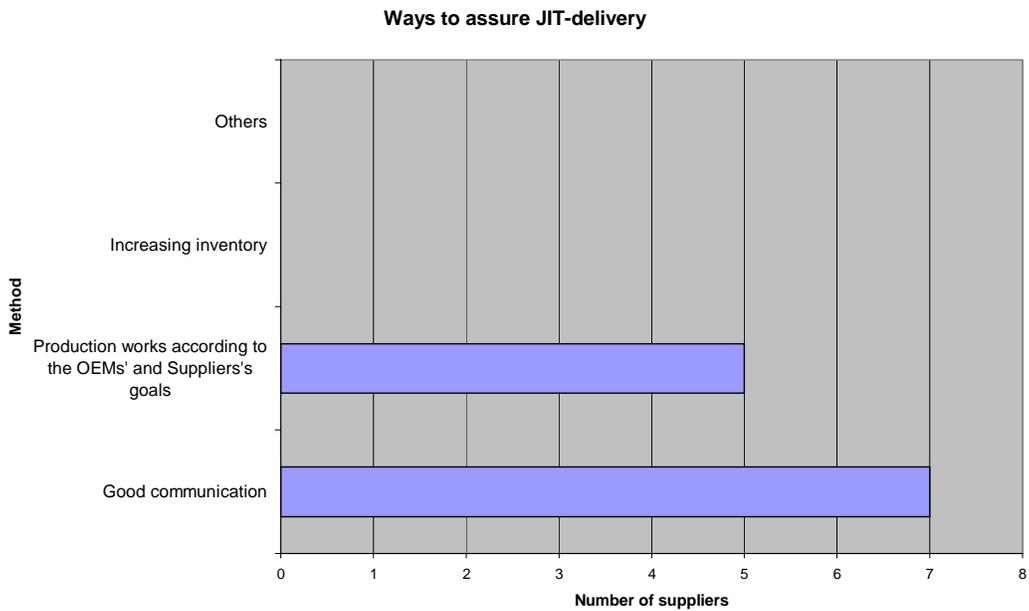


Fig. 27

Source: Proper elaboration

This graph illustrates the methods of the suppliers to assure deliveries JIT. Taking a look, the most important method to achieve it is a good communication between suppliers and OEM. Another important method to achieve JIT is to define the production goals in conjunction with the OEM.

Part III Communication and collaboration

Key issues in communication and collaboration

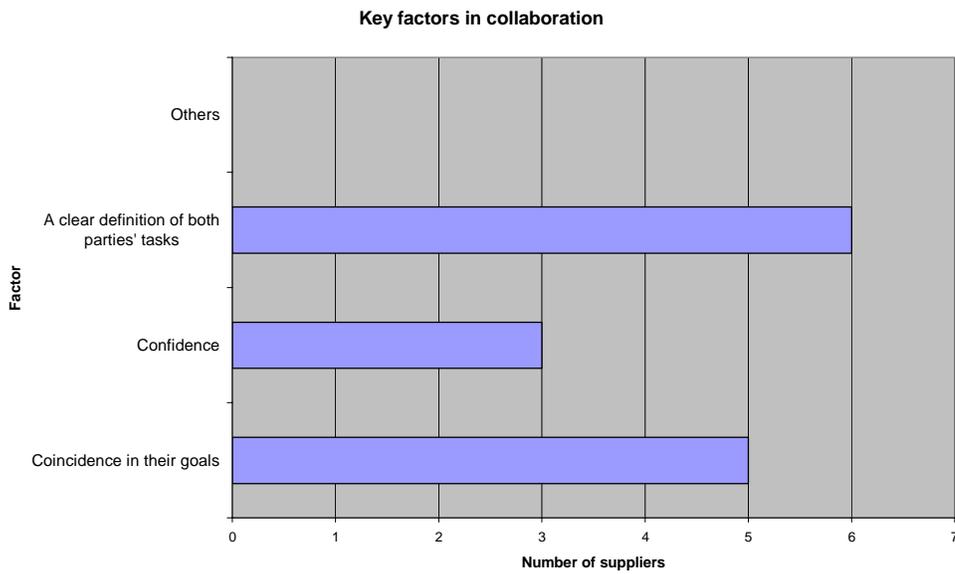


Fig. 28

Source: Proper elaboration

Concerning key factors in the collaboration between OEM and suppliers, the suppliers point out that the essential in the collaboration is to make a clear definition of both parties' tasks previous to the work in order to avoid interferences and misunderstandings. Additionally to this point, both suppliers and

OEM have to have coincidence in their goals to convert the businesses into a success.

Relation between OEM and supplies

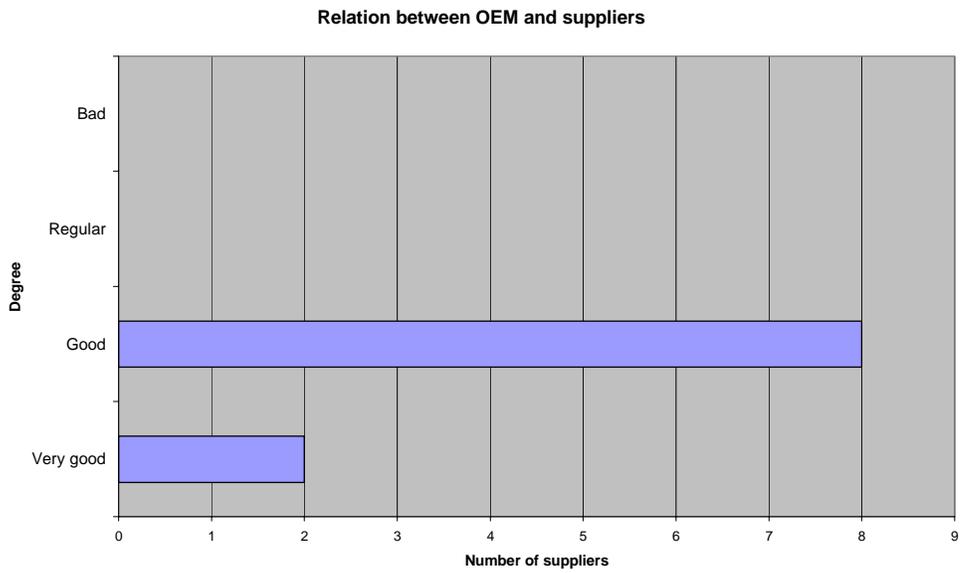


Fig. 29

Source: Proper elaboration

Most of the suppliers asked claim that their relationship is with the car manufacturers is good. One supplier even considers the relation to be very good.

Interdependence between OEM and suppliers

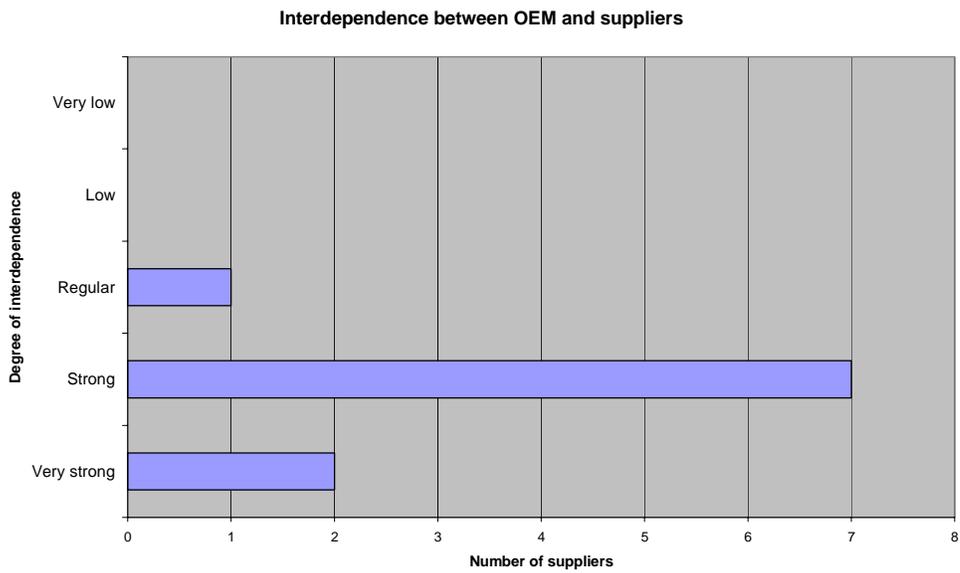


Fig. 30

Source: Proper elaboration

Although the suppliers investigated for this study are not located in the immediate proximity of the car manufacturer, they consider the interdependence as strong. One supplier even went a step further and stated its interdependence as very strong.

Other results of the analysis

Concerning the general communication between OEM and suppliers, the general media of communication are e-mail and telephone. Only two suppliers mentioned that they have constant face-to-face contact. The face-to-face contact is basically a result of the nearness of this supplier to the car manufacturer which makes the face-to-face communication a highly favorable media.

All suppliers consider a good communication between them and the OEM as indispensable, which is not surprising in order to achieve their commitments.

Analysis of the applicability of alternative supplier park concepts in Mexico

Remembering the 5 alternatives elaborated in the theoretical approach, the results of this study indicate that the most appropriate alternative would be the consolidation warehouse as it is the concept mostly used by the suppliers in case their goods pass by a warehouse. Moreover, the suppliers which use the consolidation warehouse have expressed their satisfaction with the way the warehouses are functioning.

A breakbulk warehouse is more difficult to apply in the Mexican market, as in theory various car manufacturers would need to be willing to make use of such a breakbulk warehouse and as there are still OEMs preferring to do the pick-up of goods on their own, it would be difficult to make a breakbulk warehouse work.

A freight traffic center is not considered to be an appropriate option as it would need too much coordination between the parties within the center and it is doubtful that it would work well in Mexico.

Concerning the applicability of distribution centers in Mexico, the particular difficulty would be the excellent collaboration needed in order to make the concept run efficiently. As the majority of the suppliers in the study commented a

good, but not very good communication with their OEMs, it is doubtful to consider is an appropriate alternative.

Another considerable option in theory would be the application of the Multi-Customer-Supplier-Park (MSCP). The favorable factors for the use of this alternative would be the high average number of OEM to supply (the majority of the suppliers supply more than four car manufacturers) and the distance to them (most suppliers located more than 100km away from their next client). A MCSP therefore would be a good consolidation point to transship the goods. Nonetheless, there are two main factors which makes this concept not favorable for the Mexican market: First, there is still a lack of good infrastructure in Mexico which makes especially the long-distance-transportation (for which the MCSP is conceived) difficult and risky as the goods may arrive damaged and unusable. Second, the MCSP requires the disposition of the OEMs to be part of this concept and as already mentioned, some OEM still prefer to pick up their goods on their own so it would be difficult to convince them.

Summarizing this chapter and bearing in mind the alternatives evaluated in the second chapter, a consolidation warehouse seems to be the best option to ASP's to assure the punctual delivery of goods from the suppliers to the OEM. Furthermore, an important aspect found out in this empirical study is the indispensability of good communication between OEM and suppliers and the good functioning of the suppliers' production. These aspects are considered to be the most important ones in the JIT-delivery.

Nonetheless, certain factors can also influence JIT-delivery, as for example a well- coordinated transportation. In this case, freight forwarders are occupying a certain place in this process. Which role they exactly play will be evaluated in the upcoming part.

5.2 Analysis of the freight forwarders' place in the JIT-delivery – Example of ABX Logistics Mexico

Freight forwarders become more and more important in the timely delivery of goods as they take the responsibility of the transport away from the OEM and

the supplier and are able to offer specialized services. But how important are freight forwarder in order to secure JIT-delivery and how do they define their role?

The objective of this part is to illustrate the services of the freight forwarders, what they can do in the JIT-delivery-process and how they see their place in the process by the example of ABX Mexico.

ABX Logistics

ABX Logistics is a Belgian Freight forwarding company founded in 1993 as a domestic transport company and subsidiary of Belgium's national railway company (SNCB). Today ABX belongs to a European private equity company called 3i².

The company had an annual turnover of 2 billion US-dollars in 2007. They currently employ approximately 8,000 people in 37 countries (see Appendix 4). Their main services are air & sea freight, but also ground transportation in Europe. They possess of more 1, 5 million sq. meters of warehousing, almost all of them in Europe, where they run various warehouses (Spain, Belgium, and France)³.

ABX Mexico initiated their operation in 2003. Today they count with offices in Mexico-City (Mexican headquarters), Puebla, Veracruz, Queretaro, Mexico-City International Airport⁴ and a representative office in Guadalajara.

Services of ABX

ABX Mexico, in the following ABXM, focuses on sea freight importation from Europe to Mexico. In 2007 sea freight importations contributed about 75% of the total sales. The main service they offer is the so called LCL-FCL-service. An example would be the following:

The subsidiary of a German car manufacturer in Mexico orders a certain amount of car parts from its parent company and its suppliers (often Tier-1 and 2)

² <http://www.abxlogistics.com/corp/History.aspx?languageCode=EN>

³ ABX webpage; Proper elaboration

⁴ <http://www.abxlogistics.com/history/default.aspx?countryCode=MX&ouRef=O9D8E3>; proper elaboration

in Germany. As they are located in different spots in Germany, a transport company (often leased by ABX) is driving to the different plants and pick up the goods. In order to make the shipment more economic and easier for the OEM in Mexico, they stuff everything in one consolidated container less-than-container-load (LCL). Once all the goods ordered are stuffed, the truck delivers the goods to Hamburg, where all the documentation is realized. Once done, the container is transported to Bremerhaven. From Bremerhaven the container is shipped to Mexico (usually to Veracruz, sometimes to Altamira). In the port the container is discharged and later on passed over to the customs for customs clearance.

The responsibility for ABX in such a service always depends on the Incoterm⁵ the car manufacturer agreed together with their clients.

Ground transportation in Mexico

ABXM is almost excluded from the ground transportation in Mexico. This is, according to the sales executives, due to two main reasons:

The first one to mention is the deficient infrastructure in Mexico, which means that there are a lot of porous highways and unsafe trucks which do not guarantee a safe delivery to the final client. A few years ago ABX has tried to enter deeper in the ground transportation in Mexico, but according to the sales executive there a lot of problems have occurred with the clients as the delivered goods often arrived damaged and were of no use anymore. The second reason is the little power that ABX still has in the Mexican market compared to other freight forwarders (Kuehne & Nagel, Panalpina). Mexico is a quite difficult terrain for ground transportation, so ABXM has decided to outsource their (few) ground transportation activities to local transportation companies.

Warehousing

⁵ Incoterms (International Commercial Terms) are internationally standardized “trade terms” that describe the dyadic obligations of both buyers and sellers in international sales transactions. (Source: Lambert/Stock (2001), p. 545)

ABXM does not possess any warehouse on its own in Mexico. They have a few spots in public consolidation warehouses, for example at the Mexico City International Airport.

The reason for not having an own warehouse lies in the simple fact of cost saving and the avoidance of any spare assets in their balance sheet. Nonetheless, those spots in the warehouses help them to consolidate the goods for their different clients in an efficient way.

The role of ABX Mexico in delivering JIT in the automotive industry

As ABX is mainly responsible for the sea freight transport from Europe to Mexico, there are bounded between certain limits. Their impact on JIT-delivery depends also on the Incoterm they agreed with their client. Furthermore, they are extremely depending on the shipping line as they ship the goods over a long distance and this cannot be influenced by ABX Mexico.

Furthermore, ABX Mexico initiated their business recently in 2003, which means that they see themselves as a small player in Mexico. Although they have been increasing their turnover year by year, they are still more powerful players in the market such as: Kuehne und Nagel or Panalpina. So, therefore, ABX first of all has to concentrate on its core businesses, which is the sea freight importation.

The most effective thing they can do to assure JIT-delivery within Mexico is to define coordinate of their sub-contracted transport companies effectively.

The role of freight forwarders in general

During the interview the sales executives of ABX also mentioned the general role of freight forwarders in the JIT-delivery. Freight forwarders can play an important role in the JIT-delivery, especially when they possess a very widespread network of warehouses and sub-contracted transportation companies who help them with the car part delivery. They can be an effective connector between suppliers and OEM.

To summarize the general perspective of freight forwarders, it is considered to be very positive, as the freight forwarders are able to offer effective transportation. But, and this was stated by both interview partners unison, they

will always play the role as an connector, not as a catalyst of an effective JIT-delivery as the main work has to be arranged by OEM and suppliers.

5.3 Concluding remarks

In the present chapter the empirical study has developed key factors, obstacles and methods for the suppliers to assure JIT-delivery. Besides, based on the results of the study, an analysis of the applicability of the alternative concepts in Mexico and the place of the freight forwarders was conducted.

Concerning the alternative concepts, **a consolidation warehouse is the most appropriate alternative** as it the most common and established type of warehouse in Mexico.

Freight traffic and distribution center are difficult to realize as there is a lot of internal and external coordination needed. In case of distribution centers there has to be a perfect coordination between warehouse provider, suppliers and OEM as the goods are just received and shipped again.

As distribution centers also require a punctual arrival from both supplier and OEM, which is difficult to apply in Mexico as the momentary infrastructure is not guaranteeing a good on-time delivery.

The concept of a MCSP is an interesting concept which can be beneficial for both OEM and suppliers, but **(still) not realizable in Mexico due to the lack of good infrastructure** to transport the goods over long distances and the fact that quite a few OEMs still prefer to pick up the goods with own trucks

Concerning the **freight forwarders' place** in the JIT-delivery, **they become more and more important in the car parts transport** as they take away responsibility from OEM and suppliers and offer specialized services. Their role would be a connector between OEM and suppliers. How tight the connector could be depends on the one hand on the size of the freight forwarders (ABX still plays a small role in Mexico compared to bigger companies like Panalpina) and on the other hand on their local network. The closer meshed it is, the better place they occupy.

Analogue to what has been said about the relationship between OEM and suppliers, relationships between freight forwarders, OEM and suppliers have to be close and very trustful. The particularity of this relationship is that the OEM transmits the whole responsibility of the transportation and warehousing to the freight forwarders. Therefore, a lot of trust has to be build up between the parties. Apparently in Mexico there are still a lot of OEM who do not have sufficient trust in freight forwarders and prefer to do the transport on their own, as for example Volkswagen de Mexico.

In spite of what has been said about the increasing impact of freight forwarders, one has to be aware that without a good communication between OEM and suppliers and a good functioning of the supplier's production there will not be any alternative functioning well as the crucial work needs to be done internally between the OEM and the suppliers. This is why freight forwarders play the role of a connector, but are not catalysts in the JIT-delivery.