

# OVERVIEW OF THE AUTO PARTS SECTOR

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## Abstract

The auto parts sector has been responding to a series of challenges to meet the needs of auto assemblers, which, pressured worldwide by growing competition, are passing these pressures on to suppliers. Internal programs to reduce costs and increase productivity, revenue and margins are common practices in large companies, as are joint ventures and acquisitions to expand product lines and geographical coverage.

## Current Situation Worldwide

Growth has been continuous for a select group of dominant companies in the international market that together are responsible for a significant percentage of the sector's total revenue. These companies have grown beyond expectations and captured market share by taking the place of other suppliers or by selling systems of higher added value. Growth in revenue also has resulted from acquisition programs, internal restructuring and an increased global presence. These are all basic strategies of major suppliers; however, the resulting gains will tend to decrease over the long term due to the economic limit of acquisitions and the balance of power between assemblers and suppliers.

Some examples of the level of growth that has been occurring in the sector are shown below (tables 1 and 2) for a set of companies that rank among the 50 largest and are part of the group of key suppliers to assemblers.

*Table 1*

### **Revenue of European Suppliers – 1994 and 1997**

(in US\$ million)

COMPANY	1994	1997	CHANGE 1997/94 (%)
Bosch	9,898	16,067	62.3
Michelin	9,821	13,104	33.4
Continental	4,319	5,393	24.9
Valeo	3,457	5,700	64.9
Mannesmann	3,387	4,654	37.4
Lucas/Varity	3,517	6,735	91.5
GKN	2,467	3,422	38.7
ZF	2,553	3,904	52.9
Magneti Marelli	2,301	3,713	61.4
Pirelli Tyre	1,949	3,084	58.2
BTR	1,722	3,208	86.3
Pilkington	1,547	2,208	42.7
Siemens	1,515	2,528	66.9
Mahle	1,010	1,443	42.9
SKF	1,283	1,627	26.8
Ecia	1,037	1,530	47.5
Hella Group	1,250	1,326	6.1
Saint Gobain	1,397	1,438	2.9
Behr	925	1,388	50.1
Benteler	858	1,181	37.6

Table 2  
**Revenue of U.S. Suppliers – 1994 and 1997**  
(in US\$ million)

COMPANY	1994	1997	CHANGE 1997/94 (%)
Delphi	27,000	26,316	-2.5
Goodyear Tire	9,271	11,269	21.6
TRW	5,679	7,069	24.5
Lear	3,147	7,343	133.3
Dana	5,298	6,327	19.4
ITT Automotive	4,784	5,170	8.1
Johnson Controls	2,874	8,022	179.6
Allied Signal	4,922	3,802	-22.8
Magna	2,590	5,379	107.7

The general features of the relationship between suppliers and assemblers have grown stronger and intensified as international competition has heated. The majority of assemblers

reorganized their purchasing process during the 1994-98 period, creating specialized units and centralizing development, supplier selection and purchasing activities. Similarly, specialized centers have been created for each technology and product, in addition to the establishment of a position that is responsible for determining the general policy of supplier selection and performance for a specific product. The principal developments in this relationship are:

- *Reduction in the number of components manufactured inside assembly plants.* Assemblers in the United States and Europe have been focusing on design, assembly and distribution. However, certain components continue to be manufactured internally due to the strategic nature of the technology involved or complicated logistics, such as engines, transmissions or heavy die-stamped parts. Some plants still produce cast aluminum parts, steering columns, axles, exhaust systems and crankshafts, among other parts, but the trend is for the production of these components to be outsourced. This can occur either by internal production in the assembly plant itself, whereby space and equipment is provided to a manufacturer, or by production in an external plant. Outsourcing occurs much more frequently in new plants constructed with greater rationalization and participation of the base of suppliers and integrated suppliers, with a lower concentrating of activities in the assembly plant.
- *Consolidation of common platforms for the development of vehicles.* This involves a lower number of platforms that are used in several different models in each assembler and its respective subsidiary, such as Volkswagen and Audi, Fiat and Alfa Romeo, and Ford and Jaguar. The platform is now more amply defined and increasingly adaptable. It incorporates a greater number of parts and can even include transmissions, suspension, flooring structures and electrical, steering and fuel systems, for example. This broader definition of a platform and the sharing of a platform by several different models are very important factors for the auto parts sector since it makes possible considerable gains in scale and the rationalization of development costs and time.
- *Consolidation of the first-tier base.* The simplification of the purchasing process is one of the greatest benefits sought by assemblers, and consists of the identification of key suppliers and involves the establishment of cost reduction targets and more valuable improvements and development. The suppliers involved in the development of a vehicle are placed in specialized centers early in the process and must establish plants in all of the locations where the respective vehicle is produced. For example, suppliers for the Palio model in Brazil are also used in

Argentina, Poland, Turkey, etc. The centralization of the selection of suppliers and development can vary for products that have no design requirements, in other words, components for local assembly, parts specific to a particular model or small production scales.

- *Progressive reduction in the number of suppliers.* This is occurring across the entire sector. In parallel, suppliers have become larger in scale in financial and geographical terms and in the role they have assumed. Some segments are dominated by a small number of suppliers, such as seats (Johnson Controls, Lear, Faurecia and Magna), air conditioning (Behr, Delphi, Denso, Valeo) and engine control systems (Bosch, Delphi, Denso, Magneti Marelli, Visteon). These companies are in turn simplifying their purchasing process and reducing the number of suppliers they use. The number of suppliers per model varies around 250 to 300, although the number of suppliers per plant is lower than these figures. The same model produced in different plants or different countries may use a different supplier for certain products. Companies in the United States and Europe have announced their intentions to reduce this number to between 100 and 150.
- *Emergence of mega-suppliers.* This movement within the sector and the constant desire for products of higher added value has led major suppliers with a global base, such as Delphi and Visteon (which can produce a wide range of products) and a group of other companies, to grow rapidly through the acquisition of other manufacturers, such as Dana, Magna, Johnson Controls and Lear, in an effort to provide ever more extensive systems.
- *Single supplier policy.* This policy applies to the principal components of a specific model for which the supplier must provide design, engineering and tests and accompany the assembler to the various regions where the vehicle is assembled. In general, contracts are valid for the useful life of the vehicle and may include minimum volumes of production in order to make possible a globally competitive scale of production. Models with very high production volumes and produced in more than one plant or country may have more than one supplier to avoid production risks for components such as electronic controls and fuel tanks. Many versions of the same platform also can lead to a greater number of suppliers.
- *Changes in production methods.* The assembly of components has evolved into the assembly of modules, which changes the role of suppliers in the design, production and delivery processes.

Although the definition of systems and modules varies widely, demand from assemblers and the complexity for suppliers have increased. The level of modularity depends on the production structure of existing parts and components as well as the logistics of each individual country. In more developed areas the objective is currently to design a system that can be supplied as a complete module, in contrast to the assembly of separate parts and components. One of the segments that has advanced the most in terms of modularity is vehicle interiors, with the development of the cock pit and front end.

### **Impact on Suppliers**

The principal consequences of these developments for suppliers are:

- Continued pressure to reduce prices. The intensity to which this is undertaken is a function of the power of the supplier, which is in turn dependent on the product to be manufactured, the influence held over the assembler, the stage of competition in the vehicle market, etc.
- Growing interdependence between suppliers and assemblers.
- The need to merge individual components in systems and modules, which, in addition to requiring technical capabilities, also requires the cost and training of a supplier network and the selection of companies in other regions where the respective vehicle model is produced. Depending on the structure of the country's base of suppliers, this could be a complex task. This situation is also common to the module delivery and production system in automobile manufacturing plants.
- Globalization of the supplier base, which occurs as vehicle manufacturers establish international operations while working with suppliers that have a central role in their production scheme and supply a large percentage of the systems. Another important feature is agreements with local suppliers, as is the case with Japanese plants in Europe and the United States. Extending the supplier's plant to all of the geographical locations in which the assembler has production facilities is an acceptable strategy to major companies, in spite of the implications of factors such as the greater resources needed and production scale in new plants, which many times is too low. In addition, the lack of

second- and third-level suppliers with adequate structures is a further problem that results in additional investments and training.

- Higher costs for research and development to address current central issues, such as the environment and information technology.
- The substantial number of acquisitions and agreements, which is expected to continue due to the integration of assemblers' purchasing departments following the wave of mergers and acquisitions that has taken place in the automobile industry.

### **International reorganization of the sector**

The restructuring of the auto parts sector and individual companies continues, especially in larger companies, which are seeking to place a greater focus on their operations. Some companies are exiting the automotive sector all together by selling related divisions. Other companies are selling operations in certain segments in order to concentrate on a specific segment. Allied Signal and ITT Teves are examples of well-positioned manufacturers that are leaving the automotive market through the sale of their light vehicle brake divisions to Bosch and Continental. Delphi is another important manufacturer that also has sold some of its operations, such as the seating and lighting divisions.

On the other hand, other companies are expanding their area of activity, a common occurrence in the interiors segment, for example. Another important development has been the move by some companies to increase the capital held in certain companies or the creation of joint ventures between companies of different nationalities to advance global operations or operations in specific markets. For example, the growing use of electronic components in transmission systems and vehicle control systems has brought about a growing number of joint ventures between large companies such as Bosch, Siemens, Magnetti Marelli, and others.

U.S. manufacturers such as Johnson Controls, Lear, Magna and Textron have proven to be the most aggressive in terms of acquiring companies on other continents. European companies have focused more on internal restructuring, while the Japanese still have a fair number of companies that have capital structures with connections to Toyota or Honda. Mergers and acquisitions have

been most prevalent in segments such as interiors, brake systems, heating, ventilation and air-conditioning systems, chassis, suspension, steering and safety systems.

This process especially affected the vehicle interior segment, which is highly fragmented, features many second- and third-level suppliers, and uses a wide range of products that includes plastics, metals, foams and upholstery. The segment has moved in the direction of vertical integration, with the use of many sub-suppliers. The principal trend has been to supply complete interior modules with the design of cockpit modules. Lear is one of the principal buyers, with the acquisition of the Fiat and Keiper Recaro, which until the purchase was the only and most important independent manufacturer in Germany.

Many significant acquisitions have taken place recently in the brake system segment, with large-sized companies such as Allied Signal, Lucas Varsity, Bosch and ITT changing the segment's supply structure. Following the mergers and acquisitions, the market, which previously had been shared between Allied Signal, ITT Teves and Luca Varsity, became dominated by Bosch, Continental and TRW.

The chassis, suspension and steering segments have recently gone through various transactions that included tires, wheels, shock absorbers and steering parts. Many of the deals involved major manufacturers such as Mannesmann, Tenneco, GKN, Goodyear, Dana, Michelin and Hayes Lemmerz. In the process these companies expanded their activities and strengthened their global positions.

The electric components and electronics segment also has been undergoing consolidation with significant deals taking place between the large suppliers such as Valeo, TRW, Mannesmann, Bosch and Dana. Examples are the acquisition of Philip's car systems division by Mannesman and ITT's electronic systems division by VDO.

### **Current Situation in Brazil**

The repercussions of the changes put into practice in the automobile industry have had a significant effect on the auto parts sector, which is made up of vastly different companies in

terms of technology, management, quality standards and productivity. The effects were even more dramatic because the sector had undergone a period marked by factors such as low sales, the practice of passing on higher costs to final prices, low levels of investments in technology and the modernization of production methods. Some companies, however, have managed to excel in the last two factors (technology and modernization).

Large auto parts companies located in Brazil have suffered pressure to become better prepared in order to remain in the market. Some of the greatest pressure has come from factors such as the new demands in the market, the accelerated rate of new model launches and the supplier evaluation and selection process. Growing auto parts imports have also been the source of pressure on the conditions of price, quality and delivery schedules. This situation has led to increased levels of investment in the sector and the pursuit of technological joint ventures and agreements.

The deverticalization of vehicle production and the higher number of components have had additional impacts. In addition, with the transfer of design and engineering to suppliers, companies located in Brazil no longer compete directly for principal orders unless they participated in the development of the vehicle. As a result, local companies needed the same technology as other companies in order to produce the same part. In this light, assemblers' practices such as the single supplier policy, the receipt of entire systems and the growing search for obtaining solutions and designs from suppliers has been reflected and is increasingly reflected in the structure of the sector. This trend is even more significantly implemented with the construction of new assembly plants.

Brazilian companies have begun to create joint ventures with foreign companies in order to obtain the technology from the international supplier of the same vehicle. Later, new plants of global suppliers connected with the development of vehicles set up operations in the country and sought greater rationalization, concentrating on activities such as vehicle bodies, final assembly and painting of the vehicle and transferring as many operations as possible to suppliers. They also began to operate with a smaller number of direct (integrated) suppliers which, located on the premises of the plant itself, supply pre-assembled systems. Tables 3 and 4 show estimates of the number of suppliers in new plants and examples of the systems

supplied by some first-line suppliers.

*Table 3*  
Suppliers – Total, and On Premises

<b>COMPANY</b>	<b>NUMBER OF SUPPLIERS</b>	<b>NUMBER ON PREMISES</b>
MBB Classe A	140	10
Renault	100	5
Chrysler	24	
Audi	140	13
GM	150 to 200	17
Ford		17
Iveco		15

*Table 4*  
Module Suppliers

<b>COMPANY</b>	<b>MODULE</b>
Arteb Hella	Front module
Vallourec	Assembly of suspension modules
VDO	Instrument panels
Siemens	Electrical and lighting systems
Delphi	Front and rear suspension
SAS	Cockpit assembly
Eaton	Steering systems
Sommer Alliberti	Instrument dashboards and lining panels
Brose	Door modules
Dana	Rolling chassis
Lear	Seats
Johnson Controls	Seats
KoyoSMI Perdriel	Steering assembly
Krupp Metalúrgica	Axles and auxiliary frame
Thera	Die-stamped body parts

In order to meet the needs created by assemblers' new production concepts, global manufacturers not only entered the market but also became stronger. Many were already present in the market and subsequently expanded their areas of operations and consolidated their presence in the new plants. Some factors common to the first-line suppliers for these new plants are:

- few of the Brazilian companies had a presence in these plants and those with a presence did so through joint ventures;
- a significant number of new companies located in Brazil as a result of the new assembly plants;
- the vast majority of key global suppliers have a presence in the country; and
- single suppliers are used for certain parts.

In this way, the strategies that had been previously announced by assemblers have been put into practice. These included reducing the workforce, increasing modularity, reducing the number of components manufactured and operating with a small number of key suppliers participating in vehicle development. At the same time, another trend is the globalization of manufacturers and the use of common platforms in Mercosul.

One of the responsibilities of the integrated suppliers, which receive and assemble components from many different suppliers, is to assure the quality of the entire system, which requires a properly prepared network of suppliers. This has been a formidable task for products with a large variety of components and for cases that include sub-suppliers, since there are few suppliers that have implemented quality control programs. The challenge has been to manage this network and implement programs to improve quality and management and, in some cases, to increase investments. The demands for lower prices and quality certificates are also being passed on to these suppliers, since the entire production chain should work in a synchronized fashion. Some integrated suppliers are reducing the number of their suppliers, as well as seeking to attract international manufacturers. The selection of these

second- or third-line suppliers could be made by the assembler itself, especially if the product involves a significant cost, or is safety-related or of a strategic nature.

In general, foreign capital, which has dominated some sectors, has been increasing its share of the market. However, there is still scope for new entrants in the market. A view of the various groups in the auto parts sector shows:

- Some segments with higher technological content are dominated by foreign companies which are also dominant in the international market. These include the electrical systems, electronics, sound equipment, brakes, air-conditioning, steering boxes, clutches, fuel supply systems, diesel engines, gearboxes, bearings, tires and glass segments.
- Brazilian companies in the segments mentioned above are principally suppliers of components of central parts such as steering and suspension, plastics, rubber parts, body trim, etc.
- Important companies with ties to foreign companies manufacture components for engines (rings, pistons, connecting rod bearings, cast parts), axles and semi-axles, frame structures, shock absorbers, exhaust systems, brakes and friction material, wheels, lights, etc.
- Another group, made up of the actual assemblers, internally manufacture a series of products such as cast parts, seats, instrument dashboards, mufflers, light, medium and heavy die-stamped parts, body linings, steering systems, transmissions, springs and engines.

The most significant modifications have taken place in the last two groups through both acquisitions and direct investment. The first group, which is already dominated by foreign companies, has experienced the entry of new companies and the expansion of activities in already existing companies. It is, however, difficult to form a clear picture of the sector since it encompasses many products that involve different technologies. In addition, some companies that previously did not act as suppliers have now taken on this role in view of the evaluation and selection process of assemblers and integrated suppliers. Another important factor is that some companies that are not considered part of the auto parts sector supply

products to the sector, especially in the areas of rubber products, plastics and die-stamped parts.

Table 5 shows some examples of developments in the sector. Some of the important aspects are changes in controlling stakeholders, expansion of the product line, and a larger number of suppliers. Another important development is the appearance of modular suppliers. Companies controlled by foreign capital are shown in italics to better illustrate the change of capital structure.

Table 5  
**Changes in the Supplier Market – 1996 and 1999**

<b>PRODUCT</b>	<b>MANUFACTURERS (1996)</b>	<b>MANUFACTURERS (1999)</b>
Die-stamped body parts	Assemblers	<i>Thera, Aethra, Benteler, Stola</i>
Seats	<i>Assemblers, Keiper Recaro</i>	<i>JCI, Lear, Faurecia</i>
Brakes and Friction Materials	<i>Varga Freios, Allied Signal, ITT, Bendix, Fras-le, Cobreq</i>	<i>Lucas Varga/TRW, Bosch, ITT Teves (Continental), Fras-le, Master (Randon), Cobreq</i>
Mufflers	<i>Cofap Arvin, Mastra, Kadron, Wiest, Sicap, Maio Gallo</i>	<i>Arvin, Tenneco/Monroe, Walker, Gillet, Wiest, Sicap</i>
Instrument dashboards	<i>Assemblers, Plascar</i>	<i>Plascar (Siebe), Magnetti Marelli, Delphi, Visteon, Sommer Alliberti, Interni</i>
Shock absorbers	<i>Cofap, Nakata, Monroe</i>	<i>Magnetti Marelli (Cofap), Dana (Nakata), Tenneco Monroe</i>
Steering boxes	<i>TRW, ZF, DHB</i>	<i>TRW, ZF, DHB, Gamesa, Koyo</i>
Gearboxes	<i>Assemblers, ZF, Eaton, Clark</i>	<i>Assemblers, ZF, Eaton, Allison</i>
Axles, semi-axles, drive shafts	<i>Krupp, Rockwell, Iochpe Maxion, Cinpal, Sifco, Albarus</i>	<i>Krupp, Rockwell, Maxion Chassis, Cinpal, Acesita, Dana, Vallourec</i>
Rings, pistons, connecting rod bearings	<i>Cofap, Metal Leve, Albarus, Centrinel</i>	<i>Magnetti Marelli, Mahle, Dana</i>
Radiators	<i>RCN, Colméia, Bongotti, Visconde</i>	<i>Behr, Modine, Valeo</i>
Batteries	<i>Microlite, Moura, Durex, Delco</i>	<i>Delco, JCI, Enermex, Yuasa, Moura</i>
Electronic components	<i>Bosch, Wapsa, Siemens, Delphi, Visteon, VDO</i>	<i>Bosch, Wapsa, Siemens, Delphi, Visteon, VDO, Valeo</i>
Car tires	<i>Goodyear, Pirelli, Firestone</i>	<i>Goodyear, Pirelli, Firestone, Michelin, Continental</i>

### Reorganization of the sector

Some of the changes that have taken place in the sector in recent years are:

- a reduction in the number of suppliers directly connected with assemblers;
- exit of a group from the market;
- change in capital structure;
- joint ventures and technological agreements;
- mergers and acquisitions;

- entry of foreign manufacturers; and
- expansion of production lines of already established companies.

The two principal factors of the reorganization in the sector are the strategies adopted by foreign companies and the acquisition process. In respect to the first factor, many acquisitions allow the company to supply modules, as is the case of the acquisitions made by Dana, for example. This is not a move towards a vertical orientation, but is rather a move in the direction of acquiring complementary products in order to be able to assemble a complete system. However, the move towards verticalization through the acquisition of suppliers is taking place in companies in the seats and interior segment. Further, global companies with plants installed in Brazil have begun to expand their operations through direct investments in existing or new plants with the aim of increasing production. These companies include Dana, Valeo, Magnetti Marelli, Visteon, Delphi and Bosch.

Joint ventures are another common strategy. At first this strategy only represented a move by foreign groups to enter into new markets and a way for Brazilian companies to obtain technology. Examples of this are the joint ventures carried out by the groups Trambusti (Simoldes and Woobridge), Arteb (Hella and Fico), Randon (Jost Werke and Rockwell) and Varga (T&N). Some companies signed on to more than one technological agreement or joint venture in order to meet specific demands. More recently the pace increased of the signing of joint ventures between companies already installed in Brazil and focused on the supply of modules - such as SM (Varga and Dana), Remon, SAS, BSB, Koyo Perdriel - with units installed near auto assemblers or even on the plant premises.

The acquisition process, however, featured an initial phase in which purchasers were Brazilian companies, such as Tupy, Randon, Usiminas, Cofap, Maxion, Plascar and Acesita. Banks also participated through the acquisition of a portion of the capital of certain companies that did not remain under the control of a single company for much time. A phase began during the move towards common platforms and the centralization of the supplier selection process in which many foreign companies, especially those in the United States, Germany, Italy and Canada, acquired various local companies. Initially these acquisitions were made by companies already installed in the country such as Mahle, Echlin, Eaton, Delphi and Recaro. As this process grew stronger and, especially, as new assembly plants were constructed, other new entrants to Brazil, such as Magna, Textron, Modine, Tower, Lear, Rassini, Dana and JCI, began to acquire either partial or full control in local companies. In many cases an initial minority stake soon became a controlling stake, as occurred in the case of Lucas Varity and Aunde Coplatex, for example.

Although access to technology was the principal determinant in the participation of foreign capital in the segment, certain other non-cumulative factors are often involved in the companies being acquired:

- a stake was already held in the capital of the company;
- some of the companies had problems with the succession of the controlling stakeholder;
- some were in delicate financial situations;
- they were positive performers in the domestic market and also exported;
- they produced products important to the supply of modules; and
- they reflected the reorganization of the company with the sale of certain divisions, a general feature of foreign companies.

Viewed by segment, some of the principal factors that emerge are:

- acquisitions of stakes occurred principally in the interiors, plastics, rubbers, die-stamped, and axle and steering systems segments;
- direct investments in new plants occurred principally in the seating, diesel engines, module assembly, steering systems and plastic parts segments; and
- the changes in control of the companies, which also reflects operations carried out worldwide, the best examples of which are in the brakes and seats segments.

### **Conclusion**

The sector continues to undergo changes to its structure with the consolidation of some segments and companies with global operations expanding their activities in Brazil. Some companies have dramatically increased their market share, which can no longer be viewed in terms of a single component but in the ability to supply complete systems.

Some of the changes are due to the deverticalization of assemblers, with auto parts manufacturers taking over activities previously carried out only internally. Others changes occurred in segments dominated by foreign and domestic companies. Initially this expansion into markets was accomplished via acquisitions by companies already installed in Brazil. With expectations of higher production, new manufacturers entered the market through acquisitions or direct investment, while others expanded their product lines. The majority of companies established themselves with a view to serving the Mercosul region and the possibility of scale gains as a result of the use of the same components for different models while taking advantage of the same platform.

In the process, almost all of the large domestic companies were acquired. These companies were also the some of the largest exporters. Nearly all of the first-line suppliers are foreign companies, and when Brazilian companies do participate they do so through joint ventures.

Competition to supply systems is extremely high and factors other than technology play an important role although technology is clearly the fundamental factor. Another frustration for Brazilian companies is the level of capital needed to accompany assemblers to other countries which is a key factor in assemblers' selection of an integrated supplier.

The participation of foreign capital in other second-level suppliers is expected to increase because the process of standardization of price, quality, skills and attracting suppliers repeats itself for first-line suppliers. The larger the network of suppliers and the more fragmented the segment, the greater the opportunity for change. As a result, the installation of new assemblers and internationally integrated suppliers is impacting the existing structure of the auto parts sector, not only in terms of the creation of greater market potential but also in terms of the requirements for modernization and expansion to be able to meet new demand. The expansion in production will create the opportunity to develop a network of suppliers in the country. This opportunity is even greater when taking into account the higher levels of the major indices of local content that can be achieved. As mentioned above, the level of technological capability is an important factor at any level of supply.

Finally, the outlook for Brazil is also affected by the consolidation that is taking place on a global scale and which is expected to continue due to the merger and acquisition process among auto assemblers will be reflected in suppliers.