Trends in the Development of the Automobile Distribution and Repair Sector in Portugal*

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1. introduction

The automobile sector is one of the most important economic activities at the world level, as well as in every country.

With the progressive liberalisation of trade in cars, the automobile sector became a pivotal point of international competition. There are two important sources of increased competition in the automobile industry in the context of the E. C. Member States. First, the Japanese inroads in the international markets. Second, the elimination of borders in the European Community implying that no national market would be able to benefit from privileged access conditions than other members. As a a consequence, the national markets were invaded with a variety of brands and models with distinctive characteristics and technologies. Hence, customers are given more opportunities for choice and manufacturers have more difficulties to get brand loyalty.

As the manufacturers are distant from the customers, they depend on the distribution and repair sector for sales and post-sales activities. The sales force must be qualified to translate the specific technological aspects of a car into commercial, functional and economic arguments. The repair workshops must be able to swiftly and economically diagnose and repair faults. All them have an important role in binding the customer to the brand. So, the arrangement of the relation between the car manufacturer, their representatives and the customers will decide on the survival of car brands in the market.

Our main purpose is to analyse the impact on the Portuguese distribution/repair sector of the major trends that are emerging in the car industry and the expected strategies car manufacturers will engage as they aim at reinforcing their competitive positions.

The trends in the car industry will be organised into three groups. First, the liberalisation of car trade in the European Community. Second, changes in car concepts and technologies (standardisation, electronification, new materials, prolongation of service intervals and guarantee periods). Third, environmental, safety and quality regulations.

The impact of these trends at the distribution/repair level will be analysed in terms of four main areas. First, changes of tools, testing and diagnostic equipement. Second, changes in tasks and skill requirements of staff personnel. Third, changes in the work organisation and the need for rationalisation in service and repair. Fourth, the evolution of the structure of the sector as manufacturers try to integrate and shape service and repair issues in their marketing strategies. Consequences to the distribution/repair sector in Portugal will be derived.

2. The present context of international business

We are witnessing the dawn of a new world order characterised by the intensification of interdependence in the world's infrastructure and an increasing homogeneity of thought structures World-wide. These characteristics are mainly the result of increased communications, trade and the diffusion of production, distribution and

* Working-Paper apresentado à 20.ª Conferência Anual da EIBA, Varsóvia, Dezembro de 1994.
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management technologies among countries, which reduce the social distance between them. In fact, world trade has increased extraordinarily, confirming the importance of international exchanges in the world economy. A new industrial landscape is emerging where Japanese and European firms challenge the traditional market leadership of United States firms. The new rules of competition force firms to abandon their nationalistic postures and implement transnational strategies to locate operations where factor costs are the lowest, be they in production, distribution, or research. They also learned to better hedge against political risk by forming partnerships with local governments and businesses. By their side, more and more nation-states are abandoning their isolationist policies by opening national boundaries, deregulating their domestic economies and welcoming Foreign Direct Investment which becomes understood as a sign of international confidence in the local economies.

This greater proximity contributes to break economic and cultural barriers and stimulates a cultural homogenisation within regions and a sharing of world views between nations. Particularly in the world affairs, the capitalist ideology appears to be settling into a position of hegemonic dominance in managing the wealth of nations.

Notwithstanding, the ideal of the world as a global village still remains an utopia. In reality, we merely have changed the traditional East-West and North-South description of the post-world war II era into trading blocks and economic regions. At present, three regional communities seem likely to dominate global trade: North America, Europe and Asia-Pacific, with developing countries (third world countries) moving towards the periphery of global development, outside the large affluent communities. However, the formation of these trading blocks may represent a necessary step towards a more balanced development world-wide, as it allows a stepwise integration of national economies in each block, facilitating thus a further approximation of the large, increasingly interwined, but economically and culturally disparate regional communities.

3. The Automobile Sector as a pivotal point in international competition

Since the automobile is no longer a luxury good, a symbol of social status of people who wanted to demonstrate their independence from mass transportation, its sales have depicted and ever increasing trend.

Today, in every country, the aumobilie sector is important enough to justify the interest of national authorities to guarantee the dynamization and balanced development of this sector, as it is crucial for employment and a source of value added and taxation-direct and indirect.

The automobile sector encompasses industrial activities concerning the manufacturing (of different types of vehicles - passenger vehicles, commercial vehicles and trucks - and components) and assembly, and the distribution and repair activities.

The most important car-makers are located in countries with high technological development and accumulated experience which are not easy to transfer to the less developed ones. The same occurs with the production of components requiring more complex and advanced technologies.

Less developed countries, after a period of manifest antagonism to foreign direct investment (FDI), expressed in their willingness to expropriate foreign assets, are endeavoring at attracting FDI in the automobile industry. These investments are considered necessary to create employment to strengthen domestic industrial fabric, to satisfy domestic demand with cars produced or assembled locally rather than imported, to allow the growth of exports and to stimulate the economy as a whole. As a consequence, penetration by transnational firms is now increasingly welcome rather than feared.

There are several reasons for considering that the automobile sector plays a pivotal role in international competition.

Firstly, it is a big market, in terms of the number of units traded and its potential for growth.

According to table 3.1., more than 30 million cars of all categories have been sold in the major countries over the World.

Area	Year 1991	% Share	Year 1990	% Share	% Change
Europe*	13,504	44,8	13,259	42,7	1,9
USA	8,176	27,1	9,300	29,9	- 12,1
Japan	4,868	16,2	5,102	16,4	- 4,6
Canada	873	2,9	886	2,9	- 1,5
South Korea	773	2,6	604	1,9	28,0
Brazil	596	2,0	526	1,7	13,3
Mexico	396	1,3	354	1,1	11,9
Austrália	388	1,3	463	1,5	- 16,2
Taiwan	350	1,2	353	1,1	- 0,8
South Africa	198	0,7	210	0,7	- 5,7
TOTAL	30	100,0	31,057	100,0	- 3,0

* 17 Markets
Souce: AID

Table 3.1: World passenger car sales on major (unit: thousand cars)

As the car market is far from saturation in most countries, the trade of cars has a tendency to grow, in spite of conjunctural ups and downs which are likely to occur in every business. The evolution of per capita net income is the main conditionant to the sector's expansion, since the need for cars is almost unlimited. With regard to private consumption (especially passenger vehicles) the automobile meets a variety of needs which are difficult to satisfy, ranging from primary needs to owners affirmation and social status. Concerning the transportation sector (commercial vehicles and trucks), it is essential for the building of a basic infrastructure needed for fostering economic and social development in any country.

Secondly, the automobile sector involves the management of substancial and important resources, either human resources, or materials for car production, distribution, service and repair. It represents high volumes of sales and services. It is also a powerful engine for growth of other branches, either backward or forward, accounting for a significant contribution to the gross national product of any country. This fact provides an explanation for the current policies of national governments to attract FDI, while previously they were suspicious about it.

Thirdly and as a consequence of the former, the automobile sector is a field of fierce competition between car makers, with national governments supporting national manufacturers to promote their own industry.

In particular, the European market is subject to an intensive battle between manufacturers due to two main reasons.

On one hand, it is a large market. According to table 3.1., the number of new cars registered in Europe (C.E. and EFTA Member States) in 1991 was higher than that recorded in the US. and Japan taken together.

On the other hand, it is a growing market. Available statistical data (see table 3.2) provide a useful base to undertake international comparisons and depict market trends.

Country	B	D	DK	E	F	GR	IRL	I	L	NL	P	UK
1987	2,7	2,1	2,8	3,4	2,2	5	4,5	2,2	2,3	2,6	6,4	2,5
1991	2,3	1,9	2,7	2,7	2,0	4,2	3,7	1,9	1,9	2,4	4,9	2,2

Souce: ACAP

Table 3.2: Development of car density in European countries (inhabitants per car)

Looking at the figures, an increase in car density can be observed in every E.C. country between 1987 and 1991. The most important increases occurred in those countries with the lowest car density rates, confirming the trend to closing the gap in car densities throughout the European Community.

The process of strengthening economic and trade relationships among Eastern and Western European countries and their stepwise integration into an all-European economic space, is an additional factor wich reinforces the trend towards the development of a big European car market in the next decades.

Consequently, the interest of international car makers in the European market results quite obvious as they have become very dependent on international sales. Manufacturers international operations developed in recent years, either through exports, or through FDI operations aimed at overcoming trade barriers imposed by national governemnts to protect their own industry. The successes of Japanese carmakers in Europe, due to the high productivity level of

Japanese car industry and the high variety and quality of their models, have threatened the positions of traditional American and European producers who had to redefine their strategies. The increased competition resulting thereof contributed the growing internationalisation of the car industry which, according to Sachwald (1993), "is often considered one of the most globalised".

Globalisation significantly increases the market reach of manufacturers. However, it requires firms to successfully manage a World-wide logistics capability concerning the transplantation of their production system abroad and the organisation of their international networks in order to adapt to local markets.

4. The strategic role of Distribution and Repair in the Automobile Sector

The development of the aumobile trade and repair has its origins in the standardisation of components and aggregates and in the mass production of cars on the assembly lines. Broadly speaking, a reduction in production costs per unit can be obtained whenever the volume of units produced exceeds a certain level depending on the manufacturer's cost structure. This reduction in the production costs allows sales prices to go down making cars easily accessible to a larger number of customers. The increasing number of cars produced requires further sales structures to enable the draining of stocks and the maintaining of output levels. At the same time, the mass production demands a rigorous production planning and an exact definition of each component, its mode of working and the limits of tolerance to adhere. Thus, it is possible to manufacture cars together with the spare parts to be used in repair activities which must be performed by professional staff familiar with car features and technical characteristics. Post-sales activities become a sales argument for manufacturers and dealers to induce would-be clients to purchase a car.

As the number of customers increases and these are geographically dispersed, manufacturers can't directly sell, service and repair their products by their own. They have to "delegate" on dealers and repair workshops. They can't, however, lose the control of their cars in the marketplace. As the competition between brand names increases, customers satisfaction and good communications between customers and carmakers, through their dealers and repair shop staff, are central aspects of competition. On one hand, the sales staff must be able to transfer their knowledge of advanced automobile technology into sales arguments. On the other hand, the repair workshops have to offer reliable service through the use of original spare parts, reduce the risk of inadequate repair and minimise the expenditure of service and repair of their brand name's cars.

The relevance of the role performed by the distribution/repair sector to brand name's competitiveness urges manufacturers increasingly to integrate and shape the sales and repair issues of their cars in their marketing strategies.

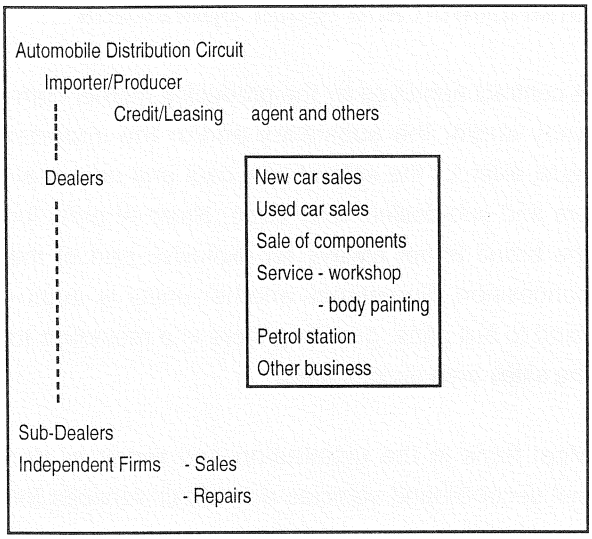
5. The Automobile Distribution/Repair Sector in Portugal

The structure of the automobile distribution/repair sector in every country mainly depends on the following factors. First, the standard of living of the population as it is related with the prices of cars. This relation impacts on the number and types of (low price and expensive) cars customers buy, the age of car park and the size of the second-hand car market. Second, countries geography and the differences of development level of their regions. This factor influences the distribution of population and economic activities and, as a consequence, the car density in each area. In the more developed and densely populated areas it is easier to establish dealers and workshops networks linked to brand names than in less advanced counties. Third, the very brand names which are traded within that country, as

each manufacturer has specific policies on how to trade, maintain and repair his cars and defines his networks accordingly.

5.1. Definition and delimitation of the sector

The main distribution and repair channels in the Portuguese automobile sector are shown on the diagram below and will be described in the following pages.



5.1.1. Subsidiaries and importers/ distributors

The automobile distribution circuit begins with a subsidiary of the mother company, or by a company controlled by national entities, responsible for import and distribution. In Portugal, around 10 brand names are sold through subsidiaries and 17 through an importer/distributor.

The principal operation which subsidiaries and importers/distributors (I/D) are responsible for is importing and selling vehicles, and parts and components. In some situations they are also responsible for assembly and manufacture. The subsidiaries or I/D sell directly, or through financial credit firms (F.C.F.) to dealers.

The four major automobile producing subsidiaries in Portugal have their head offices in Lisbon and are jointly responsible for a turnover around 300,000 million escudos, corresponding 32% of the whole automobile sector.

Subsidiaries 1990	Type of Firm	Country of Origin	N.º of Employees	Corporate Capital (10^6) esc
Renault Portug.	Corporation	France	3160	40491
G.M. Portug.	Company	U.S.A.	783	9275
FIAT Auto Port.	Corporation	Italy	394	8179
FORD LUSITANA	Corporation	U.S.A.	1080	7171

Table 5.1.: Principal Subsidiaries

Source: Supplement of the newspaper "Diário de Notícias" The largest 1000 in 1990

The four major importers, different from the four mentioned above basically because shareholder control is in national hands, are generally smaller than the subsidiaries.

Importers Distributors	N.º of Employees	Corporate Capital (10^6) esc
Salvador Caetano	9275	2464
Mocar	3818	634
Auto Sueco	5258	1058
Siva - Veíc. Automóveis	3769	223

Table 5.2.: Principal Importers/Distributors

Source: Supplement of the newspaper "Diário de Notícias" The largest 1000 in 1990

Together, the I/D are responsible for approximately 150,000 million escudos of sales turnover i.e., around 16% of sales in the automobile distribution and repair sector. In short, these 8 firms (subsidiaries and I/D) are responsible for one half of the sales volume in the sector.

5.1.2. Dealers

A concession contract is basically the transfer of the right to market vehicles/parts of a particular brand name. The market may not be divided, i. e., it may cover the responsability of only one dealer, or it may involve two or more dealers operating in the same geographic area.

Concessions may be classified as follows:
a) according to equity holdings;
b) representation of the traded brand name;
c) the type of operations included.

a) With regard to capital holdings, concessions may be independent, or partially or totally owned

by the subsidiary or the I/D. The first situation is the most common, that is, there is no investment in the dealer's holding or shares. Direct subsidiary investments is found in only 15% of the total of 873 concessions and sub-concessions.

b) Dealers may represent one mark exclusively. Around half of the total number of concessions and sub-concessions represent one mark alone. Non-exclusive representation is found particularly when one or two of the following conditions exist:
— Location in low population density areas, that is, a small number of potential clients. Exclusive representation may lead to sales falling below the critical level.
— Brand names not commonly sold where a low sales level does not justify exclusive representation.

c) Lastly, dealer operations may include:
1) The sale of new vehicles
2) The sale of second-hand vehicles
3) The sale of parts
4) Service: — Workshop
— Body work/painting
5) Petrol Station
6) Other business

Dealers may dedicate activities exclusively to the sale of new vehicles. Most dealers carry out the first four types of activity. The concession may eventually transfer rights to sub-concessions for one or more of these operations.

5.1.3. Networks of Sub-dealers

Marketing the principal brand names involves a network of sub-dealers. A sub-concession contract is signed between the dealer of a brand name in one area and a third party, with the approval of the subsidiary and/or the I/D.

The dealer is the supplier, in some cases the exclusive supplier, of sub-concessions and sometimes has a holding in the corporate capital of the sub-concession. However, this holding requires the authorisation of the subsidiary or importing company.

The geographic concentration of the Portuguese population has led to 860 of the dealers and sub-dealers (around 67% of the total) being located on the coastal strip (North and Centre) and particularly in the area of Greater Lisbon and Greater Oporto.

5.1.4. Other entities involved in distribution and repair operations

A contract approved by the producing mother company and/or the subsidiary and/or the importer must exist for the sale of new cars and only dealers and sub-dealers may trade. Sales of parts for the brand is not always an exclusive part of the concession. Sometimes another entity is authorised to sell parts, providing there is a restriction to the sales area (size of area).

Most firms in the distribution and repair sector sell second-hand vehicles and repair services for which authorisation from the brand name is not always necessary. Most of these firms are small, family undertakings.

Major repairs which involve opening the engine, for example, require authorisation. However, these repairs are frequently done in unauthorised firms despite the risk of guarantee loss.

5.2. Industrial structure

5.2.1. Distribution of firms according to type of operation

From the statistics there is no difference between firms with or without authorisation for distribution and repairs (types C and E), nor between firms offering repairs and specialised workshops (types D and F). However, according to a 1991

estimate, there are around 873 firms with authorisation for sales and/or repairs. Hence, the following types of firm are distinguished:

	n.º	%
A - Firms controlled by manufacturers (subsidiary)	10	0,1
B - independent of manufacturers	17	0,2
C - with authorisation for distribution and repairs	873	12,6
D + F offering repairs/specialised workshops	4600	66,2
E - selling vehicles (not included in the above categories)	1448	20,9
Total	6948	100

Table 5.3.: Types of firm - 1991

Source: ACAP

Most firms in the automobile distribution and repair sector are independent and linked to repairs. Secondary, we find the firms with no authorisation for selling vehicles, parts or aggregates.

5.2.2. Firms classified according to the number of employees

As shown on the table 5.4., which includes only those firms involved in distribution and repairs, it is clear that small firms predominate: 80% of the total have fewer than 10 employees.

The number of small firms has been increasing. The same cannot be said for large firms.

Firms	No Employees	1989	%	1990	%	1991	%
I	1-4	3776	54.6	3871	55.3	3881	55.9
II	5-9	1658	24.0	1658	23.7	1643	23.6
IIII	10-19	804	11.6	804	11.5	773	11.1
IV	20-49	429	6.2	429	6.1	412	5.9
V	+ de 50	243	3.5	243	3.5	237	3.4
	TOTAL	6910	100	7005	100	6948	100

Table 5.4.: Size of firms (Number and percentage of firms according to the number of employees from 1989 to 1991)
Source: ACAP

5.3. Occupational structure in the sector

5.3.1. Qualifications

The distribution of employees according to vocational skill is shown on the following table:

Qualifications	N.º of Employees	Employees Structure
Managers	2530	2,6
Intermediate managers	3204	3,3
Team supervisors/supervisors and foremen	2565	2,7
Highly skilled workers	3397	3,5
Skilled workers	48407	50,5
Semi-skilled workers	9790	10,2
Unskilled workers	4965	5,2
Apprentices	11532	12,0
Not known	9536	10,0
Total	95926	100,0

Table 5.5.: Job qualifications in the automobile sector - 1991
Observation 1: The skills of 9536 employees (10% of the total) are not known.
Observation 2: The number of permanent staff shown here includes other employees of the sector, namely assemblers.
Source: Ministry of Employment and Social Security

The previous table indicates that:
— The percentage of highly skilled employees is very low = 3.5%
— Skilled employees predominate = 50.5%
— Semi-skilled and unskilled professionals represent = 15.4%
— Apprentices and trainees represent = 12% of the total.

The following is demonstrated in an analysis on the distribution of employees according to activity:

Employees	Categories (%) (1) I + II	III + IV
Management	14,7	7,4
Production	66,1	56,5
Administrative	12,5	14,9
Auxiliary	5,6	8,2
Commercial	1,1	13,0
Total	100,0	100,0

Table 5.6.: Distribution of employees according to activity

Source: ANECRA - November 1991 magazine
(1) According to the n.º of employees

— There are more management staff in the smaller firms, because in these firms the managers are also executives, dedicating a great deal of their time to production.
— Production employes account for two thirds of the total number of employees in the smaller firms.

The distribution of production staff (workshop) according to profession demonstrates that mechanics clearly predominate, followed at some distance by body workers and painters.

Employees	Categories (%) (1) I + II	III + IV
Mechanics	52,0	45,7
Electricians	7,6	8,1
Panel Beaters	15,5	18,2
Painters	11,2	14,0
Petrol Station	3,6	6,3
Machine tool Operator	3,8	2,8
Other	6,3	4,9
Total	100,0	100,0

Table 5.7.: Distribution of production staff according to profession
Observation: Machine tool operators include lathe workers, mill workers and other operators.

Source: ANECRA - November 1991 magazine

5.3.2. Distribution of employees according to schooling/age groups

The largest age group in the sector is that from 20 to 24 years, wich accounted for 15% in 1991. The smallest groups are those at the extremes of the age pyramid, with those over 65 years accounting for 2% and those under 15 years for 1%. Most workers have only primary schooling. This means that around 43% of workers have only 4 years schooling.

Only those workers under the age of 24 have nearly all had preparatory schooling. This is due mainly to legal changes stipulating that people may only begin to work:
— at the minimum age of 15 and 2 — with minimum compulsory schooling, which is preparatory schooling (6 years of school).

Workers who have received commercial education account for 3.3% of the total. Workers who have had industrial technical education account for 1.7% of the total.

Those with a Bachelor Degree or a "licentiate" account for 2.5% of the total. The age group with most university education is the 25 to 29 year group (21% of the total of those with a "licenciate").

6. Trends in the Automobile Industry and their impact at the Distribution/ Repair level

The car industry has been very dynamic in recent years as the number and pace of changes have been remarkable, due to permanent innovation.

In the scope of this paper, it wouldn't be possible to make a detailed description of the multiple changes that are shaking the car industry. However, it is possible to group these changes in major trends that shape the development of the sector. First of all, one selects the relevant changes (in terms of whether they seem to have any future or not) and eliminates the less important ones or those whose meaning is not clear. Secondly, one combines the relevant changes to form consistent trends in order to make clear understanding of their meaning and their probable impact in the future. The identification of the trends is useful, as they simplify and structure reality, facilitating its comprehension.

6.1. Trends in the automobile industry

The trends in the car industry will be organised into three groups. First, the liberalisation of car trade in the European Community. Secondly, changes in car concepts and technologies (standardisation, electronification, new materials, prolongation of service intervals and guarantee periods). Thirdly, environmental, safety and quality regulations.

6.1.1. The liberalisation of car trade in the European Community

We will not treat this trend in a detailed manner as it has been extensively treated by others. However, it is important to bear in mind that it has a major impact on the grade of competition between manufacturers. The elimination of borders has provoked the invasion of national markets, once protected, by a variey of brands and models with distinctive characteristics and technologies. In this context, customers are given more opportunities for choice and manufacturers have more difficulties in maintaining brand loyalty. Brand competitiveness depends on parameters such as quality and technical standards, prices, product variety, public relations, distribution channels, service and maintenance and customer relations.

Today the satisfaction of a great variety of customers requirements already demands a great differentiation of services and products offered. So, we witness the appearance of new models daily presenting a much better quality than their predecessors as they are safer, more economical, last longer, require fewer garage stops, need less maintenance work and are more confortable and friendly for the environment.

Obvisously, these technological changes related with product development will have an impact on distribution, service and repair practices.

6.1.2. Changes in car concepts and technologies

The development of the automobile industry follows two divergent processes which are complementary to enhance the general knowledge and the available technical standards concerning the entire product (auto technology, tools and workshop equipment). On the one hand, manufacturers are permanently innovating in order to differentiate their products from those of the competitors and to cater for manifold requirements of the customers, thus introducing ruptures with existing standards and knowledge. On the other hand, the standardisation of the entire car technology is massively promoted by international competition. The standardisation initially develops inside the innovating firm (product-specific standardisation). In a second phase, it spreads to the external environment (intra-industry). The standardisation of parts and components lets us think, in the near future, the mass market could be satisfied with the production of a "module car".

A modular car is not necessarily producer-specific. A module system consists of a few basic models which differ visually from each other, but whose technical and functional aspects will be quite similar. The customer chooses from a limited number of basic body works. The differences will depend on the arrangement of the modules which allow for the composition of a complete car according to customers' requirements, helped in their choices by the dealer's advice.

The major innovations are particularly apparent in the field of:
— Engineering/construction technology: development of safer body work, new types of engines, valves, hydraulic application, automatic transmission, safety systems;
— Material technology: synthetic components, ceramic materials, catalysers, piston inserts, car varnishes and coatings;
— Traditional car electronics: car radios, electrically operated window lifters, locks, telecommunication equipment;
— Micro-electronics and the "car information systems": motor management systems (integrated injection and ignition, electronically operated accelerator pedal), vehicle control systems (ABS, electronically conttrolled suspension and gear box, servo-steering, anti-skid system) and vehicle pilot and monitoring systems (service internal display, on board diagnosis).

These innovations have allowed for great improvements in the quality of cars and provide the basics for a general tendency towards a decreasing need of repair and further prolongation of service intervals and guarantee periods for important car components. However, they have increased the complexity of car technology.

The application of micro-electronics in the car industry is the major cause for such an evolution. Thanks to the use of electronics, manufacturers are producing cars that are more and more realiable, safe and economical because electronics hardly ever have any faults and rarely break down. But the introduction of electronics has changed many mechanical and electrical components and aggregates. At the same time, due to an integration process, more and more mechanical and electrical components and aggregates are being networked to fulfil functions necessary for the operation of a car. This gives rise to the use of computerised systems for operating and controlling the most important systems of car technology. Additionally, sel-sufficient electronic systems are ceasing to exist, as they are interlinked in networks. So, a high rate of integration of the different systems, components and aggregates is necessary to operate the car in a safe

and reliable way. But... concerning today's innovation process in car technology, there is an additional source of complexity: apart from general standards in the automobile sector and in spite of the fact that functioning principles of the major components and systems remain the same, car makers strategies to compete in the market lead to the development of all sorts of product variations and in the range of technical devices that are manufacturer-specific. This results in a high brand name configuration of cars and an orientation of tools, testing and diagnostic devices and data at the workshop level which do not allow for transferability with the products of other manufacturers.

6.1.3. Environmental, Safety and Quality Regulations

As we have seen, the automobile sector is an important activity in any economy and its development is stimulated by national governments as a source of wealth creation. Meanwhile, the concept of wealth is also an evolutionary one. That is to say, as people's tangible revenues rise and satisfy their basic living requirements, the concept of wealth comes to include qualitative components. As societies become affluent, the objective to reach material wealth is being overcome by concepts such as quality of life and social well-being.

The scientific research clearly demonstrates that, while exercising its specialised function — an economical one — the company produces externalities which are not usually reflected in its accounts and have not been taken into account to estimate its efficiency as an institution, but that will affect the citizens' quality of life.

The ideia that economic growth is not and end in itself, but a means for the creation of better life conditions is gaining ground. In this context, the companies must take up their responsibilities of producing goods and services of quality and preserving rare resources such as water, clean air, silence, spaces, in a word, the ecological balance which is wearying out or destroying itself as the production of goods rises.

The diffusion in the media of what should be business ethics, condemning businesses that violate the prevailing values and rules, have given birth to legislation that constrains the firms and leading them to internalise certain costs such as pollution control equipment or adaptation of technologies to protect the environment.

In the automobile sector, there are numerous directives and standards to follow in the EC. Some still remain country-specific; others have been extended to all EC. Member States. The most important regulate the following aspects: the limitation of emission and nuisance, processing materials and waste (oils, batteries, paints), new vehicle safety, safety for the workplaces, quality of products and service.

The enforcement of these regulations means that both producers and representative companies will have to meet tougher standards which will speed up the development of new equipments and specific qualifications in these fields (motor adjustment systems, spraying cabins, control of water pollution and toxic gas emission of paint shops, disposal and recycling of waste, technical modernisation of workshops equipments, quality management, etc.).

The obligation to obey the law and the growing public concern with environmental, safety and quality issues have led brand names to include these variables in their production and marketing strategies. Undoubtedly this has a positive effect on quality improvement of cars and service in the outlets. However, it represents a hindrance to smaller-sized firms which are not able to adhere to the regulations.

6.2. Consequences of the current changes for the distribution/repair networks

In this section, we will try to describe a comprehensive view of the impact that major trends in the car industry will have at the distribution/repair level. These impacts are analysed in terms of four main areas. First of all, tools and equip-

ments for service and repair tasks will change. Secondly, tasks will change with implications on skill requirements and training of the work-force. Thirdly, qualitative changes in the internal organisation of the work process in the outlets will result. Finally, changes in the structure of the sector are expected to occur as a consequence of the need for rationalisation of service and repair.

6.2.1. Changes in tools, testing and diagnostic equipment

Changes in car technology inevitably result in further development of tools and equipment in the workshops.

Significant changes have taken place in diagnostic and testing equipment offering greater possibilities and facilities than the traditional measurement instruments. Nowadays, the handling of computer-controlled testers for the testing of motor management systems are widely used. As well, the use of laser testers is becoming routine work. However, the considerable increase in the number of applications of micro-electronic control systems in cars and the trends towards the interlinking of single systems in integrated networks, will make tools and equipments in the workshop more and more complex. Consequently, the testing and diagnostic devices for comfort and safety systems, motor management systems and car bodies are those bound to be changed, implying changes in jobs and qualification requirements in the auto repair business.

The possibility of linking the computerised system in the car with the diagnostic system in the workshop has led to great changes in the nature of diagnostic tasks. The new testers often measure not only the recorded values, but also compare the measurement data with the factory standard data and indicate whether or not the measured value falls within the tolerance limits. They can even go further and, in case of faults, additionally provide an explanation of the possible causes of the measured defects, printing out a diagnostic report after the running of a test programme featuring all found deviation. In particular, the introduction of expert-systems has led to the improvement of computer-monitored diagnostic equipment which can be used as an independent work station, but can as well be connected to the data bases of manufacturers and ask for the advice from the manufacturer's specialists in drawing up a complex diagnosis.

As we see, the new tools and equipments will allow for great improvements in the rationalisation of diagnostic and repair work, reducing time consuming fault analysis and supporting quality service. However, they mean an important challenge for qualifications of staff personnel.

6.2.2. Changes in tasks and skill requirements of staff personnel

Innovations in car technology are leading to changes in tasks in the automobile distribution/repair sector.

Particularly the fact that new car technologies are networks which interlink the components to electronically-controlled systems and the development of computerised testing and diagnostic equipment as major tools to service cars, will result in a change of tasks and skills requirements at the workshop level. On one hand, car mechanics will lose its dominating position. New cars require less maintenance and traditional repairs because their components last longer and are more likely to be replaced. So, the quantity of mechanical repair tasks will progressively be reduced and many of the traditional specialisations (carburators, radiators, electrics) will lose their relevance. On the other hand, the electronification of cars and the complex system technology make diagnostic an essential task in the car workshop. Inspection, as a preventive measure of maintenance, will develop. Workshops will be, above all, specialised in diagnostic and maintenance rather than in the mechanical repair work.

These developments represent a great challenge to workshops and put a serious premium on those which can cope with them. But the oppo-

site effect can emerge as soon as the workforce is not qualified enough to carry out the resulting tasks which differ greatly from the traditional work of the outlets.

In fact, the current repair and replacement of components is fairly simple. As for the mechanical tasks, repair and inspection, the skills necessary today are almost the same that were necessary a few years ago. A continuous updating of abilities in handling of new products proves to be enough. But the maintenance and repair of highly sophisticated electronical technology and the further expansion of tasks in the workshop by taking into consideration environmental, safety and quality regulations require a new professional profile. That is to say, workers will assume more functions and they will be rather based on electronic skills than traditional mechanical knowledge. They must be able to work with advanced equipment, understand diagrams, wire signals measurement, interpret signals, handle data and documentation for the product and learn new ways of repair and problem solving. Knowledge of the functioning of systems is the most important as the components and aggregates of a car will no longer be repaired but exchanged. New skills will develop for the work with new materials, methods and tools for recycling. Quality of service and customer relations will be major topics which call for commitment and involvement of all staff in a customer-oriented workplace culture.

These evolutions will result in a new definition of tasks and jobs.

6.2.3. Changes in the work organisation and the need for rationalisation of service and repair

The shaping of work organisation within firms is mainly a management decision oriented to improve work efficiency and customer satisfaction. So, the problem for workshop managers consists of knowing which types of work organisation simultaneously best achieve these two objectives. To find the solution, we must analyse this problem at two levels. First of all, we will identify the major factors which have impact on work efficiency and customer satisfaction considering today's context and future developments, by putting aside the influence of the variable "size of the firm" as a contingent factor to their achievement. Secondly, the variable "size of firm" will be considered as it influences the possibility to shape different forms of work organisation.

The work organisation must bear in mind the development of tasks. As car technology is drifting towards a system of integrated components, work efficiency depends on the employee's knowledge of the funtioning of the car as a whole and of the operation of systems rather than specialization in parts or components of the car. Under these circumstances, a pushed division of tasks should not be the strategy for work organisation because it results in a too high specialisation of the workforce which means dequalification in the present context. Consequently, the work organisation has to be designed to help to maintain the broadness of skills of the workforce and their flexibility between job assignments. That is to say, jobs must be broadly defined to increase work efficiency.

Customer satisfaction, the other objective to be achieved, depends on quality service and customer relations.

Types of work organisation which include direct contact with customers help to improve two way communication between these and workshop personnel. As a consequence, a mutual understanding and sensitivity of each part towards the feelings and needs of the other are more likely to develop. On one hand, workshop personnel will feel increased responsibility for the output of their work and, therefore, a higher motivation to perform well. On the other hand, customers will feel more confident when they interact with the professionals who are responsible for the servicing of their cars. Before the maintenance/repair tasks begin, they can expose the problems of the car. When the car is handed over to them, they are able to obtain an explanation of the repairs done, the causes of the troubles, the actual state

of the car and advice on how to better use the vehicle... they can even know who to contact in case of dissatisfaction with the repair performed on the car. As the types of work organisation which include direct contact with customers contribute to improved communication and better quality of the repair work, customer satisfaction will follow.

After this first level of analysis, it is easy to conclude that the conventional type of formal work organisation, based on a high specialisation of the workforce in a certain number of closely defined tasks and excluding direct contacts with customers is an outdated model.

This still is the dominating model. It is characterised by an horizontal division of tasks and work in which an employee or group is assigned clearly delimited tasks oriented to the main aggregates of a car (body work, paiting, electronics, mechanics). In today's context, the high specialisation of the work-force decreases their occupational qualifications and flexibility. As the customer service department is completely separed from the workshop, a reduction of quality service and customer relations are also consequences.

So, the successful models for shaping tasks are those which broaden jobs and employee qualifications corresponding to the increasing integration of systems and underlining good customer relations.

According to the size of the firm, the prevailing models are the all-round concept and the team concept. The all-round concept is practised preferably in smaller-sized firms. The team concept can be practised in all kinds of workshops. However, its major field of application are medium and large firms in terms of staff, as it aims at reducing the negative effects resulting from the expansion of car repair workshops.

The main features of the all-round model of work organisation are the following:
— Each mechanic performs a wide variety of tasks allowing every employee to do all kinds of service and repair jobs in the car.
— There is only one mechanic for one car who accepts the repair orders, repairs the car and hands it over to the customer.
— Highly qualified and broadly skilled workforce is required.
— Occupational qualifications of the workforce are improved as they will be trained to work at any place in the workshop.

The team concept developed to overcome the shortcomings of the conventional model of work organisation and benefit from the functional outcomes of the all-round concept as the volume of repair work increased in the workshops.

In order to prevent a polarisation of qualifications in the workshop and the lack of contact between customers and staff personnel which would result from a centralised disposition of orders by the workshop master craftsman, the best solution consists in reorganising the workshop in smaller workshop units operating as teams. Each team forms a group of its own and is in charge of a certain pool of repair orders, beginning from the acceptance of the order to the handing-over of the car to its owner.

In this model, teams are granted a comprehensive freedom of disposition to use workstations with all the necessary information, diagnostic and testing equipment and other computerised support as a kind of tools. The grade of specialisation between team-members is low, allowing for effective on job training and development of broadly skilled workers. Additionally, the team concept work organisation contributes to improve communications between team-members and to better customer relations and quality of the repair work.

However, it is not easy to put this model in practice. Certainly it requires highly qualified and broadly skilled personnel. But its major difficulty consist of managing the team itself as it represents a significant change in the ways the work organisation traditionally operates. The customer service master craftsman has to gather the appropriate leadership skills to perform his new challenging role and responsibilities, as he is

main the team member concerning specialisation, advice, guidance and discipline. However, all members have to be involved in the change process in time as well.

6.2.4. Changes in the structure of the Distribution/Repair sector

The market liberalisation in the European Community is leading to a new competitive landscape. The progressing deregulation of domestic markets and the increased permeability of national boundaries pit local firms ever more directly against seasoned rivals based abroad and demand management to be able to sustain the competitive advantage of firms on a global scale.

This is the case for the automobile sector as it represents a global business. Car makers strategies are designed to face the challenge of reconciling the need for global centralisation with local decentralisation and linking the global organisational forms to local environments.

In every E. C. Member State, a tough competition is developing between car makers represented by their outlets as they compete among themselves for market share and profits.

Brand competitiveness is influenced by a number of more or less objectively verifiable attributes, such as prices, technological standards, variety and quality of the products and a clearly determined amount of guarantee regulations for parts and componentes of the cars. However, the quality of manufacturer's representatives in all fields of activity will become a more and more critical factor in keeping and winning customers for a specific brand name, as competition does stress the importance of service to customer satisfaction and the need to aim at it by excellent service throughout the firm. Particularly, service and maintenance became critical activities for manufacturer's marketing strategies. As periods of guarantee for certain parts of the car are increasing, the car repair workshops will increasingly act in the name of the manufacturer in repair cases. In all circumstances, they have a supporting function for the car distribution rather than belonging to an independent business.

Our next purpose is to analyse the way relationships between manufacturers and their outlets will be organised within this framework, as every manufacturer seeks to promote his own products.

Due to strategic reasons, car makers no longer market their products through their own salaried sales force operating from their own office in foreign lands. They cannot, however, lose completely contact with customers, as customer relations proves to be essential for brand name competitiveness. So, they have to secure their representatives providing quality service in sales, as well as in service and maintenance of their cars. Additionally, effective feedback from representatives concerning customers' complaints and suggestions are essential for manufacturers in order to make improvements in their cars and transfer customer's wishes into technical solutions.

As we have demonstrated, the car industry and the distribution and repair sector are strongly interlinked and brand names competitiveness closely depends on effective communication between car producers and their representatives. Nowadays, the integration of dealers and workshop computer networks with the producer's network on european level is increasingly necessary to provide all information and data they need on sales, spare parts, kind of workshop orders, specific faults, quality problems and other important factors, such as helping to solve technical problems or use equipments or data bases.

The application of complex technology in cars and tools and the need to meet new environmental, safety and quality standards in cars and service have by far changed tasks and work organisation at the distribution/repair level. These changes demand the sales and service processes to become increasingly professional in order to win and bind customers to a specific brand name. The training of the staff in the fields of management, sales and marketing and technology

specific to that brand name is the most important assumption to improve the quality of service and customer relations. The transfer of this specific know-how, however, is not easy to codify or synthesise in easy to ship manuals. It is embodied in a complex set of knowledge, skills, abilities, tacit rules and behaviours that can only be mastered by extensive training and participation of staff in the formation of a unique workplace culture. Continuous vocational training is the only way to prepare the workforce for the comprehensive requirements imposed by the changes which are shaking the distribution/repair sector. This supports the manufacturers' interference on the management sphere of their representatives by controlling their vocational training policies and programmes. It is a common feature that manufacturers impose on their representatives the obligation to regularly improve the job related qualifications of their staff. The most important training courses usually take place in the customer service training centre of the manufacturer. They can be exclusively attended by his representatives' staff and are aimed at teaching new skills which are crucial for the manufacturer's global strategy.

In the automobile sector, manufacturers have to be able to manage these two demands: on one hand, to achieve a good co-ordination of their operations; on the other hand, to encourage maximum adaptability of their locally based outlets. Both the application of comprehensive guidelines for global managerial decision-making framed around the characteristics of the industry and local responsiveness, allow the global firm to adress market needs with the required quality and speed. As Pucik (1993) puts it, the success of global firms depends mainly on three organisational competencies which are essential for the execution of flexible strategies in global markets:
— Organisational learning: the ability to acquire fast new technological or marketing skills across the whole organisation;
— Continuous improvement: The ability of a firm to continuously improve the quality, cost and delivery parameters of its products and services, through an appropriate balance between long-term vision and constant attention to short-term tasks.
— Competitive culture: The glue that provides unit of purpose across countries, functions and business to win in the marketplace by being better, faster and providing a greater value to the customer than any competitor.

The best way for manufacturers to secure that these core competencies are developed throughout their organisational networks is to exert some control on the distribution/repair firms. This can be done by using three approaches which differ in terms of the grade of control exerted and the specific division of tasks between a manufacturer and his representatives. First of all, a manufacturer can share the capital of a subsidiary specially designed to market and repair his. Secondly, he can agree with specific dealers and workshops on exclusive contracts to market and service his products. Thirdly, he can authorise dealers and workshops which have to prove their ability to comply with previously defined standars, to act as his brand name representatives.

Independent workshops and many small-sized firms are commonly looked at with suspicion by manufacturers as those hardly ever meet the tough standars that brand names increasingly demand. These firms are hardly ever working with computerised networks, nor have the qualified staff necessary to achieve the deal and servicing qualities required by high-tech cars.

As a consequence, the recent development of the distribution/repair sector is characterised by an expansion of manufacturers' subsidiaries and authorised representatives. More than 60 per cent of brand name representatives in all EC. Member States are linked to an importer or manufacturer, except for Greece, Portugal and Spain who have a share of more than 80 per cent of independent workshops.

6.2.4.1 Consequences on the Distribution/Repair Sector in Portugal

The distribution/repair sector in Portugal will probably be the most affected by the described

changes, compared to similar sectors in other EC. Member States. The reason is that the structure of the Portuguese distribution/repair sector is quite different from the ones existing in the great majority of the EC. Member States and that it hardly fits to the future development of the automobile sector.

Putting the main features of the Portuguese distribution/repair sector (as they were described in chapter 5) in the context of the E.C. is undoubtedly useful in order to have an idea of its adjustment to the new demands and the probable changes that will occur in the near future.

First of all, the Portuguese distribution/repair sector is made up of too many small-sized firms. The share of small firms (up to four persons engaged) represents 56 per cent of all workshops. Very small workshops are predominant. A smaller share of these small-sized firms acts as authorised workshops for a manufacturer. Most of the firms in Portugal (more than 80 per cent against an average of 60 per cent in other E. C. Member States) are independent workshops because they have considerable problems with investing in the acquisition of the equipment which manufacturers impose and the qualifications they require. Most are small-sized repair companies supported by customer behaviour, as they are excluded from manufacturers' networks. Distribution, when exists, is confined to second-hand car dealers. Large-size and many medium-size firms are linked to a manufacturer, usually by an exclusive dealer's contract, or are subsidiaries of a manufacturer.

Secondly, the average number of persons engaged in the Portuguese outlets (twelve) is high compared with the average in the E. C. Member States which is less than 6 persons. Most workers have only primary school, meaning that around 43 per cent of the workforce have only four years of school. Workers who have had industrial technical education account for 1.7 per cent and bachelors and graduates, 2.5 per cent of the total. The percentage of highly skilled employees is very low (3.5 per cent).

Efficency of work in the sector is low. According to table 6.1, the number of cars serviced, on average, by each person engaged in the Portuguese sector (33 = ratio between registered cars per person working in the field of distribution and repair) points clearly to an efficiency «gap» between Portugal and the more developed countries.

Country	B	D	DK	E	F	GR	IRL	I	L	NL	P	UK
1983/85/87	87	90	-	54	72	-	68	80	59	84	-	63
1991	97	95,5	41,3	70	71,3	27,6	83	100	59	87	33	73

Table 6.1: Development trends of vehicles per person working in the sector

Additionally, we must take into account two arguments. On one hand, the market tends to grow, as the car density in Portugal develops towards the levels registered in more developed countries. On the other hand, manufacturers will strive to control the efficiency of work in their outlets by applying programmed service to further standardise and minimise the expenditure of service and repair of their cars. Nowadays, this is true for parts, components and aggregates to be exchanged; cost control of work values, working times, materials and general expenditures; workshop equipment, testing and diagnostic devices; programming of work procedures, etc.

The matrix represented in table 6.2 will be helpful to depict the need for rationalisation in the fields of work and management in the Portuguese distribution/repair sector, compared to similar sectors in the other EC. Member States.

I		II		
Germany	(1,9) (95)	Ireland	(3,7) (83)	High
Netherlands	(2,4) (87)			
Belgium	(2,3) (97)			
Italy	(1,9) (100)			
Denmark	(2,7) (41)	Greece	(4,2) (28)	
Luxembourg	(1,9) (59)	Portugal	(4,9) (33)	Low
France	(2,0) (71)			Cars per person
Spain	(2,7) (70)			
UK	(2,2) (73)			
III High		IV low		

Car density (per inhabitant)

Table 6.2.: Matrix off allocation of the EC Member States to sectors according to car and employment density (1991)

Using the figures as a yardstick for the level of productivity of the sector in the EC. Member States, we can conclude that Portugal is remark-

ably low in efficiency as it shows a high number of persons engaged in the sector in spite of a low car density. This means that the productivity of the outlets has to be improved with employees satisfying the demand for more cars in the future.

7. Conclusions

Within this framework, it is easy to anticipate that significant changes are likely to occur in the Portuguese distribution/repair sector. Changes in tools and equipments, changes in tasks and in the qualifications of staff personnel, changes in the work organisation and changes in the very structure of the sector as competition urges manufacturers to increasingly shape and integrate trade and service of their cars in the sphere of their global strategies.

Two major changes will eventually occur in the Portuguese distribution/repair sector.

First of all, the role of importers will diminish as a consequence of the liberalisation in trade and more direct relationships between dealers and manufacturers. The position of automobile sales companies is expected to weaken as the development of leasing firms and other "fleet owners" leads to a concentration of purchasing power within the hands of a small number of consumers.

Secondly, most small-sized independent firms have to manage the dilemma of reorganising their activities or facing disappearance.

Small independent workshops have a low economical potential. It's hard for them to invest in tools and equipments imposed by manufacturers for service and maintenance of their cars. Also their staff is hardly ever skilled enough to use the new tools and equipments to repair the latest products, to comply with environmental, safety and quality regulations, or to cope with the increased complexity of management and administrative tasks as it results from the need to integrate a manufacturer's network.

Furthermore, manufacturer's strategies increasingly exclude small independent workshops from the sphere of their business. Manufacturers try that only their authorised outlets get information on service, repair and spare parts of their models. Manufacturer's Guarantee regulations may be cancelled in case a car has been serviced in a non-authorised workshop. Only authorised workshops can count on a regular uptdate of diagnostic and testing software related to new cars which can only be serviced and repaired with the aid of special manufacturers' software and via a network between manufacturer and workshop. Only authorised representatives staff are allowed to assist training courses at the Customer Service Training Centre of the manufacturer for improving and updating their skills.

As a consequence, te most probable scenario of the future development of the automobile distribution/repair sector in Portugal may be the strengthening of the manufacturers controlled networks and the disappearance of many small-sized workshops. The later, however, may become viable businesses by reorienting their mission in order to explore opportunities in specialised fields of activity. Some may take over the repair of second-hand cars. Others may become "Fast-Fit-Centres" for simple repair issues and routine service (batteries, tires, oil change, etc.). And others could develop as a subcontract structure of authorised dealers (paint shops, body work, etc.).

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