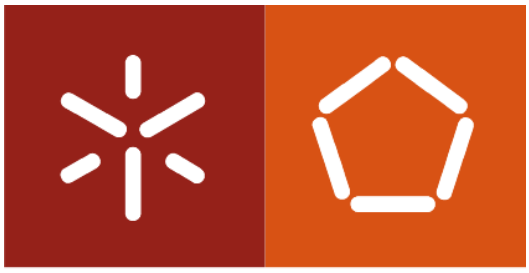


Universidade do Minho
Escola de Engenharia

Mission to analyse the Euratlantic Area in the automotive sector with a view to an international promotion campaign

REPORT

October, 2005

CONTENTS

INTRODUCTION

The launching of this study reflects a strong commitment to encouraging foreign investment (more specifically, North American) in the automobile industry in the more peripheral areas of the European Union (EU). This is a challenge that must be seen in the light of two recent developments: the EU enlargement eastwards and the globalisation of the markets.

According to the specifications of this study, the objective of this initiative is to "analyse this Euratlantic Area (EA) with a view to an international promotion campaign" of the 13 regions that comprise it. The "low level of internalisation and an insufficient image" of the regions calls for a "joint economic promotion project" of their capabilities in order to make them more attractive as "a destination for investment by north American companies". This Euratlantic territory aims at creating a "common identity" and being more aware of the benefits of sharing "best practices". Therefore, the different industrial realities of these regions should constitute a platform of opportunities for exploring their own capabilities and also the synergies amongst them.

The promotion of a specific territory aimed at attracting more and better investment, involves making businessmen more optimistic in forecasting a number of variables that form an investment equation so that an increasing number of investments show positive returns.

The conjunction of the competencies of the 13 regions that comprise the territory under study and the key factors determined by potential North American investors, are the basis for building a promotional sales manual of the territory as a whole.

In this context, the vision of this mission is to be understood in a context of the assertion of a territory globally, and that is able to create value by the conception of innovative products that are technologically advanced.

A study that aims at promoting the automobile industry in this Euratlantic area is important because this industry is an important anchor sector of the economy and an important source of business development in this territory.

The present report is the result of a research undertaken on the automotive industry in the 13 regions that comprise the Euratlantic territory. It includes both quantitative and qualitative data on a number of general and more specific indicators. These indicators were selected for determining the sources and the degree of competitiveness of the territory and of its potential in attracting investment by North American companies.

The report is organized as follows.

Chapter 1 reviews the main competitiveness factors that are susceptible to influence an investment decision in a foreign country/region. In the first section there is brief reference on methodologies used for promoting and attracting foreign direct investment in general. The second section includes a global view of Europe's current competitiveness position in relation to other major economies and a list of those factors susceptible of influencing investors on their decision-making processes concerning foreign locations.

Chapter 2 examines the automotive industry in Europe and in the EA countries.

Chapter 3 analyses in detail the automotive industry of the 13 regions that comprise the EA region.

The Chapter 4 presents the main conclusions of this study.

CHAPTER 1

Foreign Direct Investment

1.1. Methodological Notes

Foreign direct investment (FDI) has become the source of fierce competition between countries all over the world. The benefits that accrue from capital inflows cover many economic variables namely, increased production and employment and technological and innovation stimulus to indigenous economies.

Many studies appear to confirm that there is a strong link between promoting a particular territory and foreign investment flows.

The principal task of an investment promotion function is marketing a territory as an investment site.

The techniques that are used to promote an area involve, in the first instance, making the potential investor optimistic about the future returns of his/her investment and in the second phase the provision of investment services that will direct the prospective investor.

As for the former, investment promotion in general, includes a wide range of activities namely advertising, investment seminars, investment missions, participation in trade shows and exhibitions, distribution of literature, building a trade mark, matching investors with local partners etc.

In the case of the present study, the main aim of this stage is to compile a set of information on the attractiveness of a particular region by building the right image in relation to the targeted business sector. In other words, it involves making investors of a particular industry, aware of the potential competitiveness advantages of a specific territory.

Furthermore, it is understood that data should not only be of a general kind (e.g. macroeconomic) but should include specific, customized records that are closely related to the needs of the promoted industries (e.g. operating costs)

This approach follows the work of Wells,Jr. and Wint, A. (2000) on Marketing a Country. According to these authors, the foreign investment decision is similar in several respects to the industrial buying decision" and as with the latter involves "five stages when making the first purchase decision: awareness, interest, evaluation trial and adoption". Furthermore they found that "different information sources were most effective at different stages" and that "during awareness and interest, the most effective …were impersonal sources such as advertising". In this context they argued, "a promotion campaign that has had little involvement or success in attracting companies is likely to be dealing with investors who are in the awareness stage of the investment decision process" and that six of the cases they studied "exhibited the expected pattern by starting investment promotion operations with a focus on image building".

Finally, it is important to point out that "empirical observations provide strong support for the proposition…that an efficient programme even during a focus on image building activities, is likely to be targeted toward a small number of industries" and that previous knowledge about the product is crucial for as one manager said "…they could provide us with meaningful information about the investment possibilities as opposed to those of a neighbouring country who focussed on sending us general publications…"

In brief, the methodology adopted in this report follows the contributions made by these authors and the information presented in this report constitutes the basis for the construction of the territory's sales manual for attracting North American investment in the EA region.

In the next section there is a brief analysis of the main trends in FDI worldwide as well as a general list of the most important factors susceptible of influencing management investment decisions in foreign locations.

1.2. A Global View

This section comprises two main parts. In the fist part there is a summary of the main findings of a number of studies on FDI namely the results of i) a global survey on FDI Confidence Index conducted by Kearney A.T. in 2004, and of ii) the presentation made by Gaymard C.in the third World Investment Conference held in La Baule (June 2005). In the second part there is a compilation of specific data relevant for an investment decision in W. Europe.

1.2.1. Studies on Foreign Direct Investment

The first study, undertaken over the last seven years, "surveyed CEOs, CFOs and other top decision makers of the world's largest 1000 firms (responsible for 70% of global FDI flows and generate more than $20 trillion in annual revenues) about their opinions of various FDI destinations (65 countries that receive more than 90% of global FDI flows) and their investment intentions…"

The main conclusions are as follows:

- In terms of market attractiveness as an investment destination, Western Europe has regained lost ground in 2004 as the UK (4th) France (6th) and Italy (9th) rose in the rankings. Spain occupies the 13th place;
- In terms of investor attractiveness and expected profitability, Poland, Czech Republic and Hungary "have returned to rankings, roughly consistent with their historical averages as the novelty of EU membership fades" (erosion of low cost advantage as rising incomes may erode wage competitiveness);

- 45% of CEOs selected mergers and acquisitions as their preferred mode of entry into foreign markets;
- The US and Europe remain each other's most important economic partner. The transatlantic economy represents over $2.5 trillion in total foreign affiliate sales and mutually supports over 12 million workers. The transatlantic economy accounts for more than 80% of global FDI outflows;
- US FDI into the EU rose from $61 billion in 2002 to $81 billion in 2003;
- Last year, the US investors remained the primary source of French FDI and created nearly one quarter of new FDI-related jobs in France;
- US investors expressed stronger confidence in Europe's major markets – ranking UK 2nd, Germany, 7th Spain, 11th and France 13th;
- France is one of the world's top recipient s of FDI in high-value segments such as IT and automotive;
- As global investors, the current or impending developments that would be most likely to impact their firm's decisions were identified as being the following:
  - The US economy / dollar volatility – 60%;
  - Rising interest rates – more than a quarter;
  - Global or regional trade agreements – more than one third;
  - Terrorism, volatile energy prices – a quarter;
  - The risk to corporate reputation – one in four – an important deterrent to off shoring operations to lower cost locations;
  - Factors such as moderately low cost service locations, attractive education levels, infrastructure, financial and political climates, safeguards for intellectual property and quality control, can outweigh strong cost advantages;
  - Healthy working age population growth;
  - Reforms in telecom (e.g. limited competition keeps fixed-line service costs high, holding back internet penetration and e-commerce and limit advances in knowledge-intensive

industries), infrastructure (transport, telecommunication, information and energy availability[1]) and energy;

- Innovative and technology driven economies – high levels of private and public sector R&D spending;
- Provision of attractive grant opportunities and other incentives;
- Limited labour market flexibility, corporate and local tax burden and bureaucracy;
- Proximity to the world's largest markets (and thus the opportunity of producing closer to a large number of clients) and to high growth technology areas.

As far as the third World Investment Conference that took place in La Baule in June 2005 is concerned, Gaymard´s study concluded that "strength and weaknesses considered by investors for investment location in 6 distinct areas were: market, human resources, innovation, infrastructures, administrative environment, fiscal pressure and operating costs." In this context, Glymard´study showed that Europe's performance in some of these areas has improved in comparison with other major world economies (USA, Japan) namely that:

- Europe is catching up with Japan and the USA in relation to higher education (measured by the % of 25-34 years old that received tertiary education in 2002);
- The average R&D expenditure/GDP and the rate of penetration of broadband internet (measured by the number of subscribers of broadband internet per 100 inhabitants) are both fast approaching those recorded in the USA and Japan;
- EU 15 members is the first global FDI destination (excluding intra-zone) in attracting businesses and capital;
- Europe matches the USA and overtakes China to win investment that creates job.

1 Efficient physical infrastructure facilities improve the investment climate for FDI by subsidizing the cost of total investment by foreign investors and thus raising the rate of return

Irrespective of the entry mode of new investment (Greenfield plant investment or mergers, acquisitions, joint ventures, and plant expansions), there are other factors that can also play an important role in FDI decisions, namely:

- The existence of industrial clusters for they can signal a set of favourable conditions for an investor in that sector;
- As Mariotti and Piscitello argued "there are spillovers from local foreign agglomeration to the pool of potential international investors". In other words "foreign investors may be attracted to areas with existing concentrations of foreign-owned firms in order to reduce uncertainty as to the general conditions of the region";
- The existence of general manufacturing activity may be attractive to firms that have a less specific demand for specialized labor and other inputs, but seek to locate in areas with a heritage of industrial activity.

1.2.2. Data for an Foreign Direct Investment Decision in the Western Europe

As far as investment decisions in a foreign location are concerned it is important to characterize the administrative/legal framework that prevail in that location. The following sections compare various indicators for Portugal, Spain and France.

Starting a Business

When an entrepreneur decides to set up a business the legal procedures to register the new firm are the first hurdles that must be overcome.

The Doing Business survey[2] examined the start up of commercial or industrial firms with up to 50 employees and start-up capital of 10 times the economy's per-capita Gross National Income (GNI).

It counted all procedures (defined as a legal requirement that involves a separate interaction between the firm and an outside entity official) required to register a firm. Data also included screening procedures by government entities, tax and labour related registration procedures, health, safety and environment related procedures.

The results for Portugal, Spain and France are shown below:

Indicator	Portugal	Spain	France
Procedures (number)	11	10	7
Time (days)	54	47	8
Cost (% of income per capita)	13.4	16.5	1.2
Min. capital (% of income per capita)	39.4	15.7	0.0

France shows the best scores for all the indicators.

Hiring & Firing Workers

Every economy has a complex system of laws and institutions to protect the interests of workers and guarantee a minimum standard of living for its population. This system encompasses four bodies of law: employment, industrial relations, occupational health and safety, and social security.

Doing Business focused on the regulation of employment, specifically the hiring and firing of workers. To assess how flexible the labour laws are Doing Business measured the difficulty of hiring a new worker, how rigid the

[2] A co publication of the World Bank, the International Finance Corporation and Oxford University Press, 2005

restrictions are on expanding/contracting the number of working hours, what are the non-salary costs of hiring a worker, and how difficult and costly it is to dismiss a redundant worker.

The database comprised the following indicators:

- Rigidity of Employment index (the average of three sub-indices: Difficulty of Hiring index, Rigidity of Hours index, Difficulty of Firing index);
- Hiring Cost indicator (expressed as percentage of workers salary);
- Firing Cost indicator (expressed in weeks of weekly wages).

Indicator	Portugal	Spain	France
Difficulty of Hiring Index	33	67	78
Rigidity of Hours Index	80	80	80
Difficulty of Firing Index	60	50	40
Rigidity of Employment Index	58	66	66
Hiring cost (% of salary)	23.8	31.6	47.4
Firing costs (weeks of wages)	98.0	56.0	31.9

Each index assigned values between 0 and 100, with higher values representing more rigid regulations. The Rigidity of Employment Index is an average of the three indices. For Portugal, the overall index is 58 and for both Spain and France the index is 66.

Registering Property

Property registries were first developed to help raise tax revenue.

Doing Business measured the ease of registering property, assuming a standardized case of an entrepreneur who wants to purchase land and

building in the largest business city already registered and free of title dispute.

The costs of registering a property as a percentage of the overall property value were 7.4%, 7.2% and 6.5% in the cases of Portugal, Spain and France respectively.

Paying Taxes

Doing Business measured the effective tax that a medium size company must pay in the second year of operation (except for labour taxes) and tax administration, such as number of payments and time spent to comply with tax requirements. The total amount of taxes is the sum of all the different taxes payable after accounting for deductions and exemptions. The taxes withheld but not paid by the company are not included.

The results show the total tax payable, as a percentage of gross profit is 45.4%, 48.4% and 42.8% in Portugal, Spain and France respectively.

Trading Across Borders

Doing Business compiled the procedural requirements for exporting and importing a standardized cargo of goods. A procedure is counted from the time the business starts preparing the necessary documents to the time the cargo is in the client's warehouse (studies suggest that each additional day in transport delays cost 0.5% of the cargo value of goods transported by ship or rail).

Every official procedure was counted from the contractual agreement between the two parties to the delivery of goods along with the time necessary for completion.

All documents and signatures required for clearance of the goods across the border were also recorded.

The results are shown below:

Indicator	Portugal	Spain	France
Documents for export (number)	6	4	7
Signatures for export (number)	4	3	3
Time for export (days)	18	9	22
Documents for import (number)	7	5	13
Signatures for import (number)	5	3	3
Time for import (days)	18	10	23

Spain shows the lowest number of days needed to import and export goods into and out of the country.

Closing a Business

Doing Business identified the main weaknesses in existing bankruptcy law and the main procedural and administrative bottlenecks in the bankruptcy process. To measure the efficiency of foreclosure or bankruptcy procedures, Doing Business calculates the recovery rate how many cents on the dollar claimants recover from an insolvent firm.

The results are shown below:

Indicator	Portugal	Spain	France
Time (years)	2.0	1.0	1.9
Cost (% of estate)	9	14	9
Recovery rate (cents on the dollar)	74.7	77.9	47.7

The time and costs that are required to resolve bankruptcies in Portugal is 2.0 years and costs 9% of the estate value. The recovery rate, expressed in terms of how many cents on the dollar claimants recover from the insolvent firm, is 74.73. The figures for Spain were 1.0 year, costs were 14% and the recovery rate 77.85, whereas in the case of France these numbers were 1.8, 9% and 47.68 respectively.

CHAPTER 2

The Automotive Industry in Europe and in the Euratlantic Area Countries

2.1. The Automobile Industry: Global Trends

An automobile is composed of nearly 12 000 parts supplied by a diversified network of suppliers. The automotive industry thus extends its activities to almost every sector of the manufacturing industry from mechanics to rubber, from electronics to textiles, from glass to plastics.

World production totalled more than 64 million vehicles in 2004, an increase of 5.8% relative to 2003 (Annex 1).

There have been important changes in the automotive industry in recent years. These trends constitute the framework on which future FDI decisions will develop.

In global terms, they can be summarised as follows:

- Market is saturated – production at 78% of its capacity;
- Emergent markets - China, India, Latin America, Iran – are increasing their production;
- Production is moving East – specially labour intensive supplies;
- Increasing outsourcing by major OME's ("the level of vertical manufacturing at OEM's has dropped persistently to around 35% over the last few years"[1]) but with different strategies;
- Changes in the responsibilities throughout the supplier chain – specially higher value added ones;
- A rise in sharing common platforms by OME's;
- A rise in the number of car models and a reduction in their life cycles;

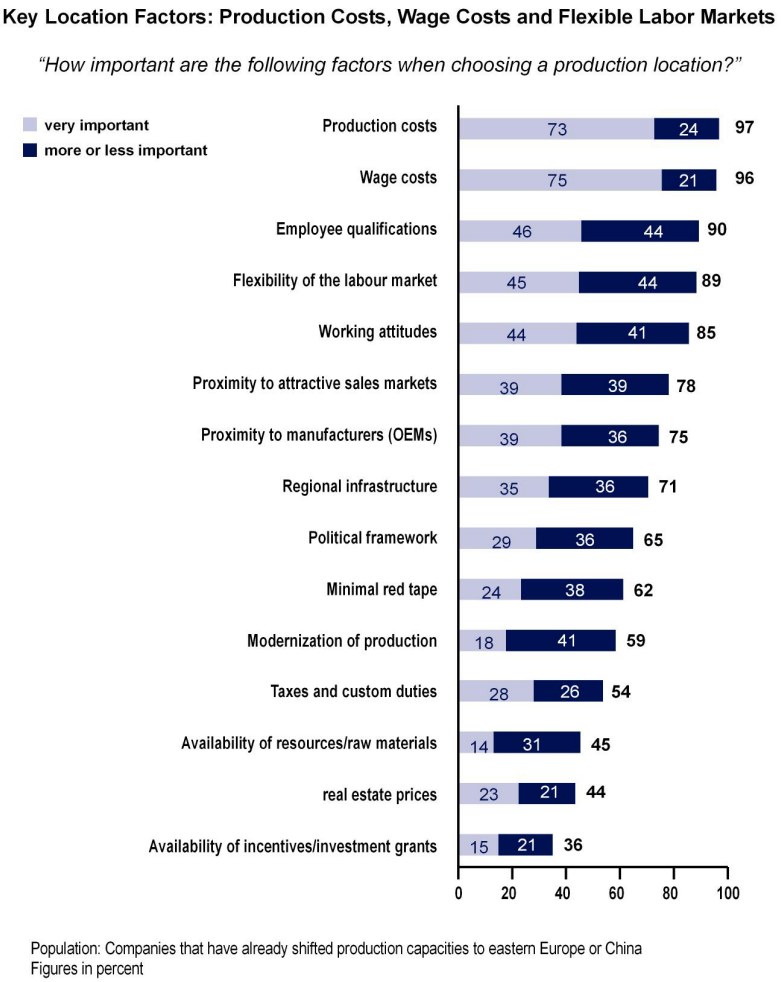
- The "green" effect and an increase in the penalties for private car use;
- New mobility concepts (requiring new functionalities – e.g. GPS - and materials – e.g. safety and comfort) and new vehicle market niches.

These trends must be seen to constitute both threats and opportunities to the automotive industry in the EA region and thus determine its future degree of FDI attractiveness.

On the one hand, low wage and production costs associated with labour intensive areas of the industry (e.g. component manufacturing and final assembly) and the proximity to markets with growth potential are determining location decisions in favour of China and Eastern Europe.

Figure 1 shows the results of a survey conducted by Ernst & Young (2004) of managers of 200 German automotive supply companies that confirm these trends.

Figure 1 - Key Location Factors: Production Costs, Wage Costs and Flexible Labour Markets



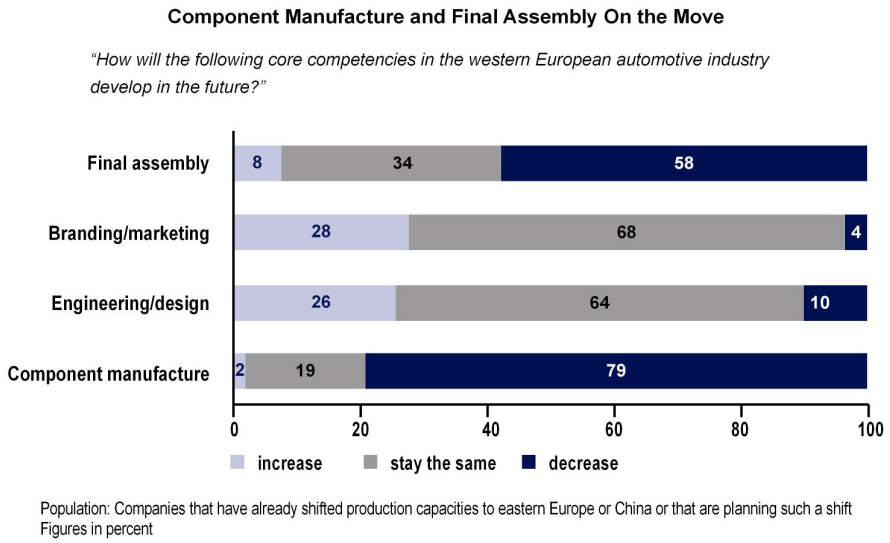
Source: Ernst & Young – automotive manufacturing in WE under threat? - 2004

On the other hand, outsourcing by the big OEM's of higher value activities (e.g. engineering and product design) together with market opportunities for new/more sophisticated products can create effective business prospects in the more developed regions of Western Europe – both in terms of their technological and innovation capacities and of more affluent markets.

According to Ernst & Young's survey (opt. Cit.) "a rosier outlook [for the role of Western Europe in the future] was given to the other two core

competencies of the automotive industry, namely branding/marketing and engineering design" . They were referred by 28% and 26% respectively by the total number of companies in Ernst & Young's study (figure 2).

Figure 2 - Component Manufacture and Final Assembly on the Move



Source: Ernst & Young – automotive manufacturing in WE under threat? - 2004

It is also important to point out that the strong (and natural) relationships that (must) exist between businesses in the industry structure may influence FDI decisions.

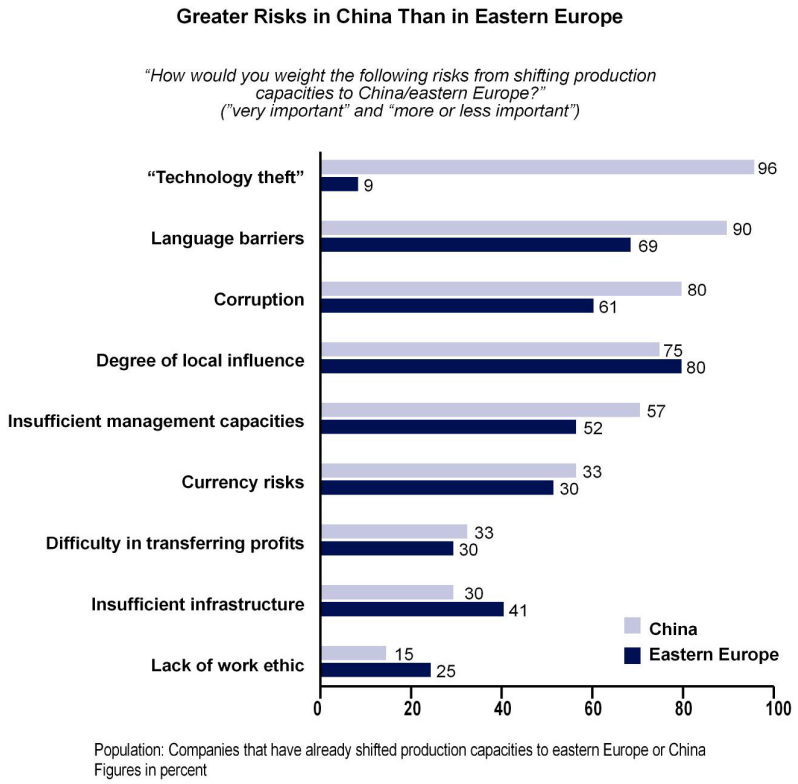
In fact, the consequences of relocation decisions by manufacturers[3] on 1st tier suppliers cannot be disregarded, as they are their only customers and must meet increasingly tight deliver times. If, as it has been noted, relocation of major production plants – at least new production sites - is not expected, then it could be anticipated that new business opportunities resulting from more outsourcing by the OEM's will arise near the OEM's present locations.

[3] In 2003 VW sold just fewer than 700,000 vehicles to China compared with 940,000 in Germany. General Motors generated nearly 44% of its global earnings from the automotive industry in China

However, for Tier-2 and Tier-3 companies moving production facilities to lower wage and production cost locations (e.g. Eastern Europe) may represent substantial cost advantages. As Ernst & Young's study pointed out "taking an average share of added value attributable to wage costs of around 20% in the automotive industry, a 5 or a relative 25% saving on wage costs can be achieved simply by shifting production abroad, then any hurdle have to be very high and very costly to make companies decide against relocation".

In this respect it must pointed out that in some of the emerging location regions there are cultural, language, corruption and trade regulation obstacles that may make them risky alternatives for investment decisions (figure 3)

Figure 3 - Greater Risks in China than in Eastern Europe



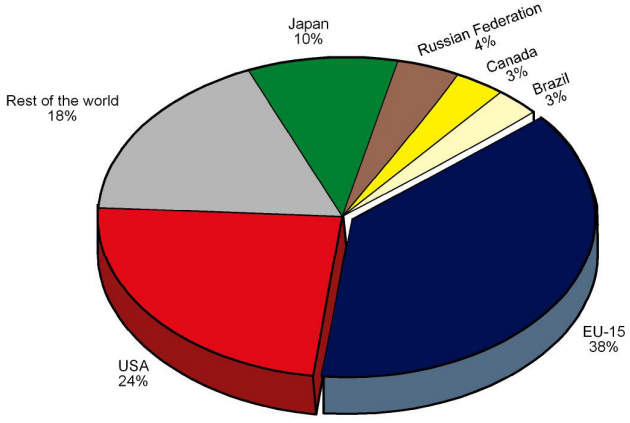
Source: Ernst & Young – automotive manufacturing in WE under threat? - 2004

2.2. The Automotive Industry in Europe

The automotive industry is one of Europe's major industries and plays a key role in the diffusion of innovation and of new technologies in the economies of Western European countries. The EU-25 market is also "by far the largest single market for cars in the world", with 21 million new vehicle registrations each year.

In fact, the automotive industry represents 6% of Europe's total manufacturing employment[1], 7% of its total manufacturing output, and almost 20% of the total manufacturing R&D is carried out by car manufacturers[4]. Additionally, EU-25 market comprised, in 2002, 209 million passenger cars in use, which "accounts for roughly 38% of all cars on major international markets" (figure 4).

Figure 4 - Passenger cars in use in major international markets, 2002



Source: ZEW calculation using data from ACEA, the German Association of the Automotive Industry (VDA) and Eurostat; for Cyprus, Estonia, Latvia, Lithuania and Malta, the data are for 2001.

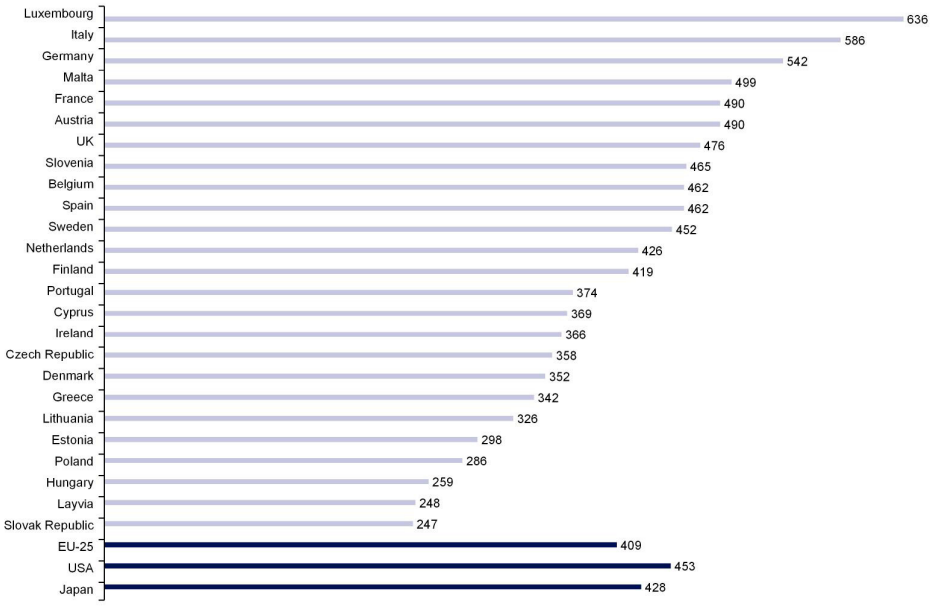
Source: ZEW calculation using data from ACEA, the German Association of the Automotive Industry (VDA) and Eurostat.

[4] In 2002, 2,2 million people worked in the EU-25 in the automotive industry (companies with more than 20 employees) , MUNDO 2004 : HUITIÈME ANNÉE CONSÉCUTIVE DE CROISSANCE POUR LA CONSTRUCTION AUTOMOBILE FRANÇAISE

Within the EU, the production of motor vehicles is rather concentrated in a few countries. The largest producers are Germany (which accounts for 45 % of total EU-15 value added in motor vehicles production), France (17 %), the United Kingdom (11 %), Italy (7 %), Spain (7 %) and Sweden (6 %). Together, these six countries account for about 93 % of motor vehicle production within the EU-15.

As far as car ownership per capita is concerned, "four out of ten EU inhabitants own a car which is in line with Japan and the USA (figure5).

Figure 5 - Cars per 1000 inhabitants, 2002



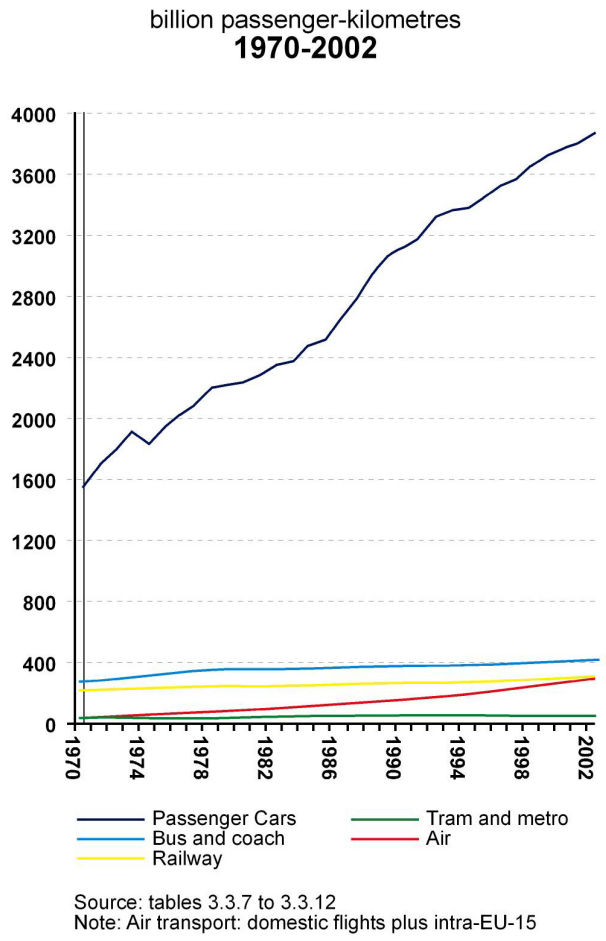
Source: ZEW calculation using data from ACEA, the German Association of the Automotive Industry (VDA) and Eurostat; for Cyprus, Estonia, Latvia, Lithuania and Malta, the data are for 2001.

Source: ZEW calculation using data from ACEA, the German Association of the Automotive Industry (VDA) and Eurostat.

Additionally, the modal split, measured by the number of passenger/km in %, for passenger cars and buses and coaches was 83.5% and 8.8%(EU-15) and 82.5% and 9.5%, (EU-25) (2002) respectively. The figures for France, Spain and Portugal, were 85.6%/4.7% (FR), 81.4%/12.1% (SP) and 87.0/9.1%) (PT). In the USA, they were 85.7% and 3.1% respectively.

Simultaneously, the performance by mode for passenger transport in the EU-15 (measured by billons of passenger/km), between 1970 and 2002 is shown in the map below (figure 6):

Figure 6 - Performance by Mode for Passenger Transport: EU-15



Source: Eurostat

The importance and the size of the market are particularly relevant factors for the performance of a specific industrial sector and thus for its capacity to attract FDI.

However, the competitiveness of an industry is dependent on its capability to maintain and gain, in a sustainable way, market shares in global markets.

This capability depends on a number of other factors, namely those related to input utilization and costs and innovation and R&D activities, which in the automotive industry are especially important.

It has been argued that competitive pressures from low cost regions on the more developed economies together with the social/labour consequences of the progressive EU integration of Eastern European countries will narrow manufacturing cost differences.

Furthermore, wage and other production costs must be seen in the light of better productivity levels and of technological advances that characterize Western Europe.

Higher labour qualifications that result from bigger and better investments in education and training as well as in research programs, constitute solid competitive strengths in an industry where success is strongly associated with high levels of technological innovation and creativity.

Tables 1, 2 and 3 in annex 2, show an international comparison of a) hourly labour costs, b) unit labour costs and c) average yearly working hours in the automotive industry.

The main conclusions are as follows:

- Within Europe there are striking differences. Germany is the most expensive country with labour costs per hour in the German automotive industry 8 % above the US in 2001. Labour compensation per hour worked is below US and Japan in all other Member States - labour costs in Portugal are only 54 % of the US level, for example;

- There is a wide variation of unit labour costs between countries. Unit labour costs have been traditionally low in France and also in Korea, Ireland, Netherlands, Belgium and Spain. Also, in the Netherlands, France, and Spain high labour productivity helps to keep unit labour costs below average;
- The ratio of total labour costs to value added informs on the relative importance of labour costs in comparison to capital cost and capital remuneration. Table 3 shows no clear trend within the EU;
- In terms of effective working hours per employee in automotive industry, EU-15 reaches only about 75 % of the US labour time. Again, there are significant differences within the EU. German workers face the lowest working hours amounting to only 70 % of the US level. The strongest decline in working time in the last two decades can be observed in France where it reached about 1.1 % p.a. However, in some EU-15 Member States the downward trend to shorter working time stopped in the last 10 years. Some countries like Spain, Finland, Italy and Greece even follow the US trend of increased working time.

Tables 4 and 5 in annex 2 show the ranking of the EU member countries according to labour productivity (defined as value added per hour worked) in the automotive industry in 2001 and the trends by country between 1981 and 2001. From table 4 it can be seen that France and Belgium show a significant lead and table 5 shows a higher volatility of these trends in smaller automotive producing countries.

As far as R&D expenditures of the automotive industry in the three major car producing regions is concerned, EU's share increased between 1995 and 2000 from 34% to 38%.

The increasing importance attached to R&D by European car manufactures is shown by the rising share of the motor industry in R&D expenditures of total manufacturing. Between 1995 and 2000 this share increased by 20 %

to reach around 19 % of the total manufacturing R&D. This level exceeded comparable figures of the US (~15 %) and Japan (~13 %).

It is against this background of changes and challenges that the automotive industry in the EA has evolved. The next sections present a brief characterization of the industry in the countries where the EA regions are located.

2.3. The Automotive Industry in the Euratlantic Area Countries

The most distinctive characteristics of the auto industry in the EA countries can be summarized as follows.

2.3.1. Portugal

The automotive industry in Portugal can be described as a successful case study and is a good example of the Portuguese industrial capabilities and potential.

The existence of the automotive industry in Portugal dates back to the ninety sixties and has become the main Portuguese export sector with an annual turnover of 6.3 billion Euros (3.8 billion of which from the for component sector).

The favourable business environment that can be found in Portugal, together with the country's communications infrastructure and strategic geographic position, form a prime investment location for OEM and for component manufacturing units.

The importance of the automobile industry in the Portuguese's economy (2004) is shown in table 1:

Table 1

Indicator	*Value (%)*
Weight in the GDP	1,85
Assembly	0,51
Components	1,34
Weight in exports	23
Assembly	13
Components	10
Employment (in total manufacturing industry)	4,1
Assembly	0,8
Components	3,3

Source: AIMA/AFIA

The industry generates more than 6.6 billion Euros a year (including 4.1 billion in components) and in 2002 employed more than 45.000 workers in about 160 companies.

As far as the main export markets of the Portuguese automotive industry are concerned, table 2 shows the number of firms and the corresponding export country as well as the percentage weight of total business.

Table 2

Export market destinations (2004)

Country	N. º of firms	% Exports
Germany	64	35
Spain	59	21
France	55	20
United Kingdom	35	9
Central and Eastern Europe	30	4
USA	12	3
Belgium	9	2
Sweden	15	2
Austria	8	1
Italy	10	1
Others	18	2
TOTAL		**100**

(*) Slovakia, Slovenia, Hungry, Poland, Check Republic, Turkey

Source: AIMA/AFIA

Original Equipment Manufacturers

The main OEM's operating in Portugal are VW, Mitsubishi, Opel, Toyota, Citroen that produce more than 250,000 vehicles in 2002 (table 3). More than 96% of the OEM's total production is exported.

Table 3

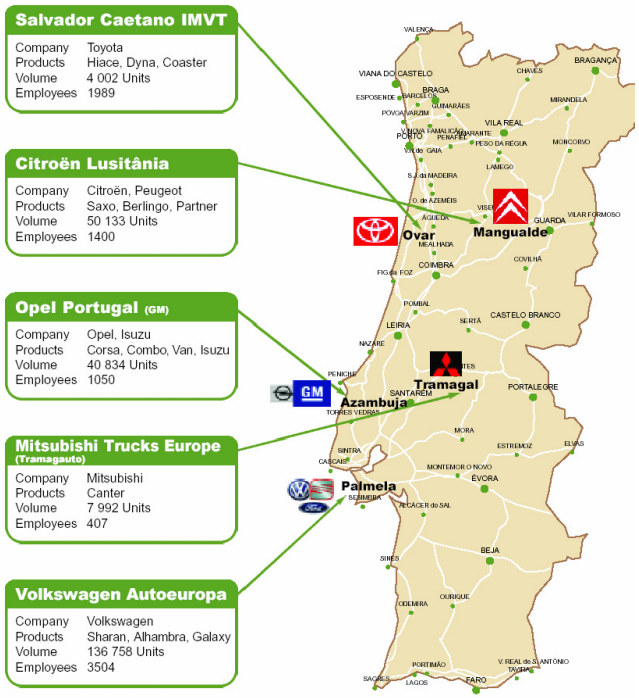
Production unit	Car model	Production	Share (%)
VW – AutoEuropa	Galaxy; Sharan; Alhambra	130.007	51.8
Citroën Lusitânia	Saxo	50.961	20.3
GM Portugal	Corsa	57.589	22.9
Mitsubishi Trucks	Canter	8.690	3.5
Toyota-Salvador Caetano	Hiace; Dyna	3.587	1.5
TOTAL		**250.832**	**100**

Source: ACAP/AIMA

As it can be seen, VW – Auto Europa plant represents more than 50% of the total production. It also contributes for 2% of the Portuguese GDP and 11% for the country's exports.

The geo location of the main manufacturers in Portugal is shown in the map below (figure 7):

Figure 7



Source: AIP

Auto Components Industry

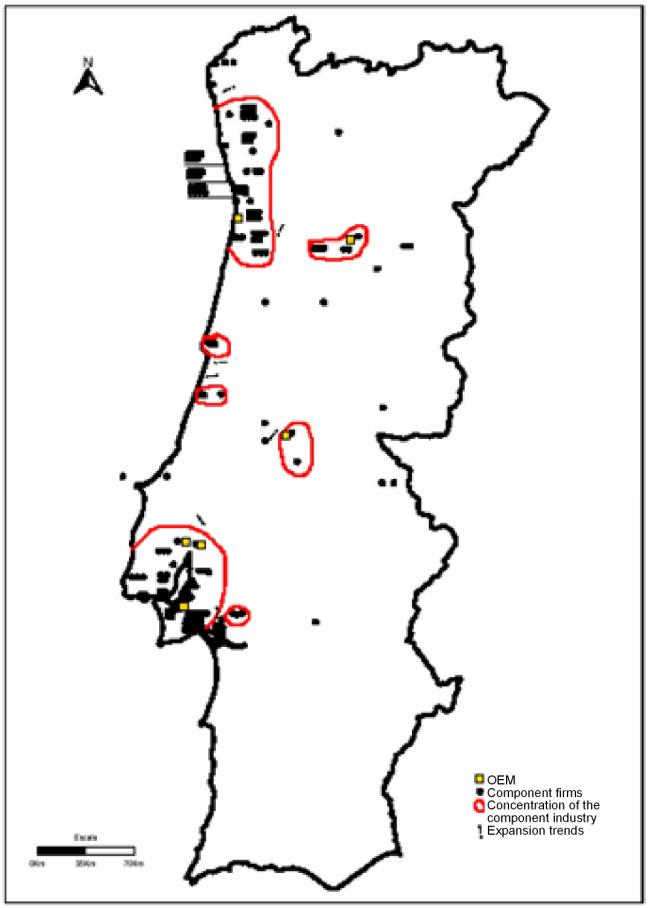
The importance of the component sector in Portugal has grown in recent years.

This sector generated a turnover of 4.153M€ in 2004, exports amounted to 2.658M€ (10% of the country's total) and employed (AFIA, 2004), more than 38 000 workers (3.4% of total employment in the manufacturing industry).

To complement the existing technical capabilities of the 180 companies feeding the assembling lines with a wide range of components, more than 7 million Euros are being invested in a program aimed at developing further the automotive cluster in Portugal.

The geographic distribution of the component companies in Portugal is not homogeneous. In fact there is a significant concentration of these companies along the coast, from Viana do Castelo in the North up to the Setúbal Peninsula in the South (figure 8).

Figure 8

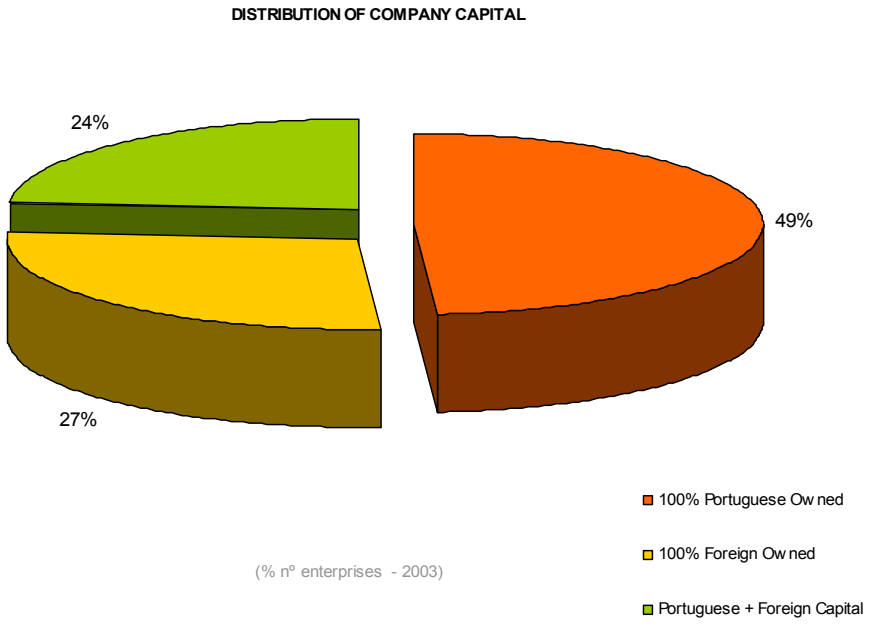


Adaptado de: Vale (1999:323).

Source: O cluster automovel em Portugal, documento de trabalho, Ministério das Finanças, Dep. De prospectiva e planeamento, 2002

Additionally, the firms that operate in the industry can be grouped according to the type of capital ownership as it is shown in the figure 9.

Figure 9



Source: AFIA

The main areas of automotive production in Portugal include electronics, die castings, plastic part s, seats, and climate control systems.

Investment in the automotive component industry continues to attract a large number of investors and is strongly supported both by the government of Portugal and European Union funds under the Community Support Framework for 2000-2006.

In this context, foreign direct investment has played an important role in the location of the assembly plants and of many component companies that operate in Portugal (table 4 show the main foreign investments made in the automotive industry between 1988 and 2002).

Most of the main world component suppliers operate in Portugal (Visteon, Delphi Automotive systems, Robert Bosch, Faurecia, Lear and Johnson

Controls). The industry offers an ideal setting for small batch production lines that have specific technical requirements, in a fast turnaround time.

Table 4

Main foreign investments into Automotive Sector (1988/2002)

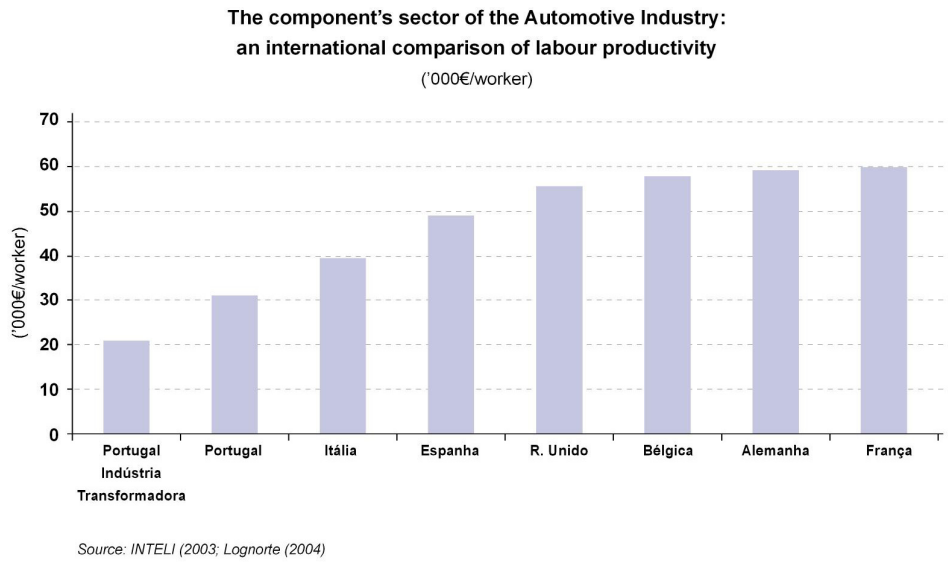
Empresa	Produtos	Data	Investimento Total (M€)	Postos de Trabalho
Yazaki Saltano	Cablagens	1988	9,98	2300
Ford Electrónica	Sistemas áudio, airbags, alarmes	1989	111,23	1700
Delphi (ex-Delco Remi)	Sistemas de ignição	1989	46,89	551
Continental Mabor	Pneus e câmaras de ar	1990	132,68	791
Mahle (ex-Cofapeuropa)	Segmentos	1990	94,77	935
AutoEuropa	Unidades de montagem	1991	1924,86	46,71
Sommer Alibert	Peças plásticas	1993	53,37	666
Ford Electrónica II	Compressores de ar	1995	171,59	130
Opel Portugal	Modernização	1996	72,33	1066
Halla Climate Control	n.d.	1997	35,91	144
Lear Corporation Portugal	Interiores/assentos	1998	38,41	1700
Delphi (ex-Delco Remi) II	n.d.	1998	26,44	691
Lear Corporation Port. II	Interiores/assentos	1998	39,41	2947
Continental Mabor II	Pneus e câmaras de ar	1999	78,31	1021
Opel Portugal II	Modernização	2000	132,18	1191
Faurecia	Interiores/assentos	2001	16,96	350
Coficab	Cablagens	2002	n.d.	n.d.
Globe Motors	Motores eléctricos	2002	n.d.	n.d.
Grundig Auto radios	Electrónica de consumo	2002	n.d.	n.d.

Source: CISEP/ICEP; Ernst & Young

Source: CISEP/ICEP; Ernest & Young

In terms of productivity, the figures for the component sector for the automotive industry in Portugal are above those of the national manufacturing industry but still below other EU countries (figure 10 show an international comparison of M€/worker for this sector between various EU countries, 2001).

Figure 10



Source: INTELI (2003); Lognorte (2004)

Research and Development

The automotive sector benefits from several important ongoing R&D initiatives and specific sector supporting programs. Two of the main important ones are listed below.

The Centre for Excellence and Innovation in the auto industry (CEIIA) was created to support the development of technical know-how and of strategic competencies of companies operating in the sector, to identify potential business and to provide technological and financial synergies amongst the industry players.

The INAUTO initiative, a specific program within CEEIA, was created to promote cohesive practices and measures between Public Policy and the industry. Under the INAUTO program, over 7 million euros are being invested in developing the technological, research and organization capabilities for a state-of-the-art automotive cluster in Portugal.

As far as labour qualifications are concerned there are a total of 18 higher education institutions, R&D laboratories and technological centres that offer courses and programs directly related to the automotive industry. In terms of higher education these courses comprise a total of 31 graduate courses, 34 Master's degree courses and 11 PhD degree programs.

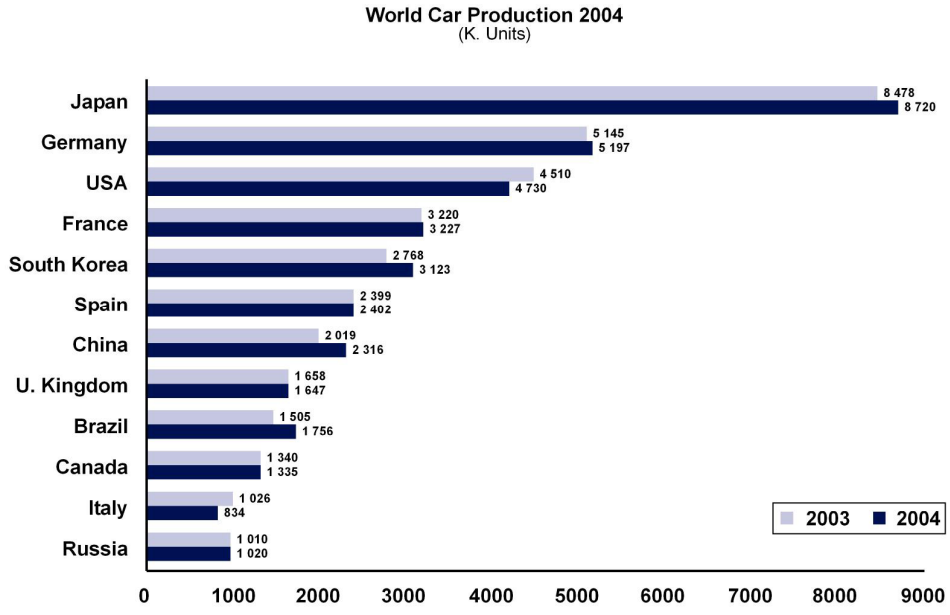
2.3.2. Spain

Spain's economy depends on the automotive industry to a greater extent than most European countries. In terms of its industrial structure, this sector is a fundamental economic pillar.

In 2003 its share of Spain's GDP was 5.8%, direct and indirect employment represented 10.5% of the total labour force and the percentage of the automotive industry in total exports, 23.6% (more than 80% of the local production is sold in foreign markets).

Spain is the world's sixth largest car manufacturer (Figure 11) and the EU's third, behind Germany and France and ahead of the U.K. and Italy.

Figure 11



Source: OICA

Table 5 presents the general indicators for the case of the automotive industry in Spain:

Table 5

Automotive sector
2003

		Spain
Production of vehicles	Number of units (millions)	3,0
Passengers		2,4
Industrial vehicles		0,6
Vehicles registered		1,7
Passengers		1,4
Industrial vehicles		0,3
Exports		2,5
Passengers		2,0
Industrial vehicles		0,5
Total fleet		23,7
Passengers		19,3
Industrial vehicles		4,4
Investment		1 519
Turnover	millions €	43 183
Direct + indirect employment		2 000,0
Vehicle production	'000	71,0
Production of components and other equipment		324,1
Tax revenues - automative sector	millions €	23 657

Source: ANFAC

Source: ANFAC

Output in 2004 was in excess of 3 million motor vehicle (2,4 million car vehicles) and exports represented 82,4% of total production (figure 12).

Figure 12

SPAIN: Production detailed by type

	2004	***% 04/03***
Passenger cars	2 402 501	0,13
4wd (Jeep type)	46 240	-6,37
Light commercials	355 098	-13,37
Vans	134 908	25,95
Light trucks	49 450	19,76
Heavy trucks	14 736	5,73
Truck tractors	7 806	6,96
Buses & coaches	1 435	-4,46
Total industrial vehicles	**563 433**	**-3,03**
Total vehicles	**3 012 174**	**-0,58**

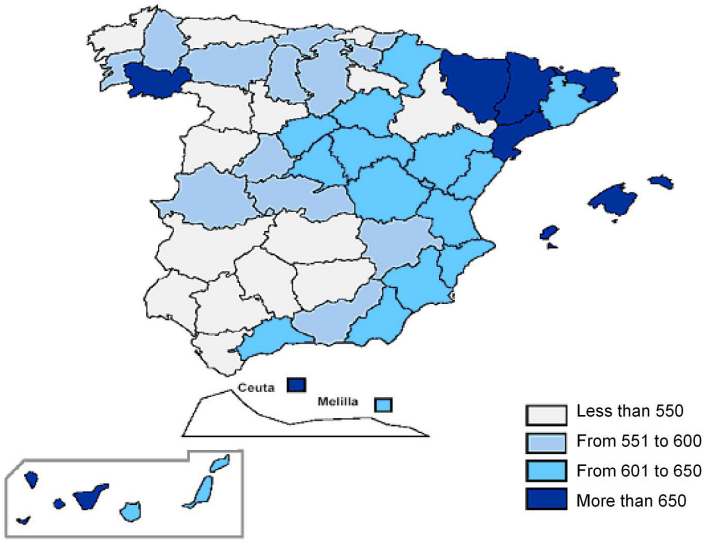
Source: ANFAC/IEA

Map below (figure 13) shows the number of vehicles per 1000 inhabitants in the different Spanish regions:

Figure 13

Vehicles per 1000 inhabitants Year 2003

(Regional level)



Source: MITC

Original Equipment Manufacturers

Vehicle production is carried out by well-known international groups such as Renault, Ford, Opel, Mercedes Benz, Peugeot-Citroën, Volkswagen and Nissan.

Table 6 shows the evolution of the number of total passenger car production by make since 2001:

Table 6

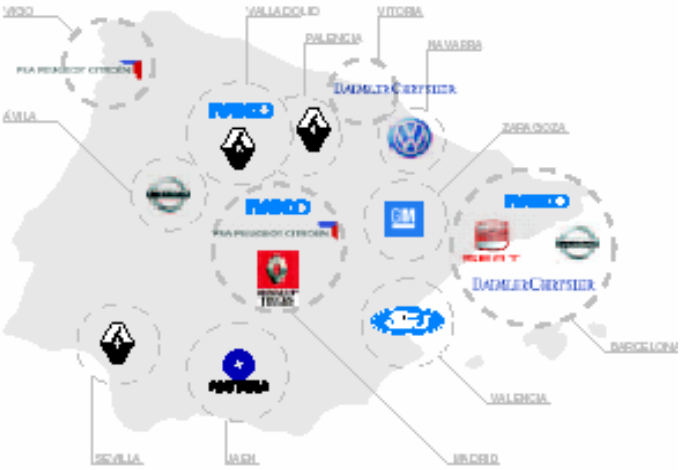
OEM's	*2001*	*2002*	*2003*	*% 03/02*
Renault	443 902	455 361	509 848	12,0
Ford	318 423	373 589	384 324	2,9
Opel	361 833	369 551	459 500	24,3
Mercedes Benz	11 685	8 718	6 737	-22,7
Peugeot Citroen Automóviles España	363 803	362 751	359 301	-1,0
Modelos Citroen	300 576	356 453	359 301	0,8
Modelos Peugeot	63 227	6 298	0	-100,0
Seat	387 853	407 917	406 052	-0,5
Volkswagen	272 407	258 723	244 044	-5,7
Nissan	51 266	30 292	29 568	-2,4
Total	2 211 172	2 266 902	2 399 374	5,8

This data correspond to a manufacturers production, regardless of the production center/plant
Peugeot Citroen Automóviles España, produces vehicles for Citroen and Peugeot
Source: ANFAC+EA

Source: ANFAC/EA

The geo location of the main manufacturers operating in Spain is shown in the map below (figure 14):

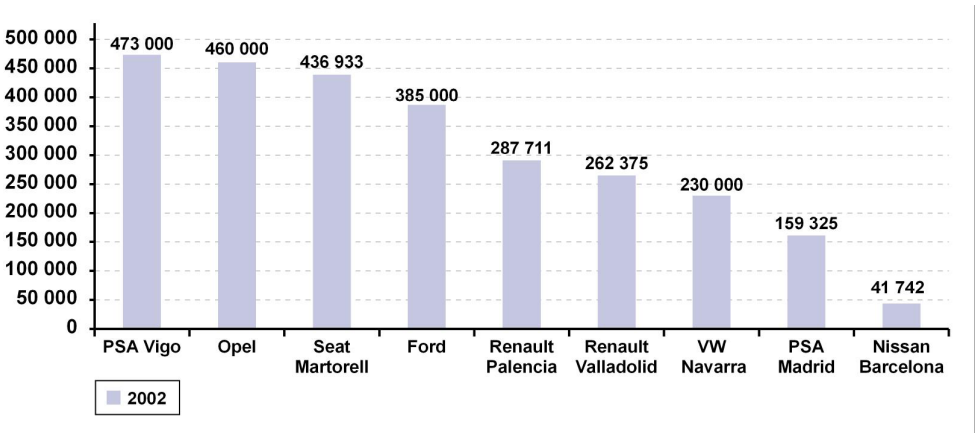
Figure 14



Source: ANFAC

Table 7 shows the number of units produced in 2002 per main manufacturer.

Table 7

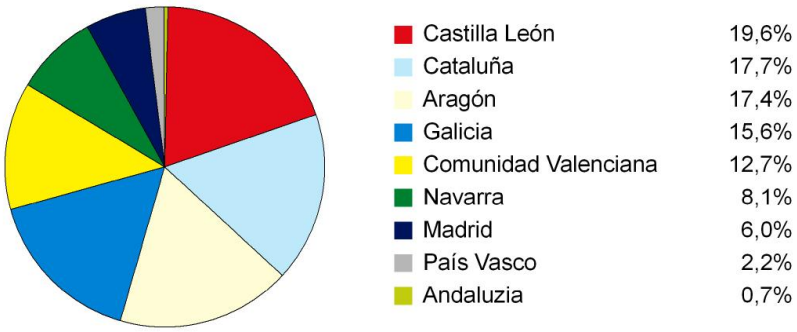


Source: ANFAC

The map below (figure 15) presents the regional distribution of total vehicle production in 2003. It shows that more than 35% of the vehicles produced were in the three regions of the EA.

Figure 15

Vehicle Production - Comunidad Autonomas
(% 2003)



Source: ANFAC

Auto Components Industry

This solid manufacturing industry has been accompanied by a strong spare parts and components industry made up of more than 900 companies and employing 250,000 workers. Investment in this sector in 2002 amounted to 1,300 million Euros (5.3% of the total turnover) and it is estimated it contributes for nearly 60% of the total added value of the automotive industry.

The component and parts manufacturers comprise two main groups: those companies that supply the OEMs and those which main activity is the spare market. Larger manufacturers compose the former, have greater capacity for technological innovations and the majority belongs to multinational groups. The latter are smaller sized firms that produce semi-manufacturing components.

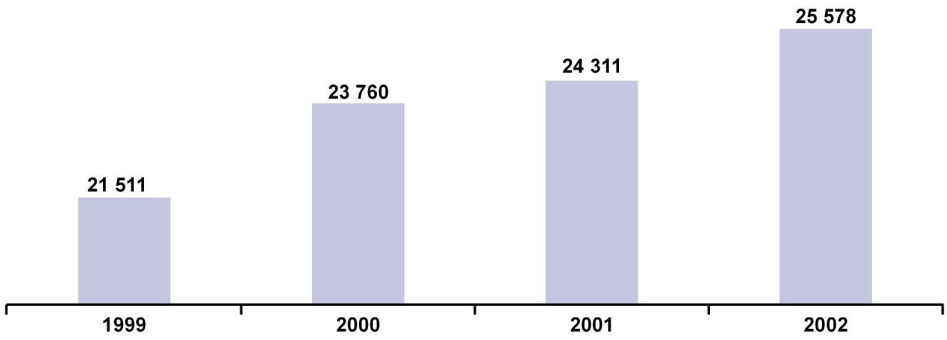
The main products manufactured by these accompanies are bodywork and engine equipments, chassis equipment and pneumatics and tires.

This sector has also been strong in terms of R&D. There are more than 30 Technological Centres with capacity to undertake R&D for the automotive sector in Spain and in 2002 investment in this industry (constructors and suppliers) in technological innovation were €1783 millions, more than 16% of the national total.

Half of the components turnover is sold abroad, although imports of engines, chassis and plugs are basic supplies for the local auto producers.

The Spanish automotive equipment and parts industry had a turnover of 25,578 million euros in 2002 (figure 16), up 3.60% from the previous year (table below). Exports comprised 51% of total sales with a total of 12,933 million euros.

Figure 16



Turnover of the parts industry in Spain since 1999

Source: SERNAUTO

Year	Increase
2002	3,60
2001	2,32
2000	10,25
1999	9,20

Source: SERNAUTO

There have been important changes in the industry's business organization as 60% of the companies in 1996 were 100% Spanish capital owned compared to less than 30% in 2000.

Research and Development

The national R&D network comprises Technology Parks, Technological Centres and Offices for the Transfer of research results to the Industry (OTRI's).

Figure 17 shows the geographic location of the existing and future technological parks in Spain:

Figure 17

Source: MITC

Spain is the second country in the European Union in the number of students in university education as a percentage of total population. There are 69 universities, which provide higher education, as well as 140 schools of engineering offering technical studies. During the 2002/2003 School year, a total of 1.488.161 university students were enrolled in Spanish universities.

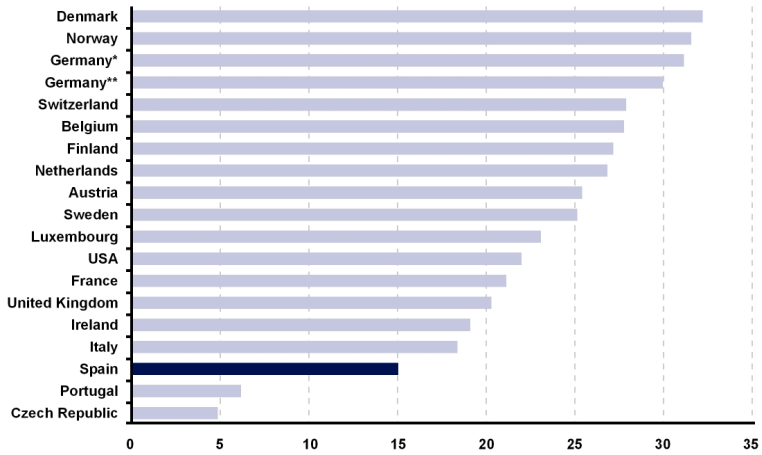
Operational Costs

From a potential foreign investor's viewpoint, data on key operational costs constitute crucial information.

Table 8 shows a comparison of hourly labour costs in the manufacturing industry between several EU countries (2003).

Table 8

Hourly labor cost in manufacturing 2003
(US dollars)



Source: US Department of Labour. Bureau of Labor Statistics.
** Germany: former west; **Germany: rest*

Source: MITC

The labour framework that prevails in Spain is detailed in annex 3. There has been underlining concern in the last decade for introducing greater flexibility in the labour market. This annex shows the different types of contracts available as well as the existing regulation on working hours.

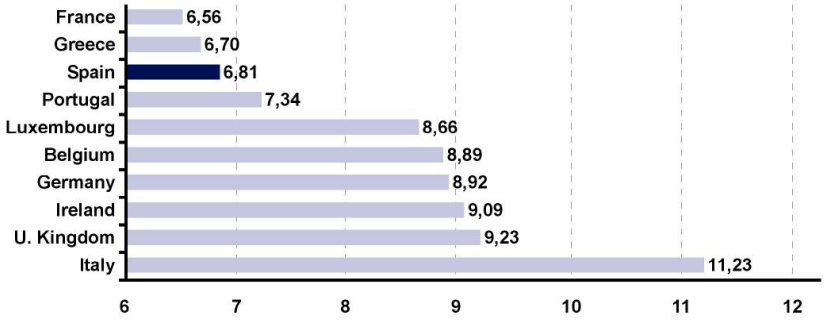
Annex 4 summarizes the main characteristics of the Spanish regime for corporate income tax.

Table 9 presents an international comparison of electricity costs for a medium industry in several EU countries.

Table 9

Comparison of electricity costs for a medium industry (*) in several EU countries

(January 2003 - Euros per 100 Kw/h) (**)



** Installed power: 500 Kw; Annual consumption: 3 500 Mw/h*
*** Taxes included (except VAT)*
Source: UNESA

Source: UNESA

As far as gas prices are concerned, the liberalization process in the sector was completed by January 1, 2003, and since then all consumers are able to freely choose their own supplier.

Finally, it is important to point out that there are a number of investment grants and incentives – both at the EU level and at national and regional levels. These incentives are described in detail in annex 5.

The following section is a summary of the main characteristics of the Spanish automotive industry in the regions that comprise the EA area of this study.

2.3.3. France

The automotive sector is a key driver of the economy and has undergone major changes.

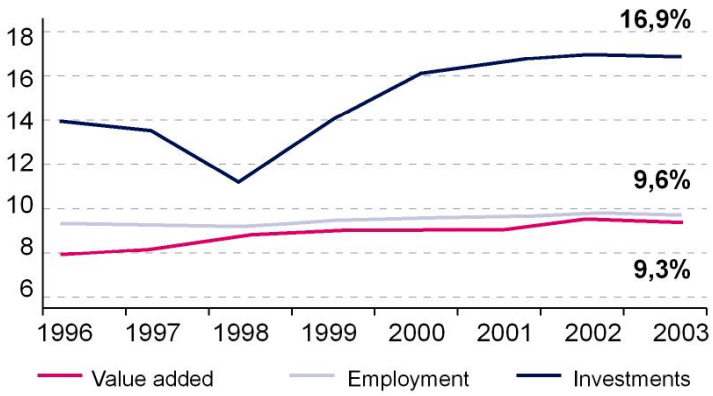
In 2004 the automotive industrial production generated a turnover of 98 billion million euros, an increase of 77% in relation to 1996 and the value added represented 17% of this production. The overall automotive sector employed nearly 2,5 million people – 10% of total employment – and direct employment approximately 300 000 people. In terms of automobile production only, it is estimated that there were approximately 183 000 people employed in 2004, which corresponded to 20 vehicles produced/person employed.

In 2003 the automotive industry has contributed more than 9% to the total value added of the manufacturing and energy industry, and represented almost 17% of the latter's industry corporate investment.

The graph below (figure 18) show the relative importance of the automotive industry in the overall manufacturing and energy industry in terms of value added, employment and investments:

Figure 18

The weight of the automative industry in total manufacturing and energy industries



Source: AFIA

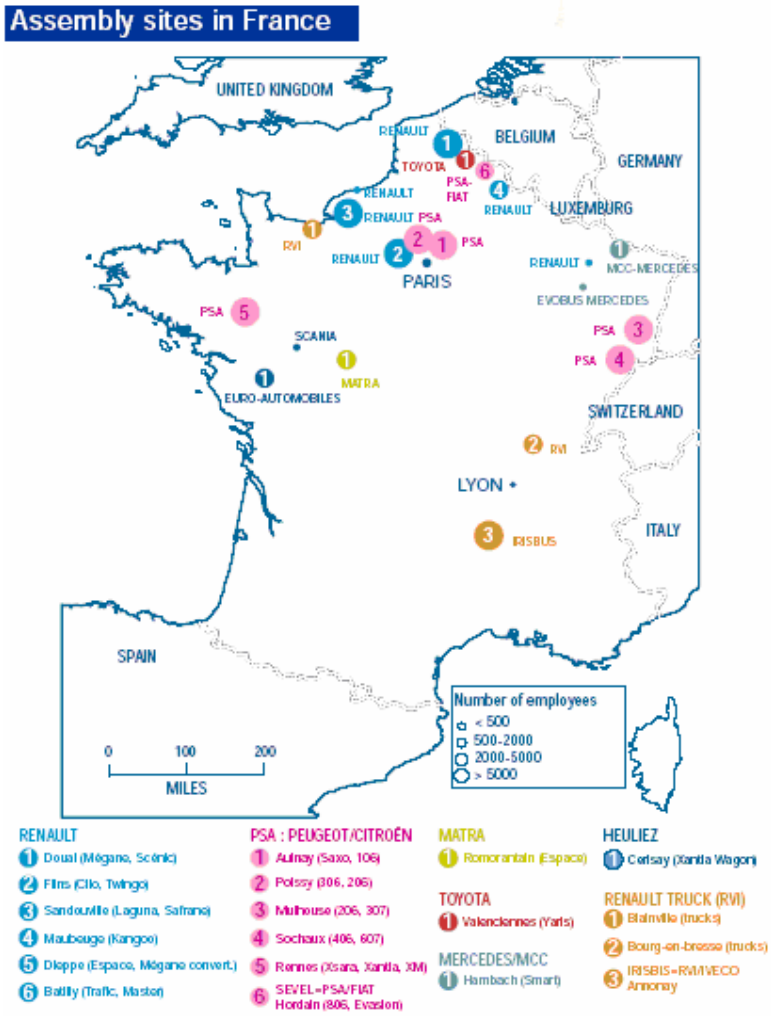
World production by French manufacturers has increased 3.3% in 2004 to a total of nearly 6 million vehicles and vehicle production by French manufacturers in France amounted to 3.293 million. Exports accounted for 61% of vehicle production in 2004 compared with 38% in 1990.

Original Equipment Manufacturers

No less than 13 car manufacturers are present in France in 21 assembly plants producing 21 private vehicle models, 6 commercial models and 7 bus and heavy-duty truck types.

The map below (figure 19) shows the geo location of the assembly sites in France:

Figure 19



Source: IFA

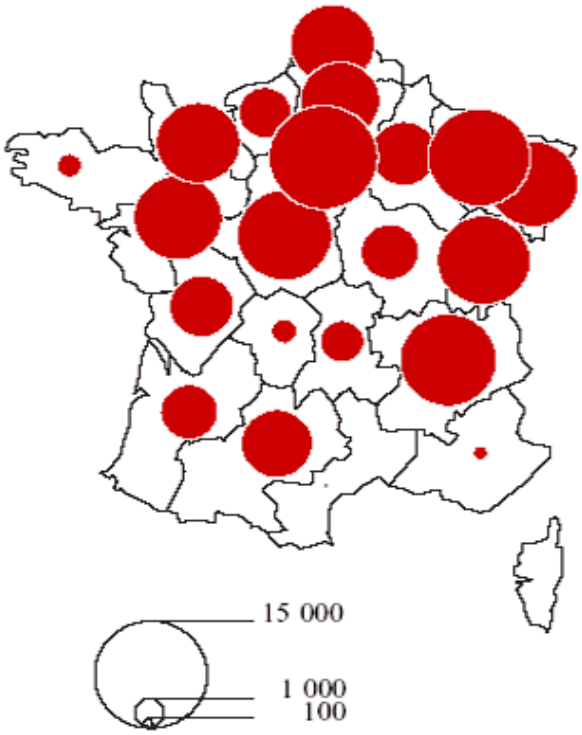
PSA and Renault account for nearly two thirds of the domestic market, with 31% and 28.2% market share respectively.

Additionally, the establishment of assembly plants by Mercedes-Swatch and Toyota in Valenciennes (Nord-Pas-de-Calais) has meant that between 1999 and 2004 the share of foreign manufacturers in French territory has increased from 3.9% to 10,5% (INSEE, nº 1036, October 2005).

Auto Components Industry

All major world component companies are located in the French territory. The automotive suppliers sector employs nearly 134,000 people in 590 sites. Their combined turnover is close to 25 billion euros, 20% of the revenue generated by the automotive industry as a whole. With 42% of their production exported, the suppliers are very focused on the international market. Their geographic location is represented in the map below (figure 20):

Figure 20 - The component industry in France

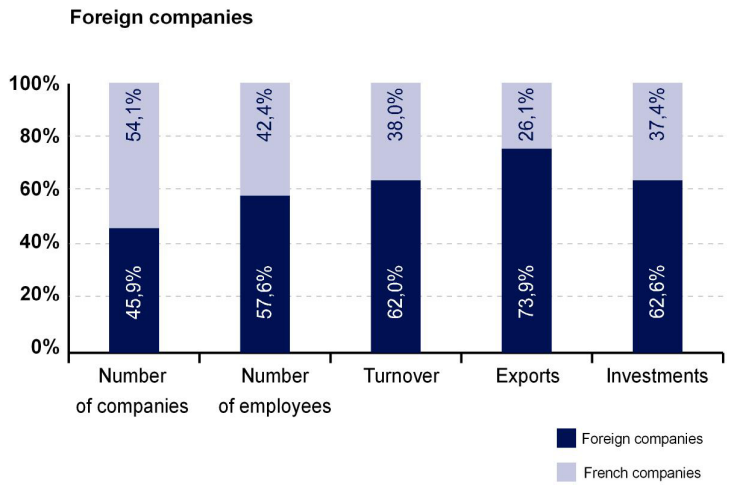


Source:SESSI - Enquête annuelle d'Entreprise, 2001

Most of the world's major components manufacturers have operations in France. French subsidiaries of foreign groups represent two thirds of the sector's turnover, and nearly one quarter of its exports.

In the French automotive component's industry, one employee in four works for a US-owned company (figure 21) German parts manufacturers make up the second largest group and produce more than 20% of the sector's overall exports.

Figure 21



Source: SESSI – EAE

Research and Development

In France more than 4€ million are allocated to R&D in the automotive sector. In 2003, there were more 1 104 patents registered in this sector and more than 10 000 researchers in 7500 private research centres. The main public laboratories in the automotive sector are:

- Laboratoire Central des Ponts et Chaussées
- Institut National de Recherche sur les Transports et leur Sécurité
- Institut Français du Pétrole
- Institut National de Recherche en Informatique et en Automatique

Innovation is a key factor of success in the automotive industry. Some of the major challenges include: improving safety, comfort, fuel economy and

quality while lowering costs and lead-times, as well as refining manufacturing processes.

The two major R&D powerhouses are the following:

- **PSA**: over 300 patents registered each year and 70 research projects in various automotive-related areas. R&D investments amount to 1.39 billion euros.
- **Renault:** approximately 2 billion euros devoted to R&D, i.e. 5.1% of turnover. The partnership with Nissan will lead to the creation of eight shared platforms by 2005. Research is underway on lighter vehicles, engines and powertrain units, hybrid vehicles, collision avoidance, interactive safety, manufacturing processes, etc.

The major research programs are as follows:

- **RNIT** (Research and Technological Innovation Networks) and **CNRT** (National Centers for Technological Research) promote alliances between government-funded research labs and private companies.
- **PREDIT** (National Land Transport Research and Innovation Program) is among the most active network in the automotive sector. It works in 11 fields and has a budget of 305 million euros for 2002-2006.
- **CRITT** (Centers for Research and Technology Transfer) has over 200 sites, which support small and medium-size companies in their research activities.

The major public research laboratories are as follows:

- **IFP** (French Petroleum Institute): 12,000 patents, 200 researchers, and a turnover of 35 million euros.
- **INRETS** (National Institute for Research on Transportation and, Safety): over twenty research projects under way, 17 research units.
- **AEC** (Atomic Energy Commission): 2000 people, employed by the Technological Research Division, work on applied research for

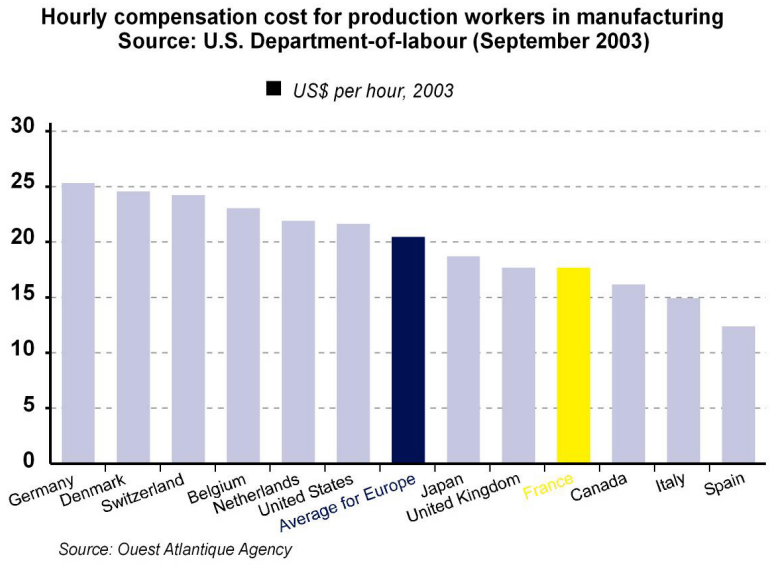
industry and on technology transfer, in particular in the automotive sector (material, information technology, telemetric, new energy sources).

- **CNRS** (National Centre for Scientific Research): 1,300 fundamental research laboratories.
- **INRIA** (National Institute for Research in IT and Automation): 750 people, 600 R&D contracts with the industry.
- **LCPC** (Laboratoire Central des Ponts et Chaussées): 200 research engineers focusing on civil engineering, transportation, urban engineering, and the environment.

Operational Costs

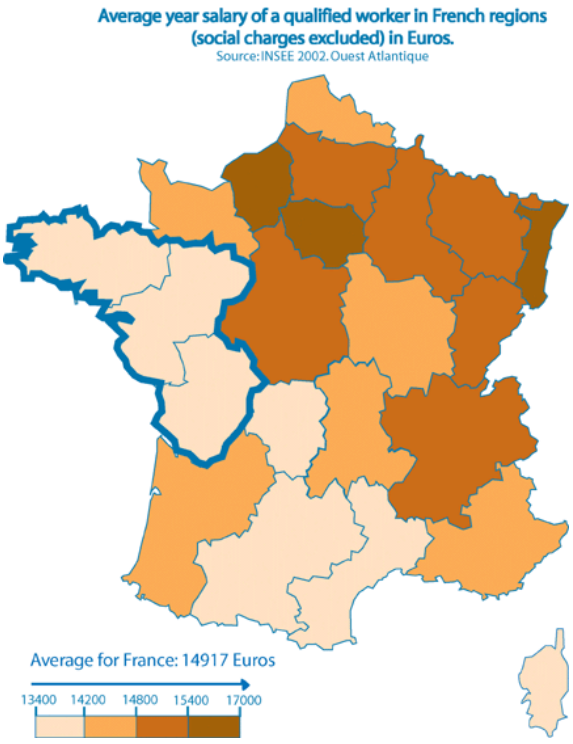
From the point of view of a potential foreign investor, the knowledge of existing costs in the native county constitutes a major factor. Tables below show the relative positioning of France in terms of production labour costs in manufacturing, average salary of a qualified worker, costs of office and industrial property rentals, electricity costs and fixed telephone charges.

Figure 22



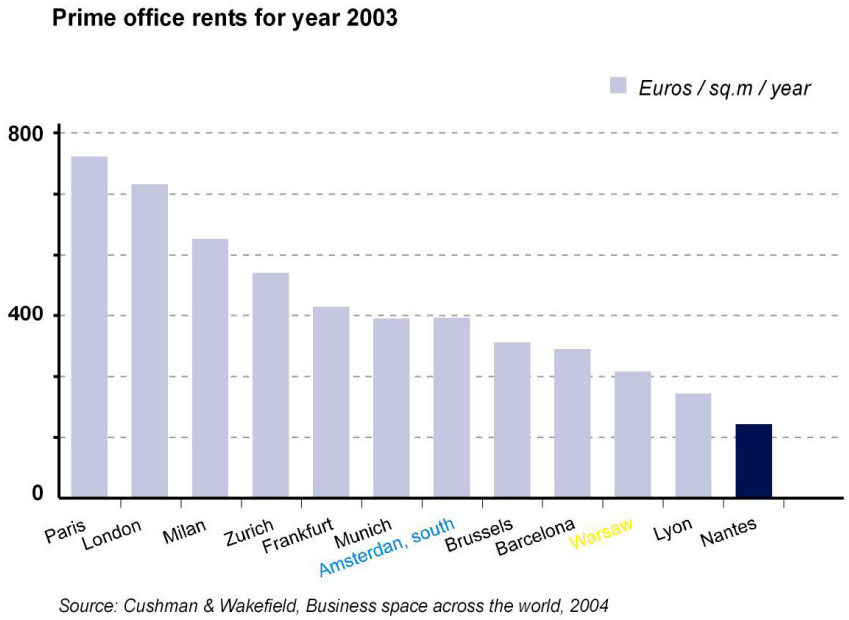
Source: ANFAC

Figure 23



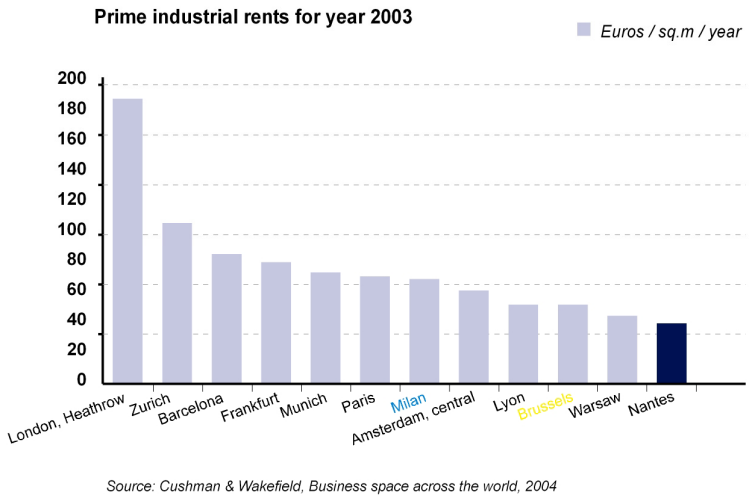
Source: ANFAC

Figure 24



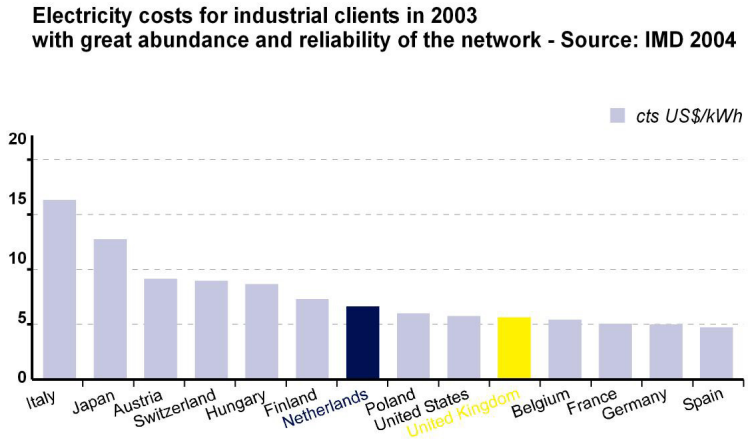
Source: ANFAC

Figure 25



Source: ANFAC

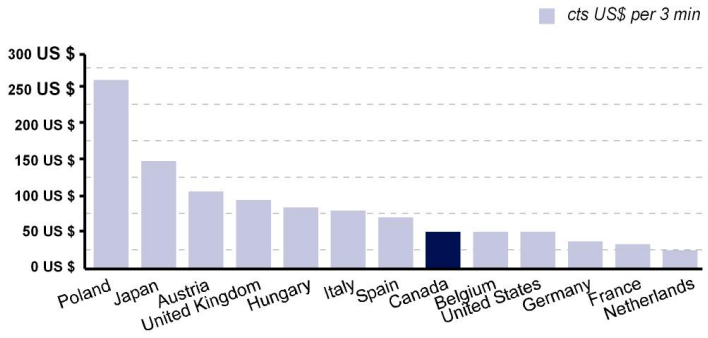
Figure 26



Source: ANFAC

Figure 27

International fixed telephone costs
(in peak hours to USA, 2003), Source: IMD 2004



Source: ANFAC

CHAPTER 3

The Automotive Industry in the Euratlantic Area Regions

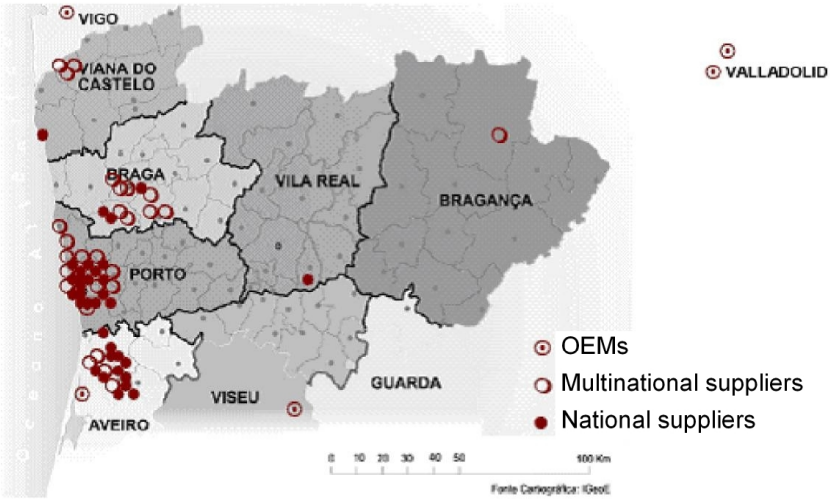
3.1. Portuguese regions

3.1.1. Norte

The structure of the automotive industry in the North of Portugal comprises one OEM and 69 suppliers (map below (figure 28) shows the geographical location, 2003):

Figure 28

Territorial Distribution - The Automotive sector in the north of Portugal



Source: Cartography: IGeo

Table 10 shows the relative importance of this region's automotive sector in Portugal.

Table 10

The Automotive sector in the north of Portugal: Main indicators

Type of data	North	Portugal
Number of OEM's	1 (2003)	5 (2003)
Vehicle production	2 336 (2003)	238 361 (2003)
Exports	2 266 (2003)	230 949 (2003)
Number of suppliers	69 (2003)	180 (2003)
Turnover - component sector	>1934 M€ (2003)	4 294 M€ (2003)
Exports - component sector	n.d.	2 834 M€ (2003)
Employment - component sector	>25 096 (2003)	38 000 (2003)

Source: AIMA (2004); AFIA (2004); INTELI (2004); NORTINOV (2004)

Source: AIMA (2004); AFIA (2004); INTELI (2004); NORTINOV (2004)

Original Equipment Manufacturers

In the Northern Region of Portugal there is only one small size OEM – Salvador Caetano. Total production in 2002 amounted to 3587 vehicles. It has two main assembly lines. One is located in Ovar where Toyota commercial vehicles and minibuses are assembled. This unit employs 380 workers. The plant in Gaia produces buses.

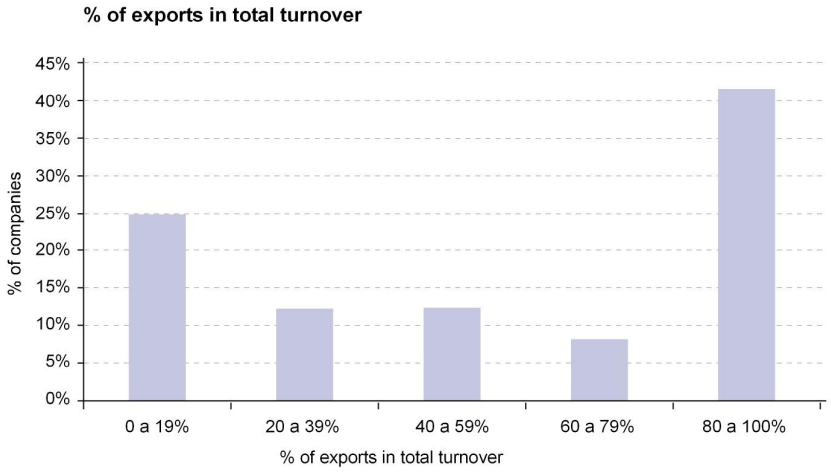
Auto Components Industry

The number of component firms operating in the North of Portugal represents approximately 38% of this sector's total number in Portugal and generates more than 2M€. Total employment exceeds 25 000 workers.

The size of the component firms is heterogeneous. In fact, 24% of the companies have a turnover between 5.000.000€ and 10.000.000€ and nearly 17% show a turnover of less than 5.000.000€. On the other hand 36% of the companies employ between 100 and 250 workers and 20%, between 250 and 500 workers.

Figure 29 shows that 42% of the component companies of this region export 80% to 100% of their total business output and that 25% only exports up to 19% of their total production.

Figure 29



Source: AFIA

As far as capital ownership is concerned it can be observed that 40% of these firms is 100% foreign owned.

Table 11 shows the distribution of the component firms in this region according to the type of capital ownership and the volume of turnover. It can be seen that 80% of firms with a turnover of more than 100M€ are foreign owned.

Table 11

Turnover vs. Capital origin

Facturação	% of foreign capital owned companies
< 5 000 000€	12,5%
< 5 00 001€ - 10 000 000€	41,7%
10 000 001€ - 25 000 000€	36,4%
25 000 001€ - 50 000 000€	55,6%
50 000 001€ - 100 000 000€	75%
>100 000 001€	80%

Source: AFIA

Research and Development

There are 18 R&D Institutions associated with the automotive sector, namely:

- 12 Higher Education Institutions with degrees related with this industry: Universidade do Minho (5), Universidade do Porto (4), Universidade de Trás-os-Montes e Alto Douro (1), Instituto Superior de Engenharia do Porto (2)
- 2 Interface centres: Instituto de Engenharia Mecânica e Gestão Industrial (INEGI), Instituto de Engenharia Mecânica (IDMEC - FEUP)
- 2 Technological Centres: Centro de Apoio Tecnológico à Indústria Metalomecânica (CATIM), Centro Tecnológico das Indústrias Têxtil e do Vestuário de Portugal (CITEVE)

3.1.2. Centro

Original Equipment Manufacturers

There are two main OEMs operating in this region: Citroen Lusitania e MTE - Mitsubishi Trucks Europe.

The main characteristics of each of these two OEM´s can be summarized as follows:

- PSA – Citroën Lusitânia
  - Production (2002): 50.960
  - Production capacity (2002): 60.000 vehicles/year. Capacity used: 83%
  - Exports: 97% of total production
  - Total employment: 1.340
  - Investments made: 100 M€ between 1994 and 1998; 130 M€ between 1999 and 2001; 2.7 M€ in 2003

- Mitsubishi Trucks Europe
  - Production (2002): 8.690
  - Production capacity (2002): 10.000 vehicles/year. Capacity used: 87%
  - Exports: 47% of total production
  - Total employment: 370 (60 more after the new investmen)
  - Investments made: 75 M€

Auto Components Industry

This region specializes in moulds and plastic components (INTELI, 2003). There are more than 74 component companies operating in this region, which represent 41% of the total number that exist in Portugal as a whole.

Research and Development

There are the following three Higher Education Institutions in this region with expertise in the automotive industry:

- University of Aveiro
- University of Coimbra
- University of Beira Interior

Additionally, there are the following technological centers linked to the auto industry:

- Centre for Technological Mechanics and Automation – Centro de Tecnologia Mecânica e Automação (CTMA)
- Science and Aero spatial Technologies Center – Centro de Ciência e Tecnologias Aeroespaciais (CCTA)
- Technological center for the Moulds industry and Plastics – Centro Tecnológico da Indústria de Moldes, Ferramentas Especiais e Plásticos (CENTIMFE)
- Ceramic and Glass Technological Center – Centro Tecnológico da Cerâmica e do Vidro (CTCV)

3.1.3. Alentejo

Original Equipment Manufacturers

There are two main OEMs operating in this region: VW AutoEuropa e Opel Azambuja.

The main characteristics of each of these two OEM´s can be summarized as follows:

- Opel Azambuja
  - Production (2002): 57.600
  - Production capacity (2002): 70.000 vehicles/year. Capacity used: 82%
  - Exports: 94% of total production
  - Total employment: 1.100
  - Investments made: 100 M€ between 1994 and 1998; 130 M€ between 1999 and 2001; 2.7 M€ in 2003

- VW – AutoEuropa
  - Production (2002): 130.000

- Production capacity (2002): (180.000 vehicles/year. Capacity used: 72%
- Exports: 98% of total production
- Total employment: 3.660 direct employment, reaching 6.500 with the industrial park and subcontracted work
- Investments made: Initial Investment, 2.000 M€; recent investments, 150 M€; investments in the short run: 500 M€
- Multiplier effect: 14.1

Auto Components Industry

The Southern Region – mainly the Lisbon and Setúbal areas – is specialized in the production of electric and electronic components (INTELI, 2003).

There are more than 37 component companies operating in this region, which represent 21% of the total number that exist in Portugal as a whole.

Research and Development

In the Alentejo region there are two Universities and two Polytechnics:

- Universidade de Évora
- Universidade Moderna – Pólo de Beja
- Instituto Politécnico de Beja
- Instituto Politécnico de Portalegre

3.2. Spanish regions

3.2.1. Andalucia

Andalucia is one of the seventeen autonomous communities that constitute Spain. Its capital is Seville. Andalucia is bounded on the north by Extremadura and Castille-La Mancha, on the east by Murcia, on the south

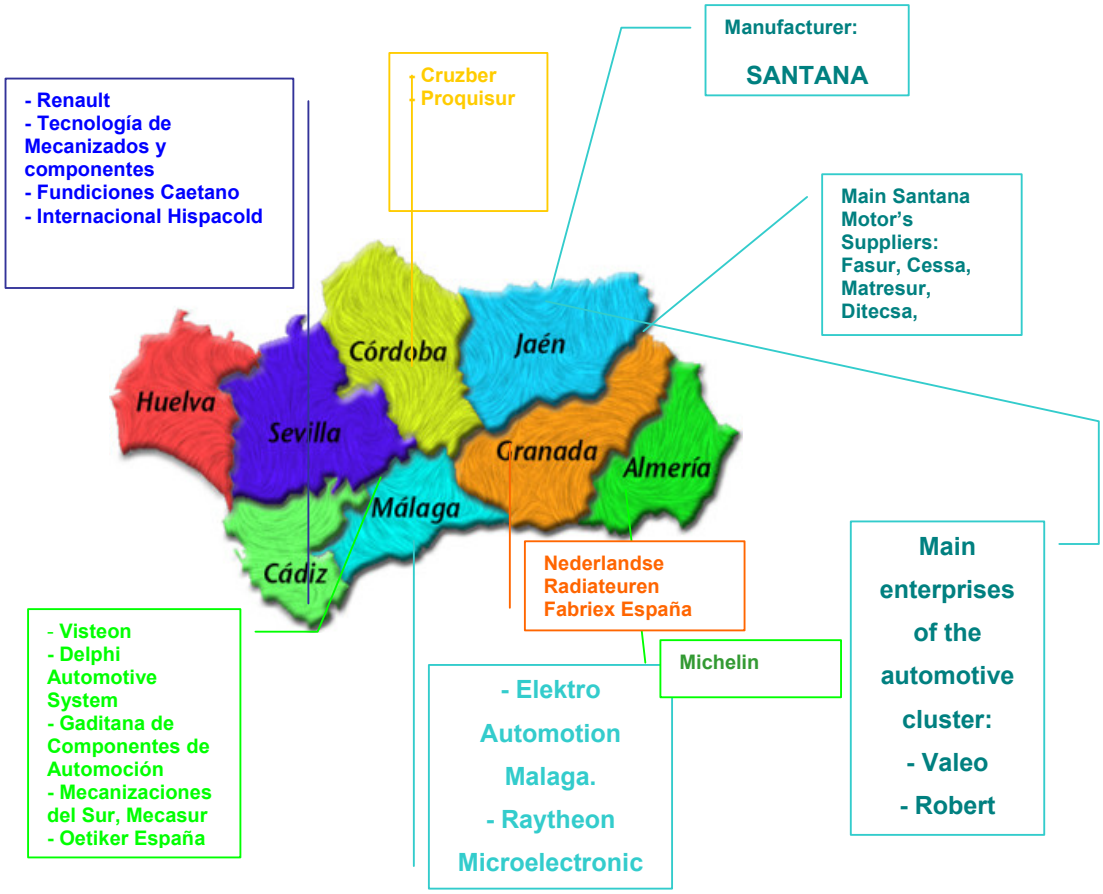
by the Mediterranean Sea, the Atlantic Ocean and Gibraltar, and on the west by Portugal.

It is the second biggest region of Spain in area (87 268 km^2) and is the most populated one (7 478 432 inhabitants in 2003 – almost 18% of Spain's total population). Half of its population live in the 26 cities with more than 50 000 inhabitants. It is divided in 8 administrative provinces: Almería, Cádiz, Córdoba, Granada, Huelva, Jaén, Málaga and Sevilla (capital city). The main cities are Seville (1.200.000 inhabitants), Malaga (900.000 inhabitants), Cádiz (620.000 inhabitants) and Granada (400.000 inhabitants).

The structure of the automotive industry comprises one major manufacturer, five major 1st tier suppliers and a number of component and parts suppliers.

The territorial location of these companies is shown in the map below (figure 30):

Figure 30



Source: andaluciajunta.es

Original Equipment Manufacturers

One main manufacturer, SANTANA MOTOR, dominates the automotive industry. It is located in the province of Jaen and is the only company in the sector that has 100% Spanish capital. The main types of vehicles produced by this company are the Vitara, Suzuki, Jimny and Anibal (lauched in 2003).

Santana Motor employs a total of 600 direct labour and there are nearly 3300 indirect labour employed in the auxiliary industry. It considers itself as

the largest worldwide specialist in the production of work, adventure and leisure vehicles. Its production in 2003 was more than 22 000 vehicles.

The main performance indicators are shown in the table below:

Table 12

Activity	*Type of vehicle*	*Nº of lines*	*Number of vehicles*	
			Day	*Shift*
Painting	All		300	
Welding line	Vitara	3		60
	Jimny			60
	Anibal			40
Assembly line	Vitara	3		60
	Jimny			40
	Anibal			40

Source: andaluciajunta.es

Auto Components Industry

The automotive supplier sector constitutes the third biggest cluster in the region. It comprises 100 companies, employs around 3 500 people and has a turnover of 800 million euros.

There is Tier 1 suppliers such as Valeo, Robert Bosch, Grupo Antolín, Gestamp, and other small and medium sized enterprises.

It is also important to note the existence of specialized expertise in Plastics (particularly in the area of Martos), in Metal (in Linares and La Carolina) and in logistics and transport (in Linares).

In Jaen's province there are 16 more companies that supply Santana Motor.

In the province of Seville, Renault produces gearboxes for vehicles such as Megane, Modus and Nissan (under an agreement between Renault and

Nissan). The amplification of its facilities in Seville is one of the most important investment projects in the industrial sector (€179 million euros). It is expected that this extended infrastructure will supply 50% of all the group's gearboxes requirements. Renault (Seville)'s total production is expected to produce 1.250.000 gearboxes and to generate 400 jobs by 2007.

In the province of Cadiz, it is important to point out that there are 2 multinational companies that produce electronics components (Visteon) and shock absorber and bearing (Delphi Automotive System).

Table 13 comprises data related to the most important suppliers of the automotive industry in Andalusia:

Table 13

Production unit	***Total receipts (´000€)***	***Number of workers***
Components (Tiers 1)		
Delphi automotive systems	259,8	1.792
Visteon	269	1.258
Robert bosch	32,5	254
Valeo iluminacion	312	1.523
Renault	No data	800
Santana motor's suppliers		
Fasur	14,5	210
Cessa	97,9	95
Matresur	2,6	65
Ditecsa	2,6	59
Mecacontrol	1,7	8
Elyo	3,2	56
Exel	265	64
Sli	No data	11

Source: andaluciajunta.es

Research and Development

In terms of R&D, it is important to note that there are established links between the industry and Universities and R& D centres. An example of this is the Campus Project which aims at promoting the creation and development of technological based enterprises. This a recent and innovative initiative jointly designed by the Agency for Innovation and Development of Andalusia and Andalusian Universities.

There are 10 public Universities in Andalusia with a total population of 249 000 students. Seville University is the biggest one with 74 000 students. In 2002 there were more than 17.000 research staff and more than 11 000 PhDs. Their scientific production represented 14% of the country's total.

There also 67 research centres that belong to the Universities and to other public Institutions (Instituto Andaluz de Automática Avanzada y Robótica, Universidad de Málaga and the Instituto de Microelectrónica de Sevilla, which is part of the Consejo Superior of Scientific Research (CSIC).

As far as investment in R&D is concerned, the Andalusian authorities have spent more than €300m. in 2003 whereas in the private sector it is the biggest multinational companies that have spent more in R&D activities (table 14):

Table 14

Robert Bosh:	€950 000 in I+D (investiment made in R&DT activities)
	0,11 dedicated to R&DT
Visteon:	€13 454 450 R&DT: 0,48
Delphi Automotive Systems:	€3 045 000 R&DT: 0,03

Source: andaluciajunta.es

Finally it is important to point out that in 2004 there were 44 patents registered in Andalusia and one important spin-off has been launched (Milethos Automotive software).

This region has a number of outstanding strengths that are susceptible of making it an attractive area for potential foreign investors. They can be summarized as follows:

- Lower average labour cost compared with the rest of Spain and Europe;
- Skilled workers in the electronics, mechanics, plastic, etc. fields;
- Good infrastructures, easy access to international markets (Algeciras major container port in the Mediterranean);
- A dynamic automotive cluster in Jaen, Multinational companies Tier 1 suppliers that export all over the world;
- Cooperation between Universities, companies and research centers;
- Support of the Regional Government of Andalusia to promote the creation of new technology based firms (Campus project).

3.2.2. Asturias

The Principality of Asturias is situated in the north of the Iberia Peninsula, and it is bordered in the West by the province of Galiza, in the East by Cantabria and in the South by Castilla y León.

Figure 31

Source: princast.es

It is constituted of a single province and the capital is Oviedo (with approximately 205 000 inhabitants). There are two other main cities: Gijon (260 000 inhabitants) and Aviles (86 000 inhabitants).

Figure 32

Source: princast.es

Auto Components Industry

A significant part of Asturias's regional industry is related to the automotive sector. It comprises a diversified number of services and industries capable of supporting the needs of the automotive industry. These include areas such as the design of parts, and the production of materials and

components that supply the main OEMs and other car component producers. Simultaneously, there are in this region companies that offer a number of services that support production, namely engineering (electrical and industrial), applied scientific and technical research, and product control.

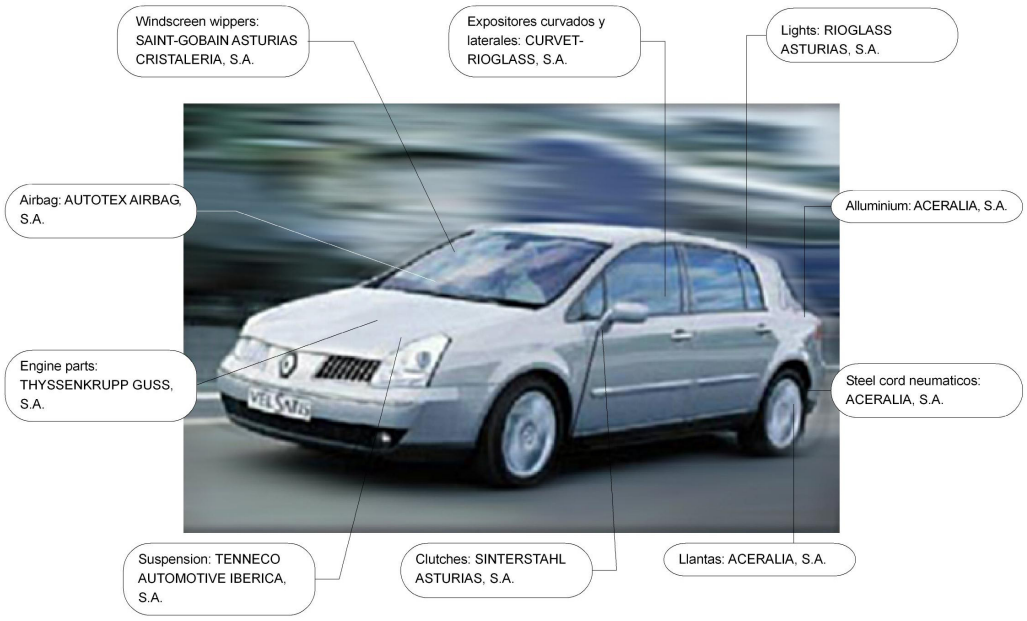
Amongst the products that are produced in this region it is noteworthy mentioning the following:

- Metal steel - most of Aceralia's 400 000 tons production supply Spain's OEMs.
- Zinc and Aluminium – Asturiana de Zinc S.A. and Alcoa Inespal S.A.'s production supply various component manufacturers
- Windscreen wipers - Saint Gobain Cristalería S.A. produces annually more than 2.2 million
- McPherson suspension columns – Tenneco Automotive Ibérica, S.A. has a total capacity of 18 000 units/day.
- Precision components for the automotive industry – Sinterstahl Asturias S.A.'s main clients are Renault and Ford. It plans to produce 16 million parts by 2008.
- Airbag components – Autotex Airbag S.A.´s production in 2004 was 4.5 million compared with 1.2 in 2002.
- Engine parts – Thyssenkrupp Guss S.A. ´s main client is Porsche's sports models.
- Glass – Rioglass Astur S.A. and Curvet-Rioglass Astur S.A. employ more than 100 people and one of its main clients is Peugeot.

Figure 33 shows the main products produced in Asturias region that are related to the automotive industry.

Figure 33

ASTURIAN'S SUPPLIES FOR THE AUTOMATIVE PRODUCTION

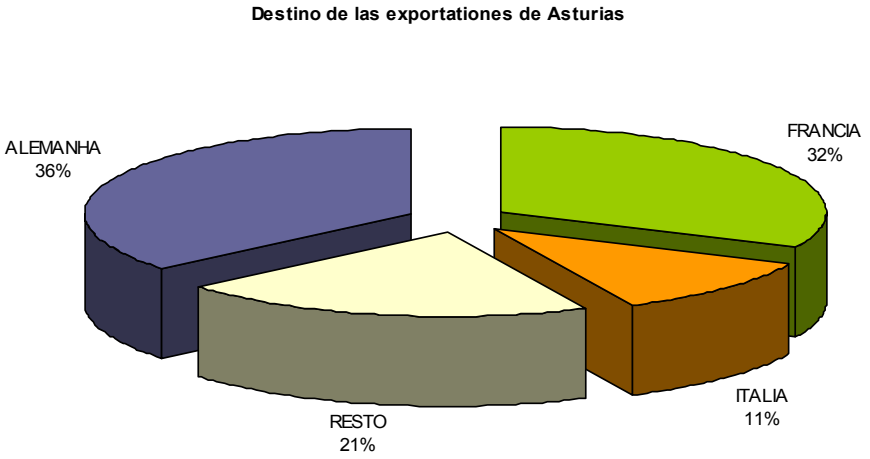


Source: idepa.es

In 2003 there were approximately 20.000 people employed in the top 10 companies that are more directly dependent on the automotive industry. It is also important to note that all these 10 companies belong to foreign groups, including three from the USA (Alcoa, Tenneco Automotive and Milliken & Company).

The component and the automotive accessories sector represented, in 2004, 5.43% of the region's exports. 32% of the region's exports were to France (figure 34).

Figure 34



Source: idepa.es

Research and development

As far as the amount of investment made in R&DT activities is concerned, table below shows the amounts spent in various sectors related to the automotive industry and their relative weight in relation to Spain's total.

Table 15

	Average Investment in R&DT Activities	*Percentage of the total for Spain*
Electric and Electronic Components	1.883.000€	0,16
Plastic Components	3.063.000€	1,28
Metal Components	6.195.000€	1,5
Metallurgy	38.731.000€	5,5
Moulds and Tools	n.a.	

Source: idepa.es

From the data collected it can be concluded that despite the fact that there are no OEMs located in this region, Asturias offers a range of auxiliary industries and services that supply directly the main car manufacturers and

specific components producers. The region also has a number of Research centers that have specialized in areas related to the automotive sector, (e.g. El Instituto Tecnológico de Materiales (ITMA), El Centro Tecnológico para el Diseño y la Producción Industrial de Asturias (PRODINTEC), Centro de I+D de Aceralia, El Centro Tecnológico del Acero y Materiales Metálicos).

3.2.3. Castilla y Leon

The autonomous region of Castille y León includes much of northern Spain. Castille y León borders Asturias and Cantabria in the north, the basque Country, La Rioja, Aragon, Castille-La Mancha and Madrid in the east, Extremadura and Castilla-La manch in the south and Portugal and Galizia in the west.

The nine provinces that comprise Castille y León are the following: Segovia, Ávila, Soria, Burgos, Palencia , Valladolid , Leon, Zamora and Salamanca.

The population of this autonomous region in 2004 was 2,493,918 and the population densities of its provinces were as follows: Avila (166), Burgos (357), León (493) Palencia (174) Salamaca (351) Valladolid (511), Zamora (199) Segovia (153) and Soria (92).

Figure 35 shows the geographic location of these provinces.

Figure 35

Source: jcyl.es

In 2003 the transport equipment industry represented 31.7% of the region's total industrial production and it is estimated that the automotive industry contributed to 20% of the total value added of the Spanish automotive industry as a whole.

The automotive industry as a whole was the sector that showed better economic and financial performance rates in this region in the period 1997 – 2001, (7% and 18.76% respectively) (*Informa Económica Castilla y León*). On the other hand it showed low rates of indebtedness (approximately 62%).

As far as international trade is concerned, 56.12% of the region's total exports are motor vehicles and 6.4% are chassis and other motor vehicle parts. Furthermore, almost 60% of region's total exports to the EU are motor vehicles and the total value of the OEM's exports amounted to €4638 million.

However, and despite the importance of this sector in the economy of Castilla y León, only 14% of its domestic consumption of intermediate

goods (i.e., products and services that are required by the automotive production) is produced in the region. This means that this sector is somehow vulnerable to the exterior or that it has a low rate of production integration.

According to information provided by the *Registro Mercantil*, of the 10 biggest companies in the region, five belonged to the automotive industry. Two were OEM's – Renault and Nissan - and the other three were major component companies: Pneumatics Michelin, Bridgestone Hispania and Grupo Antolín.

Original Equipment Manufacturers

Renault is the most important OEM in the whole of this Comunidad Autónoma. Nissan, together with Nissan Iveco, represent 63% of the total sector's employment (*Económica Castilla y León, nº 93, 2004*).

Three of the four Renault plants in Spain are located in Castilla y León: two in Valladolid and one in Palencia.

The Palencia plant distances 40 km from the Valladolid ones and is strategically located in the main route between Lisbon and Paris. It produces the second generation of Megane.

The Valladolid Assembly plant has benefited from an investment of €535 million from the Renault Group for restructuring its infrastructure in order to produce the new Modus model.

It is the first time that a Renault model is produced entirely outside France and that production will reach 300.000 units a year (1.300/day). It is estimated that 90% of its production will be exported to a record number of 166 countries.

As far as Valladolid motor engine plant is concerned it is expected that it will produce 6000 units/day by 2005. It has received more than €700 millions over the last decade to reconvert its plant and given that it will built 100% of motors for the new Modus model, Renault is considering its expansion.

In 2003 total production amounted to 547 185 vehicles, (262 416 and 284 769 in Valladolid and Palencia respectively) and 948 798 motor engines (in Valladolid).

These figures represented 21% and 35.8% of Renault's world vehicles and motor engines production respectively.

In total these plants employed nearly 8500 workers in 2003, which represented 52.5% of the sector's total employment and 6.2% of the total industrial employment of Castilla y León.

Tables below show the main indicators for Renault in Castilla León:

Table 16

	Chassis, and Assembly	***Assembly***	***Motor Engines***
	(Vallodolid)	*(Palencia)*	*(Valladolid)*
Models	Clio	Megane	K4 and K9
Production	1 122/vehicles/day	1 130/vehicles/day	4 300/engines/day
% Exports	82,3%	82,3%	61,7%

Source: Económica Castilla y León, nº 98, 2004

Table 17

	2002 (€ millions)	2003 (€ millions)
Turnover	6 904	7 895
Sales (domestic market)	2 673	3 106
Sales (exports)	4 231	4 789

Source: Económica Castilla y León, nº 98, 2004

Auto Components Industry

The component and auxiliary industry is the third in the EU in terms of turnover.

The majority of the component suppliers of Palencia's plant (58%) are located at more than 1000km (majority in France) but those that are situated at less than 100 km represent 69% of the total volume of supply and 43% of total value of business. Some of the most important suppliers are in fact located in an industrial park surrounding Palencia´s plant, namely Valeo Plastic Omnium (produces bumpers, flashing lights), Sommer Allibert Siemens (door lockers), Grupo Antolín (door panes), TNT (logistics).

As far as the Valladolid plant is concerned, factories located in Spain manufacture 75% of the parts that comprise the new Modus and half of the parts that are produced by independent suppliers are located at less than 50 km. There are more than 140 suppliers working for this new model and between 30 to 40 of these will benefit from Renault's Group major restructuring investment program for the development of components for the new Modus model. The most important suppliers are Johnson Controls (ASIENTO TRASERO DE NUEVO DISEÑO), Visteon (PANELS INTERIORES DE PUERTAS) Valeo (air conditioner) and Plastic Omnium (PARACHOQUE Y FRONTÓN TRASERO).

Castilla y León has also become an important region for the growth of an auxiliary industry linked to the automotive industry and comprises more than 120 companies. Burgos is the province that shows more concentration of firms (and also more diversified in terms of types of businesses), followed by Valladolid and Palencia provinces.

Research and Development

There are eight Universities in Castilla y León, four public ones (Burgos, León, Salamanca and Valladolid) and four private ones (Católica de Avila, Miguel Cervantes, SEK de Segovia and Pontificia de Salamanca).

The number of students enrolled in 2004/2005 per university is shown in the table below:

Table 18

University	*Number students enrolled (2004/2005)*
Burgos	8.423
León	14 606
Salamanca	28155
Valladolid	28 796
Católica	706
Cervantes	1 049
Pontificia	4 403
SEK	1 189
Total	87 327

Source: Económica Castilla y León, nº 98, 2004

The number of students in technical areas is approximately one third of the total student's population.

There are several technological parks in the region. The Parque Tecnológico de Castilla y León is one of the most important ones. It is situated in Boecillo, Valladolid, and offers infrastructures to industries and services related with new technologies, research and innovation. This centre also encourages close links with the University in the creation of new firms and

the transformation of existing ones that wish to acquire new management techniques.

The technological centres that operate in this Parque Tecnológico are:

- CIDAUT: Centro de Investigación y Desarrollo en Automoción.
- CTL: Centro de Tecnología Láser.
- CADE: Centro de Ahorro y Diversificación Energética.
- CARTIF: Centro de Automática, Robótica, Tecnologías de la Información y Fabricación.

The technological centers located in Castilla León that are associated with FEDIT (Asociación Española de Entidades de Innovación y Tecnología) are:

- Centro de Automatización, Robótica, Tecnologías de la Información y de la Fabricación (CARTIF) decir qué hace cada uno, de forma muy breve;
- Centro para el Desarrollo de las Telecomunicaciones de Castilla Y León (CEDETEL);
- Centro de Investigación y Desarrollo en Automoción (CIDAUT);
- Asociación de Investigación y Centro Tecnológico de Miranda (CTM);
- Instituto Tecnológico de Castilla y León (ITCL).

According to the CIDAUT (Centro de Investigación y Desarrollo en Automoción)´s site, this centre " was created in 1993, with the objective of coordinating and channeling the research potential of the University of Valladolid, as well as actively contributing to the needs of companies in the automotive sector, thus enhancing both their competitiveness and industrial development.

On 1st January 2000, CIDAUT became a R+D+i Foundation with thirteen industrial partners (Grupo Antolin , Michelin, s.a, Lingotes Especiales, s.a. Iberdrola, s.a, Renault España, s.a., Johnson Controls Valladolid s.a. (1994), Visteon, s.a. (1994), Plasticos Durex, s.a. (1996), Cropu, s.a.

(1997), Recuperacion Materiales Diversos. (1998), Dalphimetal España, s.a. (1998), Zfansa Lemförder. (1999), Benteler España, s.a. (1999).

Some members of CIDAUT are also members of the North American institution TRB (The Transportation Research Board), associated with the National Academy of Science and the National Academy of Engineering. CIDAUT is composed of four buildings and a laboratory test track for carrying out road barrier tests in Mojados (a short distance from the main installations in the Boecillo Science Park) with a constructed surface area of 14,500 m2 and an investment in equipment close to 26 million euros.

Each of the technical competences of the Center, either in experimental or numerical simulation, is available for isolated use or as part of a R+D+I full project. These technologies are available to companies as support to their internal R+D+I, as well as the experience of our technicians. The technological services offered by this center include: Transfer of Technology, Experimental Testing, R&D&I product studies, Automation and electronics, Environmental and energetic plans, Systems analysis in real accidents." (http://www.cidaut.es/infodloc.cidaut).

3.2.4. Galicia

Galiza is the most western region of the European Continent and is situated in the extreme northwest of the Iberia Peninsula. It has an area of 29.574 km^2 and a population of 2.8 million inhabitants. There are four major cities in the region: Orense, Pontevedra, Corunha and Lugo.

In 2002, the automotive industry contributed to around 19% of the region's GDP, employed 33.000 people – 21 900 of which in direct employment – an increase of 43% in relation to 1998.

The Galician economy is more dependant than the Spanish economy on the automotive industry as it is shown in the table below:

Table 19

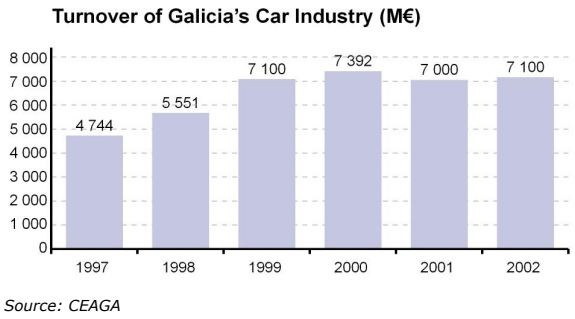
Incidence of the Sector	Spain	Galicia
Gross Domestic Product	6,3%	19,00%
Exports	26,60%	51,09%
Industrial Employment	11,00%	17,00%

Source: CEAGA

The sector's exports in Galicia represented, in 2003, 46% of total Galician exports and 14% of total national exports, making the province of Pontevedra Spain's fourth exporter.

The evolution of the turnover of Galiza's car industry is shown the graph below:

Figure 36



Source: CEAGA

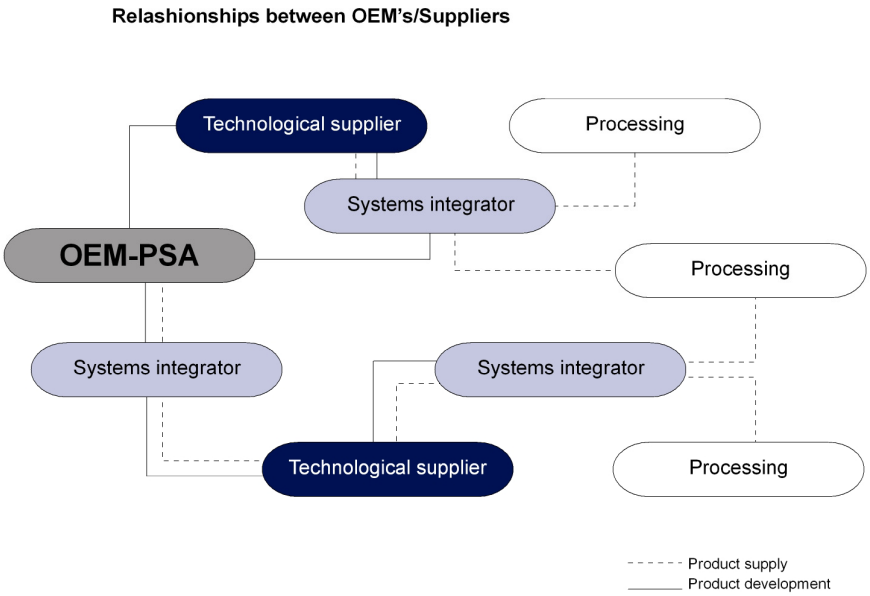
Source: CEAGA

The automotive industry is based on three pillars:

- OEM-PSA Peugeot Citroën (Vigo Centre)
- Components and services-Cluster of Galician Car Industries (CEAGA),
- Technological services-Galician Car Technology Center (CTAG), which guarantees the sector's competitiveness by means of R+D+I.

The relationship between the main OEM and the type of suppliers that exist in this region is shown in the map below:

Figure 37



Source: CEAGA

Original Equipment Manufacturers

PSA Peugeot Citroën (Vigo Centre) is considered a reference factory within Spain and within the group. In 2003, the Vigo Centre manufactured 517,200 units (vehicles and collections), which represents a 0.85% increase over the previous year and positions the Vigo centre as the plant with the highest level of automotive production in Spain, ranking second in Europe. Also noteworthy is the fact that this is the pilot plant of the PSA Group for the models they manufacture, which entails participation in the design and industrialization of the models produced as well as their progress.

Most of the production –specifically 88%-of the Vigo Center is exported, which accounts for the movement of 455,136 automobiles distributed to all five continents.

The group also expects to invest €800 million until 2006 particularly in process automation and in preparing new production lines for new models.
It is also expected that the plant in Vigo will specialize in the production of commercial and city vehicles.

Auto Components Industry

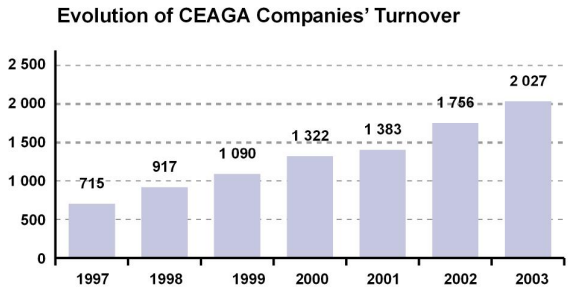
PSA Peugeot's plant also absorbs approximately 60% of the component's total sales of all the companies operating in this region.

In 1997, the Xunta de Galicia promoted the creation of the Cluster of Galician Car Companies (CEAGA), a business group within the sector made up of companies (65 in 2003) that make components, systems, modules and capital goods for the car sector.

Its main objective is to increase the sector's competitiveness and to serve as its reference and guidance in relation to technological innovation and development.

The Car Cluster's growth is clearly reflected by the number of jobs and business turnover: thus, components manufacturing employed 12,400 workers at the end of 2003 and turnover increased from 1,756 million euros in 2002 to 2,027 million euros in 2003 (an 18.7% increase) (graph below).

Figure 38



Source: CEAGA

Source: CEAGA

The main products of CEAGA member companies are the following:

- Parts and systems
  - Tanks
  - Paint
  - Seats
  - Dashboards
  - Steering wheels and airbags
  - Adhesives
  - Exhaust systems and mufflers
  - Electrical wiring
  - Transmissions
  - Mechanisms
  - Body
  - Acoustic absorbers
  - Passive safety elements
  - Metal elements and systems
  - Surface treatments
  - Floor coverings

- Equipment:
  - Industrial machinery
  - Die moulds
  - Moulds

In Galiza, most of the component's companies are 1st tier suppliers (Systems and Technology integrators). Those involved with processes are relatively few and some sub sectors (e.g. stamping**)** use Portuguese firms.

The Galician Car Technology Centre (CTAG) was formed in 2002 and was promoted by the CEAGA cluster in close collaboration with the Xunta de Galicia and PSA Peugeot Citroën's Vigo Centre.

Its services include and Impact Laboratory (a reference point within European R+D+I), as well as climatic and fatigue tests, rapid prototyping, training, advice, technological aerial, etc. All of these services are based on three pillars: product research and development, product reengineering and process engineering.

There are 88 industrial parks in the region that occupy an area of more than 31 km^2 and another 48 are under construction. However, in the southern part of Galiza, there is presently a shortage of physical space for the expansion of existing or for the construction of new infrastructures. For this reason, most of the investment in new industrial units is currently being undertake in the Portuguese trans border regions of Valença, Ponte de Lima and Vila Nova de Cerveira.

The hourly labour cost in Galiza is approximately 13% lower than the average cost in Spain. Table below shows the figures for the 4th quarter of 2002:

Table 20

Region	*Labour cost – hour worked*
Galiza	12.72
Catalunha	15.67
Madrid	16.47
Navarra	17.27
Pais Basco	17.75
Spain	14.60

Source: INE

Productivity in the Galiza's economy has registered better performance ratios than the country's average. This is confirmed by the fact that PSA Peugeot Citroen – Vigo is considered the 4th most labour productive of the 43 main European assembly plants of the group (World Market Automotive).

There are three main Universities in the region: Universidad Santiago de Compostela (32.911 students), Universidad Coruña (25.183), the Universidad Vigo (25.562), 214 professional education centers with approximately 40.600 students and several research centers, namely the Galicia Automation center and the center for Innovation and Technology services. In Vigo University there is a Master's degree on Management of Automotive Companies.

Research and Development

The Galician Car Technology Centre (CTAG) is one of the most important centres for promoting innovation in the region. It is a joint initiative of PSA Peugeot Citroën and Cluster of Galician Car Industries (CEAGA) and it has a laboratory for automotive testing). One of its main aims is to foster greater competitiveness of the component's industry in Galiza and to contribute to the economic development through R&D an Innovation.

3.2.5. La Rioja

This is a small region located in the north-eastern part of the peninsula and is the most outstanding wine-growing area in Spain. The capital of La Rioja is the city of Logrono. This region is divided in three parts: La Rioja Alta in the Ebro Valley, west of Logrono and where the city of Haro is located; Rioja Alavesse, in the north of the river Ebro and La Rioja Baja, in the south and East of Logrono that includes the cities of Calahorra and Alfaro. Total population is approximately 300 000 inhabitants and it has one of lowest population densities of Spain's regions (58).

Map below shows the geographic location of this region:

Figure 39

Source: ader.es

The total number of vehicles in this region in 2003 totaled 156.202, and there were 545 vehicles per 1.000 inhabitants.

As far as operational costs are concerned, gross industrial labour costs/worker/year, amounted to €23.056 (2002) and costs to €22.746 (Encuesta Annual de Coste Laboral, INE).

Original Equipment Manufacturers and Auto Components Industry

There are no OEM's in this region but there are major parts components manufacturers. It is estimated that the components industry employs nearly 1.700 people. Collins and Aikman, located in Angoncillo employed nearly 500 people and Delphy de La Rioja around 600 workers. The former had a turnover of almost €3.900 million in 2004 and a strong trade relationship with the group's business in North America.

Table below show the distribution of the companies per type of ownership:

Table 21

	Foreign Capital	*National Capital*	*Mix Capital*
% firms	20%	13,33%	66%

Source: ader.es

The main destination of the region's automotive exports is Germany (26%) followed by Brasil (16%).

The main technological competency of the automobile industry in this region is foundry.

Research and Development

There is one major University – University of La Rioja - with a total of more than 7000 students.

3.3. French regions

There are five French regions in the EA territory: Bretagne, Pays de la Loire, Poitou-Charentes, Basse Normandy and Limousin. The first three comprise the so-called Western France.

The following section is a summary of the main characteristics of these regions and is organized according to this grouping, i.e., the Western Region, Basse Normandie and Limousin.

3.3.1. The Western France

Western France is not a region in the administrative sense; it is the name chosen by three regions of western France (Brittany, Pays de la Loire, and Poitou-Charentes) to be jointly recognized worldwide. These three coastal regions have Rennes, Nantes and Poitiers as capital cities.

Ideally located at the heart of the richest European markets, France Atlantique is a strategic location for an easy access to Europe Atlantique and North-West European countries (from the Iberian peninsula to the Benelux, and United Kingdom) as well as to the 1st regional European market, Paris area.

As a whole, Western France (location map below) covers 13 departments (counties): Côtes-d'Armor, Finistère, Ille-et-Vilaine, Morbihan, Loire-Atlantique, Maine-et-Loire, Mayenne, Sarthe, Vendée, Charente, Charente-Maritime, Deux-Sèvres, Vienne, and comprises the following major cities: Saint Brieuc, Quimper, Rennes, Vannes, Nantes, Angers, Laval, Le Mans, La Roche sur Yon, Angoulême, La Rochelle, Niort, Poitiers.

Figure 40

Source: oust-atlantique.org

The main socio economic characteristics of this region compared with those of France as a whole are shown in the table below:

Table 22

	WESTERN FRANCE	*FRANCE*
Population		
Surface	85 000 sq. km (32 833 sq. miles)	543 965 sq. km (210 116 sq. miles)
Population (year 2002)	7 910 000	59 342 000
Population density	93 inh/sq.m.	109 inh/sq.m.
Population growth from 1992 to 2002	+ 5.36%	+ 3.90%
Number of urban areas of more than 100 000 people	15	57
Economy		
Gross Domestic Product (year 2002, in billion Euros)	171	1 497 (metropolitan France)
Employment (year 2001)	3 155 000	23 956 000
Employment in industrial sites owned by a foreign company (at least 10% of the capital)	106 085 >>>more	
Evolution of the number of jobs from 1996 to 2001	+ 11.3%	+ 8.6%
Unemployment rate for 2nd quarter 2003	8.3%	9.5%
Number of days lost on strike for 1 000 employees (annual average, 1999 to 2001)	25.3	53.3
Innovation and Education		
Number of Science parks	14	72
Number of Universities	10	91
Number of engineering schools (post master courses)	40	242
Number of Business and Management Schools and Institutes	31	221
Number of students (year 2003)	254 323	2 174 989
Number of researchers(year 2000)	13 205	168 718
Infrastructures		
Length of motorways (year 2002)	2 000 kms (half of them are toll-free)	
Number of airports	24	
Number of airports with regular international flights	5	
Number of daily flights linking Western France to Paris in less than 1 hour (year 2003)	25	
Number of ports and marinas	150	
Number of commercial ports	22	
Length of coastline	2 400 kms	
Number of islands	17	
Highest area	Mont des Avaloirs 417 meters high	

Sources : INSEE, DARES, MENRT DPD, INPI BOPI, SETRA, Ouest Atlantique

The automotive industry represents approximately 6,3% of the total industrial sector in Western France (Brittany, Pays de la Loire, Poitou-Charentes) and more than 12% of the global French automotive industry.

The automotive sector employs, as a whole, 93 852 people and there are 887 companies. Table 23 shows that more than 50% of these belong to the mechanics sector of the industry and table 24 shows that more than half of the total number of companies are located in Pays de la Loire.

Table 23

Activity	*Number of firms*
Mechanics	469
Plastic	176
Electronics	152
Engineering	69
Logistics	16
Textile industry	5
Glass	0
Total	887

Source: ouest-atlantique.org

Table 24

Region	*Number companies*
Brittany	273
Pays de la Loire	480
Poitou-Charentes	134

Source: ouest-atlantique.org

There are five main OEM's (PSA Peugeot Citroën, Euro Automobiles Heuliez, Scania, Gruau and Iris Bus), and the automotive sector has developed strongly in this region thanks to the increasing number of high-level tier 1 and 2 suppliers and subcontractors.

In terms of the industry's supply chain, table 25 shows the % distribution of firms in each of its main tiers.

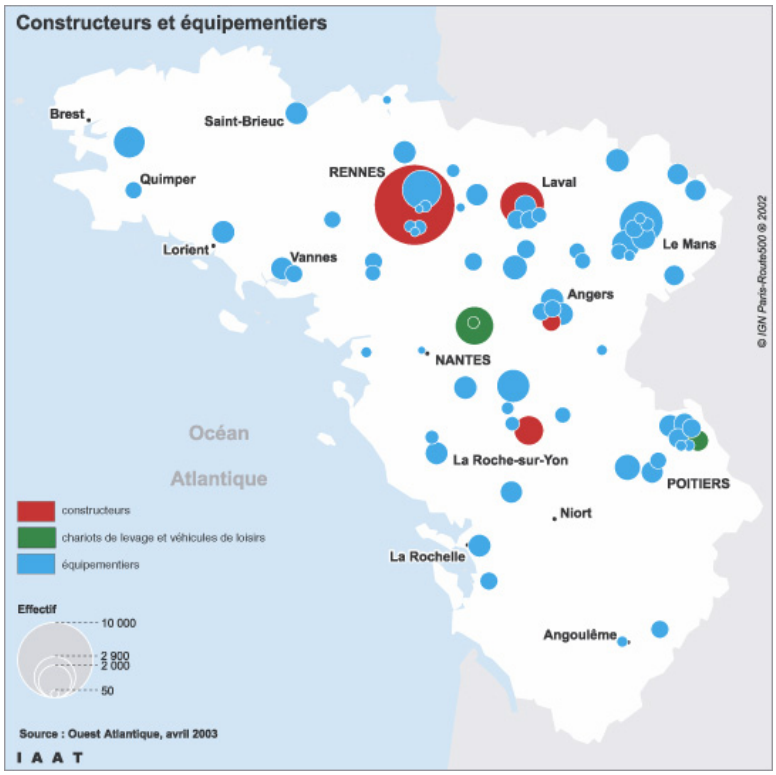
Table 25

Position in the supply chain	*Number of firms (%)*
Components Supplier	62%
Manufacturer (assembler)	1%
Systems Manufacturer	4%
Systems Integrator	33%
Moulds and Tools Supplier	No data

Source: ouest-atlantique.org

The territorial location of the main companies in the industry in Western France is shown in the map below:

Figure 41



Source: ouest-atlantique.org

Finally, and from the point of view of a potential investor it is noteworthy mentioning the low number of working days that are lost due to industrial disputes in Western France as a whole: an average of 22 days per 1000

inhabitants, per year (French Ministry of Employment, 2003), compared with a national average of 45.

Original Equipment Manufacturers

Total production of vehicles and employment per OEM's is shown in the table below:

Table 26

Production unit	*Production/year*	*Number of workers*
OEM		
PSA Peugeot-Citroën	More than 373,000	12,000
Scania	10,500	500
Gruau	42,000	575
Irisbus	410	436
Heuliez	Capacity of 90,000	2,200
TOTAL		

Source: ouest-atlantique.org

It is estimated that more than 90% of total labour are allocated to production activities and only 3% to engineering and product development.

Auto Components Industry

It is estimated that the components sector employs more than 83 000 people.

The region's investment promotion agency, defines the main economic sectors as follows:

- "Plastic injection and mould makers
  - Western France is the second largest centre for plastics technology in the country, with over 8,000 employees in this sector.

- Rubber
  - With more than 7,000 employees, Western France is the country's main centre for the rubber industry, in particular for high-tech uses of this material. The presence of the Institute Français du Caoutchouc [French Institute of Rubber] near Nantes, which provides training and technical assistance for the industry, is proof of the importance of the region in this sector.
- Electronics
  - Western France is one of the country's most important regions in terms of electronics, and telecommunications in particular. This expertise is reflected in the automotive industry, with manufacturers of sensors, injection systems, dashboard instruments, car radios, etc. Western France has strong potential for design and innovation across the whole car electronics sector.
  - Engineering, stamping, etc.
- Western France offers a wide variety of skills in the field of engineering, stamping, specialist parts and casting."

Research and Development

In terms of research, the main centres and competencies developed in the region can be summarized as follows (Ouest Atlantique, 2005):

- "*Fundamental research* is carried out by:
  - many Universities and higher-education Institutions specialized in engineering and technology (more than 20 R&D centres)
  - the "Engineer sciences pole" (Futuroscope, Poitiers)
  - CNRS (National Council for Scientific research)
  - INRIA (National Insitute for Research in Informatic & Automatic)
- *Applied research* is carried out by four transfer technology centres:

- Cereveh (Research centre for electric transportation and hybrid vehicles - Poitiers)
- Cetram (European centre for technology and research in acoustics and materials - Angoulême)
- C.T.T.M. (Technology transfer centre / acoustics - Le Mans

As a whole, the Western France regions are playing a pioneering role in France in the development of hybrid and electric vehicles, with programs designed to increase the vehicles' range and specific research in the field of batteries, materials, drive chains, electric motors.

In addition, Western France has developed a strong competence in terms of research in the field of noise, vibration and acoustics and in rapid prototyping (in particular in machine tools for plastics technology) and in vehicle-based telecommunications."

Furthermore, "in the automotive-related fields, a large number of specialist training courses are available from the regions' 10 Universities and 19 Higher Education Institutions specialized in engineering and technology:

- E.I.G.S.I. (Industrial Systems Engineering School)
- E.N.S.M.A. (National Mechanical and Aerospace Engineering Institute)
- Ecole Centrale de Nantes (Nantes School of Engineering)
- Ecoles des Mines de Nantes (Nantes School of Engineering)
- I.R.E.S.T.E. (Nantes University College of Technology) E.S.E.O. (Western France College of higher education in Electronics)
- I.R.I.S.A. (Computers and Random Systems Research Institute)
- I.N.S.A. (National Institute for Applied Sciences)
- Ecole Louis-de-Broglie (Engineering School)
- E.S.T.A.C.A (Transport Engineering School)
- ...and more than 60 technical Colleges.

Simultaneously, it is important to point out the existence of professional networks that "boosted by the presence of leading automotive manufacturers are very active in the dynamism and cooperation of the sector, namely:

- "Performance 2010" is an association gathering most of the automotive industry actors in Western France
- Plasti-Ouest groups together Western France's plastics processing industrials
- Meito has 200 members in the fields of Intelligent Transport Systems and telecommunications, and works on developing both business and innovation.

The main characteristics of each of the three regions that compose Western France are as follows.

3.3.1.1. Bretagne

The region of Bretagne includes four "Départements": Côtes d'Armor, Finistère, Ille-et-Vilaine and Morbihan.

Figure 42

Source: Biser - Worpackage 6: e-Europe Regions Domain Reporting

The region of Brittany boasts a population of nearly 3,000,000, (5% of France's population) with a per capita GNP of $22,000 and hosts 50 American companies in such varied industries as food processing and telecommunications.

Rennes, the regional capital of Brittany, has a population of 211.000, making it the 10th largest city in France. Including the metropolitan region, the population is nearly 380,000. Rennes has the second largest economy among the cities of western France, following Nantes.

A key industrial sector in Rennes, and in Brittany more largely, is telecommunications research, with 40% of French telecom research centered in Rennes, Brest (at the western tip of Brittany), and Lannion (on the northern coast of Brittany).

Tables below summarize some of the most important data related to the Bretagne (Brittany) region:

Table 27

Qualitative Description of Region Brittany
3 - Basic Facts

	Region (NUTS2)	*Country (NUTS0)*	*EU*
	Brittany	*France*	*EU 15 AVERAGE*
GDP (€ in PPP per inhabitant - 1999)	17 670,9	21 069,8	22 576,4
Area (Km^2)	27 507	543 965	3 191 119,9
Population absolute (1998)	2 898 000	58 722 571	375 812 900
Population density (inhabitants/Km^2-1998)	106,4	107	117,8

Source: Biser - Worpackage 6: e-Europe Regions Domain Reporting

Research and development activities are well established in Brittany. The region has 6 universities, 8 university institutes of technology and about a dozen technology transfer centres.

The automotive industry in Brittany has grown considerably since the 1960s with the creation of a large network of auto parts manufacturers and subcontractors (in engineering, steel, plastic, glass and textile working, and electronics).

In terms of direct labour, the automotive industry is the region's second largest industry (employing around 24,000 people). It is mainly represented by Peugeot-Citroën, which assembles its Xsara and Xantia models in the Rennes area.

The recent restructuring of this company with the concentration in its plant at Rennes of the production of medium to top rank vehicles for the group's assembly process, has contributed to the dynamism of the industry in this region. (CRCI – Chambre regionale du commerce et d`industrie de Bretagne).

In fact, the presence of this company has attracted a number of suppliers like Sanden and Texton/Delphi and the strong telecommunications and information technologies sectors are also represented by major international companies such as Siemens, Alacatel, Matra Thompson and Philips.

Additionally, there are many SME's in the regional economy with a large share in the hi-tech sector.

3.3.1.2. Pays-de-La-Loire

Pays de la Loire is a region of western France (map below), comprising the departments of Loire-Atlantique (44), Maine-et-Loire (49), Mayenne (53), Sarthe (72) and Vendée (85). It has an area of 32,082 km^2 (12,387 mi^2)

and a population of 3.306.000 (2002); the capital is Nantes. Pays de la Loire has a long coast on the Bay of Biscay to the west and is bordered by Brittany to the north and west, Lower Normandy to the north, Centre to the east, and Poitou-Charentes to the south.

Figure 43

Source:

The region benefits from a young population, with 40% under the age of 25. Twelve percent of the work force is employed by the agricultural sector and 26% by industry. Textiles and clothing dominate economic activity, accounting for 11% of industrial value added. The region's GNP per capita was €22,300 (INSEE, 2002).

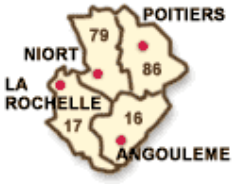
The automotive industry employs 16.000 people, mainly in Renault, Scania and Manitou factories and Le Mans is the birthplace of the French car industry.

3.3.1.3. Poitou-Charentes

Poitou-Charentes is located on the west coast, north of Aquitaine and south of Pays de la Loirem and remains one of the regions most heavily dependent on agriculture, ranking second in terms of the number of workers employed by the sector (14%). It comprises four departments: Charente-Maritime, Vienne, Deux-Sèvres, Charente and four main cities Poitiers, Angoulême, Niort, and La Rochelle.

Total population was, in 2002, 1.6 million inhabitants and had GDP per capita of €20 325.

Figure 44

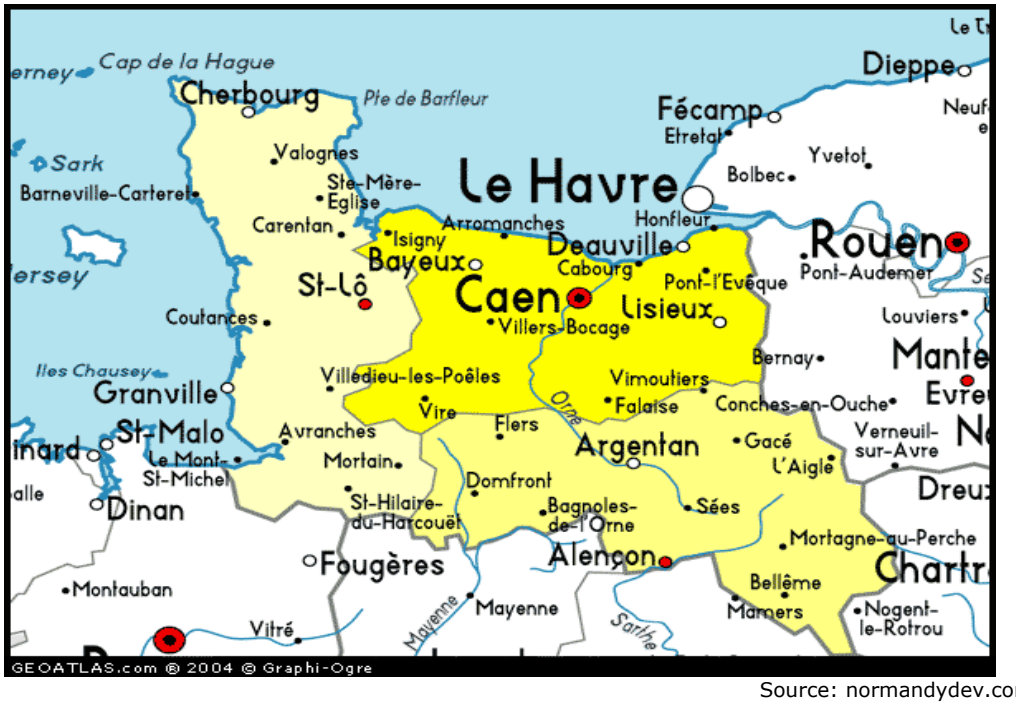


Source:

3.3.2. Basse Normandie

Basse-Normandie is located on the northwest seaboard of France, with the English Channel to the north, Brittany to the west, and Pays de Loire to the south, while its easternmost border is less than 160 kms from Paris.

Figure 45



Source: normandydev.com

Total population of this region is 1.4 million and its capital – Caen – has nearly 120 000 inhabitants. The other main cities are Cherbourg and Aleçon with 90 000 and 41 000 inhabitants respectively 2002 key data are as follows:

GDP per inhabitant: €20,599

Share in the region's added value:

Industry: 23.6%

Building: 6.2%

Agriculture: 4.5%

Services: 65.6%

Basse Normandy has historical links with the USA and there is a numerous community of American citizens especially in the Caen area. The city of Caen is the Sister City of both Nashville, Tennessee and Alexandria, Virginia. The town of Deauville is twinned with Lexington, Kentucky.

There is also a strong commitment to preserving the Franco-American friendship. Among them are the Sister City Committees of Caen-Nashville and Caen Alexandria, Les Fleurs de la Mémoire, and France Etats-Unis Caen. Caen now boasts a "Maison des Etats-Unis," which is dedicated to promoting French and American understanding and is affiliated with the University of Lower Normandy at Caen.

Furthermore, there are 25 U.S. companies in Lower Normandy, specialized primarily in the automotive, medical, pharmaceutical and agribusiness sectors.

Three sectors dominate the economy: the automotive industry, the petrochemical industry, and the food industry.

The automotive industry employs 11% of the total number of industrial jobs in the region. There are two major automakers, Renault-Trucks and PSA-

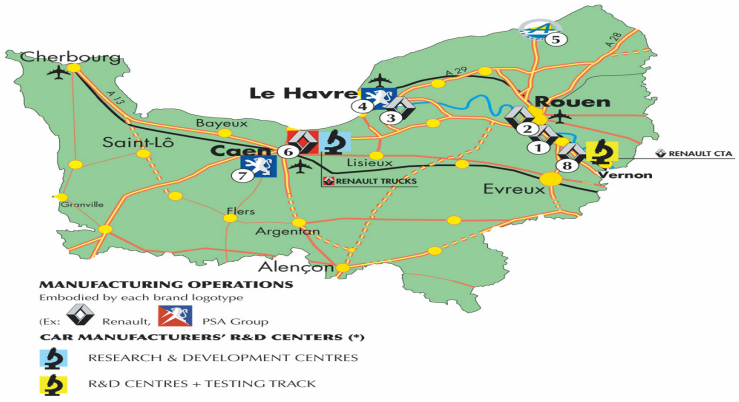
Citroën and eight main production sites employing more than 15.000 people.

Another major regional employer is the electric and electronic equipment and the component industry. There are more than 300 tier 1 suppliers.

Original Equipment Manufacturers

Map below shows the geographic locations and total employment of the main facilities of these OEM's in the region.

Figure 46



INDUSTRIAL PLANTS IN NORMANDY

N°	COMPANY (GROUP)	LOCATION	ACTIVITY	EMPLOYEES
1	Renault	Cléon (76)	Engines & Gearboxes	5150
2	Renault	Grand-Couronne (76)	CKD	458
3	Renault	Sandouville (76)	Laguna/Velsatis/Espace	6315
4	Peugeot (PSA)	Le Havre (76)	CKD	230
5	Alpine (Renault)	Dieppe (76)	Mégane II RS Clio RS + V6	426
6	Renault Trucks (Volvo)	Blainville sur Orne (14)	Cabs	2842
7	Peugeot (PSA)	Caen (14)	Chassis assemblies	2830
8	Somac (Renault)	Heudebouville (27)	Clean engine vehicle development	50

Source: normandydev.com

The section below is a summary of the main activities of each of the two major company group's plants in the region.

"*RENAULT SANDOUVILLE*

This assembly site is specialized in the production of top-of-the range vehicles: Laguna, Vel Satis and Espace IV. The site has four production departments: stamping, bodywork, painting and assembly.

With a workforce of over 6,000 people, it accounts for 10 % of Renault production (cars + LCVs) and constitutes a major regional economic hub in Normandy (north-west of France). The launches of the new Laguna II vehicles and Vel Satis had led Renault to invest in a thorough modernization of its industrial facilities at Sandouville in order to make the plant more flexible and to focus the industrial process on the operations that bring added value to the ended customer.

PRODUCTION 2003: 272,148 (all vehicles)
Laguna II (hatchback): 121,338
Laguna II (sport Tourer): 71,132
Vel Satis: 13,227
Espace IV: 66,551
WORKFORCE: 5,913

RENAULT ALPINE DIEPPE

Renault Alpine Dieppe is the only Renault group site with know-how in the development of sports or racing vehicles. It manufactures Clio Renault Sport 2L, Clio V6 and Mégane II Renault Sport, as well as racing vehicles in small series.

PRODUCTION 2003:11,337 (all vehicles)
WORKFORCE: 404

RENAULT SOMAC

Renault Somac has more than thirty years of experience and expertise in vehicle conversions. It supplies LPG vehicles, transport for people with reduced mobility and driving school vehicles. It can also take on bigger

projects such as converting Nissan pick-ups into breakdown vehicles and providing customised vehicle layouts for company fleets.

PRODUCTION 2003: 13,000 (all vehicles)
WORKFORCE: 50

RENAULT TRUCKS BLAINVILLE

The Blainville plant assembles 56 trucks per day – ''Midlum'' trucks which belong to the middle range (6 to 15 tons) – and manufactures all the cockpits of the Renault trucks (Including CKDs sent throughout the world: Africa, Middle and Far East, Latin America, etc.). It also produces "customised" trucks as a result of the opening up of large markets with specific needs (civil defence, armed forces, oil transportation tractors…).

PRODUCTION 2003: Cabs: 56,000; Trucks: 11,000
WORKFORCE: 2,850

PSA - PEUGEOT CITROEN - CAEN

Output from the Caen plant, which manufactures 60% of Citroën and Peugeot chassis assemblies, supports the production of more than 12,000 vehicles a day.

Workforce: 2,830 employees' COMPONENTS AND CASTING

RENAULT CLEON

Cleon plant produces more than 4,500 engines and 6,000 gearboxes per day, covering 50% of Renault Needs worldwide. Cleon is the only Renault Plant to supply complete powertrains, and has been designated worldwide pilot site for gearbox process engineering.

PRODUCTION 2003: Engines: 908,587 Gearboxes: 1,039,379
Workforce: 5,211 employees"

Auto Components Industry

This sector employs more than 25 000 workers. The main areas of current outsourcing expertise in Normandy is summarize below:

- Casting
  - Cutting and pressing
    - Sheet metal work

      Boiler and hollow ware construction
- Machining - Mechanical Engineering
  - Manufacture of industrial equipment and special machines
    - Manufacture of tooling, moulds, patterns and models
- Surface Treatment
  - Heat treatment
- Processing of Rubber and Plastics
  - Electricity-Electronics
    - Packaging

Research and Development

R&D Centers in this region specialize on Combustion, Energetics, Electronics, Materials, NVH (Vibro-acoustics), Safety and Environment.

Total research staff employed in these areas is as follows:

Mechanics - Materials - Vibro-acoustics: 120 researchers

Energy - Propulsion - Environment: 180 researchers

Electronics - Data Processing - Telecommunications: 100 researchers

In this region there are the following engineering schools:

INSA: Staff 126 / Students 1200

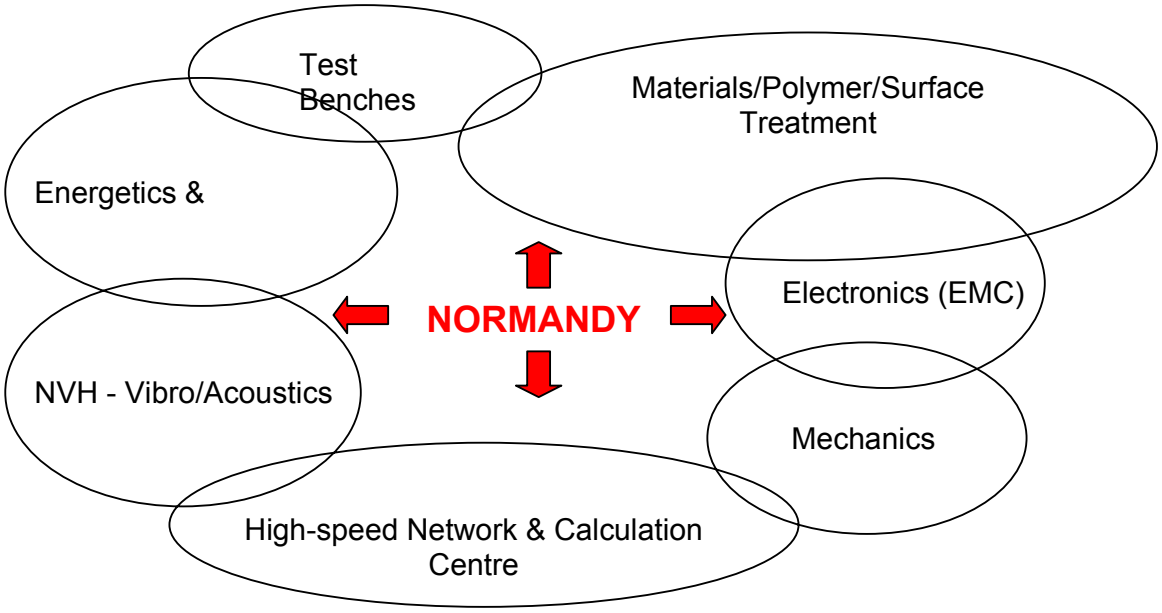
ESIGELEC: Staff 32 / Students 700

University: Staff 180 / Students 1800

In Basse Normandy there are also two National Centers of Technological Research (CNRT) (Engine&Combustion + Materials)

It is also important to note that there is a Renault Aubevoye Technical Centre (CTA) which tests new passenger cars in laboratory and on a test track.

Finally, the main expertise in terms of R&D is shown in the following graph:



3.3.3. Limousin

From the food to the plastics industry, from wood to precision mechanics and cosmetology, Limousin is above all a region of diversified high performing small and medium-sized enterprises. Industry has a long tradition here, and Limousin has always been a welcoming area.

Limousin is the natural location choice given its special position not only between the markets of the North and those of the South of Europe, but

also on the link from the Atlantic coast to the German motorway network and beyond.

The companies located in Limousin are unanimous in their estimation of the local workforce with regards to qualifications and dedication. The level of absenteeism is the lowest in France with a very low staff turnover.

The region holds 1,037 industrial establishments, each employing more than 10 staff, providing employment for a total of 54,300 people: 78% of these companies have a staff of less than 50 and employ just 32% of the total workforce; 52 establishments have 200 or more employees.

The Metalworking/Foundries sector in this region employs more than 6,000 people. Large companies such as Renault Trucks and Valeo are located in the Region.

The Mechanical industry lies at the heart of Limousin's industrial heritage. This is the largest sector for companies employing between 20 and 50 people. There are also a number of larger companies in Limousin, such as Ets DESHORS in Brive which employs 450 people and includes well-known international companies (such as SNECMA and MICHELIN) amongst its clients. Another company is SUM, a subsidiary of the American automotive equipment manufacturer BORG WARNER, which plans to double its workforce to 600 employees in the very near future.

Due to the large number of companies that have decided to set up business in the Central Area, and the training facilities available, the mechanical engineering industry is well represented here. The large companies present are aware of the importance of the development of small and medium-sized companies allowing complementarily (subcontracting, centralizing, relocation...) which enhances their establishment and their development.

This sector thrives within a high-performance industrial environment, favouring both high technology (in the aeronautical industry, the automotive industry…) and know-how.

The mechanical engineering industry is however very much involved with the automotive industry, and numerous mechanical engineering companies work for this sector in the Central Area.

Original Equipment Manufacturers

In this region there are a number of well-known manufacturers.

IRISBUS (IVECO, FIAT group – 2105 employees in the county of Ardèche) is the leading manufacturer of buses and coaches in France, with more than 50% market share, and is number 2 in Europe. In 2000 IRISBUS achieved a consolidated turnover of 8.2 billion French francs and intends to invest 30 to 40 million French francs per year at its site in Annonay over the coming years.

TRIGANO VDL (800 employees in the county of Ardèche) is specialized in leisure vehicles, camping cars / caravans (CARAVELAIR, STERCKEMAN, GRUAU). The group held almost 40% of the French camping-car market and 34% of the caravan market in 2000.

Auto Components Industry

INOPLAST (head office with 1000 employees in the county of Ardèche), is a motor vehicle equipment manufacturer of Ardèche origin, and is specialized in the production of composite material and thermoplastic parts for the automotive industry (number 3 in the world for thermosetting composites for the automotive industry). The company is booming, especially internationally, due to its partnership with PLASTIC OMNIUM. Recently, INOPLAST decided to found an Initiation and Training Centre for the

composite industry in collaboration with the Regional Authorities (an estimated 300/400 people per year).

BOSCH (Germany) owns a site at Rodez (with 1700 employees), and another in Moulins in the county of Allier, where ABS braking systems are manufactured. This motor vehicle equipment manufacturer is the world leader in petrol and diesel injectors. SNOP (FSD group) works in cutting and die-stamping. VALFOND is the European leader in precision turning and has factories in Thiers, Cébazat and Montfaucon.

RENAULT VÉHICULES INDUSTRIELS (RVI) in the Limousin region is an establishment specialized in the restoration of engines and the manufacture of mechanical units.

In the Berry region, MECACHROME (402 employees) is European leader in engines for F1. NADELLA also in the Berry region (448 employees), Torrington Group (USA), is the European leader for needle bearings.

There are also other automotive industry manufacturers in the Central Area such as VALEO, in Auvergne and in the Limousin region (MEILLOR). Some small and medium-sized companies have very specific skills for applications in the automotive industry: BREA (Auvergne) manufactures intake manifolds. THERMICENTRE specializes in mechanical parts made of steel and other metals. SODILLEK produces aluminium alloys for the automotive industry. AMIS specializes in the manufacture of parts for mechanical units and LE RESERVOIR produces suspension and braking system reservoirs mainly for heavy goods vehicles. Technical research departments also have very specific skills in design-prototyping such as ADM CONCEPT in Limoges.

Research and Development

Limousin occupies the second position (just behind Paris) in terms of academic achievements (with 72% of pupils reaching baccalaureate level).

The ratio of acceptance for entry into the major further educational establishments is one of the highest.

There are the following higher education institutions:

- 5 University Faculties
- 1 IUT (University Institute of Technology) with 10 departments
- IUP (Professional University Institute)

Schools of Engineering:

- ENSIL (Limoges Higher National School of Engineers
- ENSCI (Higher National School of Ceramics)
- 3 IL (Limoges Information Technology and Engineering Institute)
- ENAD (National School for the Decorative Arts)

With 700 research workers - including 500 in scientific fields – the University of Limousin has a wide variety of regional, national and international collaborative research.

Further education covers a wide range of fundamental, applied and technological courses as well as professional training courses. This attracts some 20,000 students each year.

CHAPTER 4
Conclusions

1. Global

Although with a relatively small annual growth rate, the automotive sector is a huge contributor to the EU's prosperity accounting for 3% of the EU GDP and 7.5% of the total EU manufacturing sector.

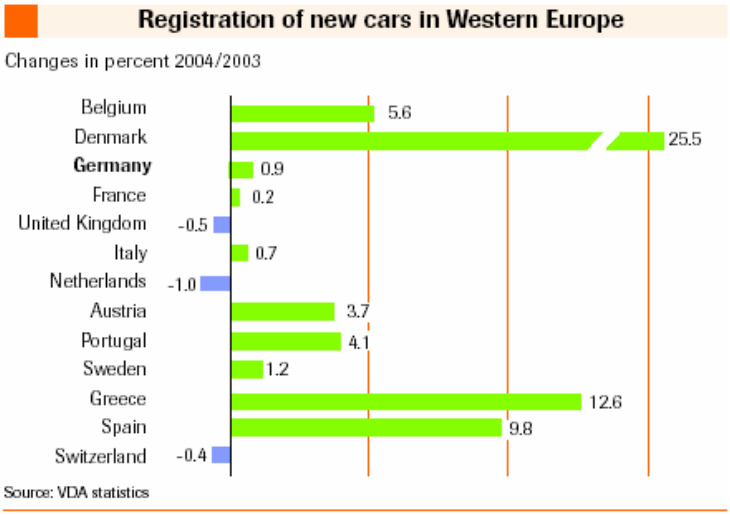
It is also a major source of employment – 2 million direct and 10 million indirect jobs -, a significant investor (33bn€), a major contributor to the EU's trade balance (33.5bn€ of net contribution), and is one of the main sources of fiscal revenue for individual member states (more than 340bn€, in 2002).

In general, the European automotive industry has a high quality brand image that is the result of high R&D investments (it spends more than 20bn€ - 5% of its turnover on R&D).

Europe is the main motor vehicle producer in the world. In fact, 42% of the 42 million passenger cars produced in the world in 2003 were manufactured in Europe (36% in Western Europe). However, in the trucks market America takes the biggest with 56% of world's total production and Europe ranks in third position with a 14% share.

As far as car sales are concerned, 14.5 million units were sold in Western Europe in 2004 (2% more than in 2003, corresponding to the first increase for three years). Table 28 shows the percentage changes in the number of new car registrations in Western Europe between 2003 and 2004.

Table 28



The size of European potential market has grown since the recent EU enlargement to 25 members. This means that there will be an additional 75 million European citizens who will share the expectations with existing ones in terms of transport, travel and mobility needs.

2. Main changes, opportunities and threats

Main changes in this sector result from the globalization of the economy, the rising the manufacturing costs and from technological innovation in processes.

This has led to a consolidation of the industry, to an increase in the competitiveness of the markets, and to a re-allocation of tasks and responsibilities in the value chain.

a) Globalization

The number of suppliers worldwide is expected to decline from the current number of 5 600 to 3 500 by the end of the decade (Roland Berger & Partners, consultants). Simultaneously, and according to the same source,

the number of first tier suppliers per module/system and of modules/systems per vehicle will decrease from 7-8 to 5-3 and 20-18 to 10 by the year 2010.

b) Manufacturing costs

This industry is affected by an unprecedented rise in costs, namely of the raw materials that increased dramatically during 2004. Prices for steel long products rose by up to 120%, sheet metal between 50% and 70%, iron ore and scrap by almost 40%, the price of crude oil by 21% (causing a rise in the prices for primary plastics), copper and aluminum by double figures. Concomitantly, Western Europe is seen as a "high wage area".

The rise in costs of most of the industry's inputs has forced OEM's and suppliers alike to reallocate areas of their core businesses and production facilities. However, a study conducted by McKinsey (ProNet) has shown that "the key factor for a production facility in a high wage country is the presence there of research and development know-how, since this is what drives product innovation"

c) Process innovation

The changes that are occurring in the industry can also be seen in the light of the impending technological and innovative progress. It is expected that this will lead to further transfers of competencies from vehicle manufacturers to suppliers. This will require the latter assuming bigger shares of R&D and other value generating activities (half of the total R&D is known to be already carried out by suppliers).

d) Industrial consolidation

The change from commodity suppliers in the 1980´s, where major OEM's acquired most of their parts from their own production, (70% in the case of General Motors) to current strategic partners in innovation, have led suppliers to take on responsibilities for larger systems (components/modules). Future innovations are also expected to require them to extend their activities to the increasingly important areas of electronics and software control systems. 1st tier suppliers are thus becoming increasingly involved in the construction of systems, just in time delivery to vehicle manufacturers but also in the coordination of second and third tier suppliers.

It is important to note that external factors imposed by EU regulations will impose future areas of technological development and open new business opportunities for the industry's suppliers. New vehicle designs and the use of alternative raw materials will become essential to accommodate EU requirement (by 2015) on the level of vehicle recycling and the elimination of certain pollutant materials.

e) Increasing competitiveness

The competitiveness of the markets has led to a reduction in profit margins.

f) Automotive industry structure (re-allocation of tasks and responsibilities in the value chain)

According to Mckinsey and Company (2003) it is expected that the value added share of vehicle manufacturers will decrease by 10% by 2015. (the figures for Spain and France in 2002 were respectively – 3.8% and -2.1%)
The main areas where these changes are more likely to take place are chassis technology (18%), and engine technology (15%). For the same authors, "even in the core competencies – the vehicle body - the value

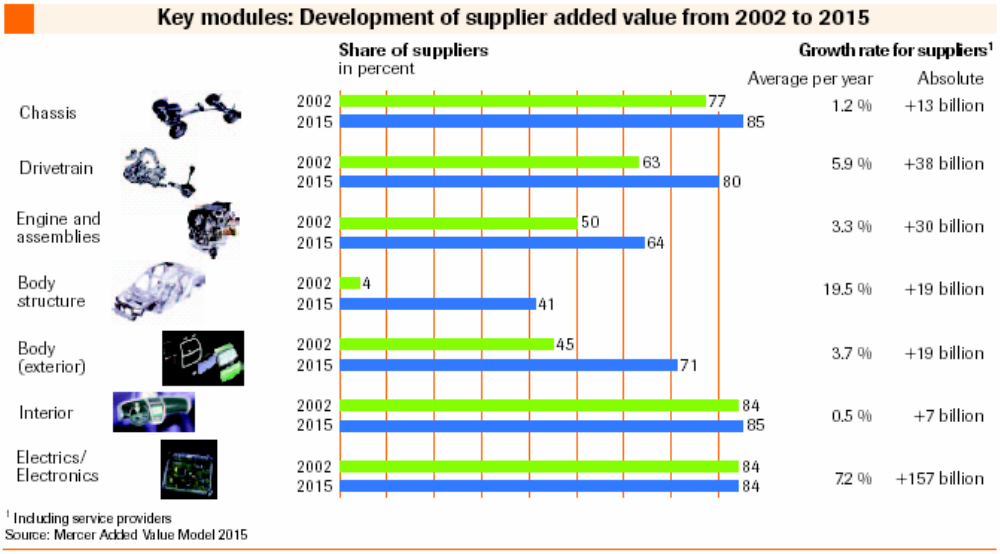
added shares of vehicle manufactures are expected to decrease by 6 % points to 66%".

In a study undertaken by Mercer Management Consulting and the Fraunhoer Gesellschaft "…manufacturers will devote more of their resources to post-production activities such as sales, service and customer support.

As manufacturers increase their focus on this downstream business and on brand-specific elements such as styling, brand experience and image-building features, parts and accessories suppliers will assume greater responsibility for vehicle development and for carrying out production tasks with no brand-determinant character.

The study predicts (figure 46) that added value in car development and production (excluding sales, spare parts and service) will increase by 2.6 percent annually, from 645 billion euros today to 903 billion by 2015. The manufacturers' share of added value will decrease from its current level of 35 percent to approximately 23 percent over the same period.

Figure 46



The key electrical and electronics module will experience particularly strong growth and is forecast to increase from 127 billion euros to 316 billion euros by 2015. Suppliers will deliver 84 percent of this.

Apart from this key module, to which OEMs currently contribute a comparatively small share, the study concludes that manufacturers will reduce their share of added value in all the other six automobile modules. Suppliers and service providers will assume much greater responsibility than before, particularly with regard to body design and the exterior, but also in the engine, mechanical assemblies and chassis areas. This will change the relationship between companies in the value chain and strengthen the position of the automotive suppliers.

Relationships between customers and suppliers will develop into partnerships and alliances. However, this will require changes in the attitudes of those involved, reallocation allocation of jobs, responsibilities, opportunities and risks and the modification of systems and processes." (VDA, Auto Annual Report, 2005).

The current trends in the reallocation of an increasing number of areas that were part of the vehicle manufactures core business are seen to lead to further internalization of the supply segment including second tier suppliers.

A comparison of the developments in Europe, North America and Japan reveals that European vehicle manufacturers lead on the trend of modular production and downstream integration. The European industry has, in this context, at its disposal a large structure of specialized firms for shared product development and production tasks. "If the future lies in the increased specialization of actors in the value chain, the European automotive industry seems to be particularly well positioned in terms of structures and capabilities".

3. Foreign direct Investment (FDI)

In the automotive industry FDI constitutes a major instrument in the internalization strategies at both country and company level, in order to answer to the challenges and the changes in the value chain.

In promoting a particular region by attracting FDI, it is important to be acquainted with both the most popular entry mechanisms and the main objectives that are being pursued.

a) Acquisitions

A survey by PwC of the automotive industry revealed that alliances are the most favourable way of gaining access to markets. Acquisitions and joint ventures are the other two most popular ways.

In terms of the key reasons for considering acquisitions, suppliers stated that they have two main strategic objectives: to gain market shares in their core business and to reposition their company as a supplier of modules or systems and thus "move up from being a mere parts supplier to the status of car manufacturer's key system partner" (VDA, Auto Annual Report, 2005) For suppliers with an annual turnover of less than 50m€, the consolidation of core activities, expansion of the product portfolio and acquisition of new customer groups constitute the main objectives.

For bigger suppliers (more than 250m€) the most important reason was "completing their product portfolio" (VDA, Auto Annual Report, 2005).

b) Promising areas

The decision to invest in a foreign country involves, in the first instance, the identification of the most promising business areas for future development.

In the automotive industry it is not expected that OEM's will invest in new major plants in Europe, and thus in the Euro Atlantic region.

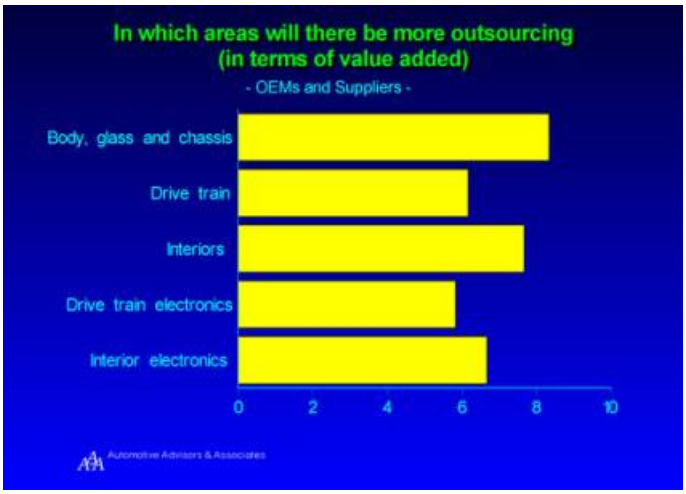
Globalization and competition have not meant merely sharing cost reductions across the industry structure. Rapid technical innovation, systems integration and the development of advanced on-board electronics networks are examples of growing business areas that OEM's are encouraging suppliers to assume.

According to a survey conducted by Automotive Advisors & Associates, "the greatest opportunities for suppliers are the ongoing disinvestments of the vehicle manufacturers (OEM's). In order to make more funds available for product development, marketing and globalization, they systematically seek to farm out more of the value added processes of production and engineering to their suppliers.

Across the industry, car bodies, glass, chassis and interiors[5] are the first OEM's candidates for additional outsourcing. Hardly any vehicle manufacturer will invest in stampings and pressings in the future. Existing stamping and pressing plants are increasingly sold to suppliers and any production growth areas are likely to be farmed out. Seats and interiors will also remain strong outsourcing areas (figure 47).

5 1 body modules, glass and chassis parts are connected with car interiors

Figure 47



However, this study suggests OEM´s have different strategies concerning potential business relationships with their suppliers. These differences are said to depend "on individual growth potential expectations, current plant structures, core competencies, product strategies and target markets. In other words, on individual core strengths and weaknesses.

In this context, the Automotive Advisors & Associates's study identifies the following business potentials according to top and mid range OEM's strategic priorities: …the typical top-range OEM focuses on technical innovation, increased engineering by suppliers and improvements in their systems and modules capability even more than on simple cost reduction. They try to escape the cost squeeze by raising the perceived value of their vehicles above the actual costs and by creating new demand through rapid innovation.

Not all OEMs of course are in that league. Instead, some put cost-reduction first and seek suppliers that are willing and capable to share the costs. They focus on low cost suppliers and as a consequence ask them to manage a wider range of supplies globally; this improves their product scope by providing whole systems and modules. By setting these priorities, OEM's are

trying to extend their low-cost parts supplies without entering the risk of lowering product quality by changing to new and unproven suppliers.

Notwithstanding, the underlying concern of the OEM's is on short-term results in terms of gaining market shares by improving the volume of sales.

c) Euratlantic area

The EA region appears to have a diversity of resources and competencies to respond to these challenges, and to expand its importance in the world's industry by attracting FDI from North American companies.

The automotive industry in the 13 regions that comprise the EA territory offers attractive business opportunities both in the value chain of the industry (the main areas were identified in this study) and in terms of those factors that were "more likely to impact on global investor's decisions" (identified in the 1st chapter of this study).

There are opportunities for those companies that wish to "move up from being a mere parts supplier to the status of car manufacturer's key system partner" as there are for those that might wish to collaborate with certain OEM's strategies of extending their low cost supplies.

In fact, the EA is a territory that provides:

- quick access to the know how required by high technology areas as well as productivity levels that will permit the absorption of the impact of the continuing rising costs of other production factors;
- high levels of private and public R&D with "low cost services, attractive education levels, infrastructures, financial and political climates, safeguard for intellectual property and quality control, can outweigh strong cost advantages that exist in other areas";
- large-scale industrial clusters and concentrations of foreign-owned firms that ensure potential synergies and reduce uncertainty;

- proximity to market and technology.

Closer to a territory that is a major car producer and the world's biggest automotive market.

Closer to first class technological centres providing easy access and participation in new production processes and product innovations.

Furthermore, and in the light of the current trends in the vertical disintegration of the industry (and also of simultaneous concentration), proximity will satisfy the needs for a closer relationship between client and supplier that are required in certain areas of the "new" value chain (both between OEM's and 1st tier suppliers and between these and 2nd tier ones.

d) Specific features of EA Regions

A study in Castilla y Leon conducted by several Universities of this region for the Consejo Económico y Social de la Comunidade de Castilla y Leon examined the reasons for the initial decision for the location of 29 (including 16 with foreign-owned capital) of the main automotive suppliers of the region. It showed that accessibility to clients, transport infrastructures, low industrial space costs, fiscal and financial incentives, were the factors most often cited. Amongst the advantages of being near to either their clients/suppliers, it is important to note that the factors that were most often referred to were the benefits that result from closer contacts, the need to adopt JIT techniques and the lower transport costs.

It is important to point out that there is a significant integration of the automobile industry in four of the main geographic regions of the EA i.e. North of Portugal, Galiza and Castilla Y Léon and Asturias (maps below). Asturias does not have any OEM located in its region but it has an important auxiliary industry whose main export markets are France (32%) and Germany. Andaluzia appears to have strong links with neighbouring Spanish

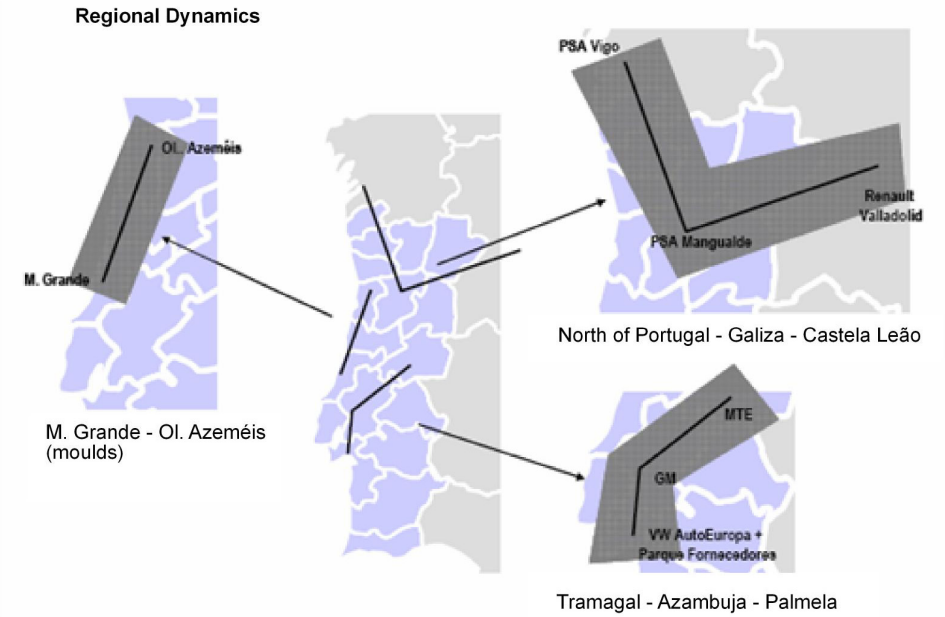
regions (e.g. Catalunha as a major centre of the Spanish automotive industry) and the French regions constitute a coherent group of interlinked competencies. These general relationships must, however, be seen in the context of the various business needs of the industry's value chain and thus of potential opportunities for foreign investment.

Figure 48

North of Portugal - Galiza - Castela Leão

Source: NORTINOV

Figure 49



Source: NORTINOV

Finally, the assessment made by several businessmen about the potential of the automotive industry in the EA area is summarized as follows:

*"…In the end, Toyota chose France for the quality of its **infrastructures**, **its automotive subcontractors established in the are**a, and **the ease of access to most major markets**…"*

*"…What we consider a real success story is our new plant in Offranville (Normandy), which ships door panels to Opel up into the UK and Germany. This is in large part due the help and **support of French Governmen**t. **Invest in France Agency** was very good to work with and very supportive.*

*"VW AutoEuropa – Portugal has the **lowest absenteeism levels** of all European operations, together with one of the **highest productivity rates**; Workers proposed and adopted a **flexible working regime**, agreed with top management, which optimizes efficiency according to market demand.*

"…the mental agility of the Portuguese is very important. They are very willing, hard-working and motivated…"

Facts speak for themselves: Portugal has experienced ***an outstanding scientific progress*** *among EU and OECD countries. Portugal today has a* ***fast-growing and strongly internationalized science & technology community****, counting on a young and future oriented community of researchers.*

Siemens, the German electrical engineering and electronics group, has also moved part of its research and development operations from the US and Germany to Portugal and a large proportion of the 900 employees at its Portuguese units are now ***highly qualified engineers engaged in research****. In an unassuming way, Portugal has become a* ***world leader in several other areas of cutting-edge technology, from electronic banking and automatic motorway tolling to interactive digital television and mobile phone payment systems.***

ANNEXES

ANNEX 1

LA PRODUCTION MONDIALE

	Voitures particulières				Véhicules utilitaires				Production totale		Variation
	2003 Milliers	%	2004 Milliers	%	2003 Milliers	%	2004 Milliers	%	2003 Milliers	2004 Milliers	2004/2003 %
Europe	17 237	41,1	17 822	40,3	2 764	14,6	3 008	15,1	20 000	20 830	4,1
dont:											
Europe occidentale	14 602	34,8	14 664	33,2	2 176	11,6	2 190	11,0	16 776	16 854	0,5
Allemagne	5 145	12,3	5 192	11,7	361	1,9	378	1,9	5 507	5 570	1,1
Belgique	792	1,9	857	1,9	113	0,6	43	0,2	904	900	-0,5
Espagne	2 399	6,7	2 402	5,4	630	3,4	609	3,1	3 030	3 011	-0,6
France	3 220	7,7	3 227	7,3	400	2,1	439	2,2	3 620	3 666	1,3
Italie	1 026	2,4	834	1,9	295	1,6	308	1,5	1 322	1 142	-13,6
Royaume-Uni	1 658	3,9	1 647	3,7	189	1,0	209	1,0	1 846	1 856	0,5
Suéde	280	0,7	290	0,7	43	0,2	48	0,2	323	339	4,9
Europe centrale et orientale	2 340	5,6	2 710	6,1	349	1,9	442	2,2	2 689	3 152	17,2
Turquie	294	0,7	447	1,0	239	1,3	376	1,9	533	823	54,4
Amérique	8 267	19,7	8 351	18,9	10 013	53,6	10 476	52,5	18 280	18 827	3,0
dont:											
ALENA (1)	6 625	15,8	6 359	14,4	9 619	51,5	9 905	49,7	16 243	16 265	0,1
Amérique du Sud	1 642	3,9	1 992	4,5	395	2,1	570	2,9	2 037	2 562	25,8
Asie-Océanie	16 196	38,6	17 768	40,2	5 789	31,0	6 319	31,7	21 987	24 087	9,6
dont:											
Japon	8 478	20,2	8 720	19,7	1 808	9,7	1 791	9,0	10 286	10 512	2,2
Chine	2 019	4,8	2 316	5,2	2 425	13,0	2 754	13,8	4 444	5 071	14,1
Corée du Sud	2 768	6,6	3 123	7,1	410	2,2	347	1,7	3 178	3 469	9,2
Afrique	267	0,6	288	0,7	129	0,7	134	0,7	396	422	6,6
TOTAL	41 969	100,0	44 228	100,0	18 695	100,0	19 937	100,0	60 663	64 165	5,8
Variation 2004/2003	**+ 5,4 %**				**+ 6,6 %**				**+ 5,8 %**		

Dans la production par zone géographique, les doubles comptes on été éliminés.
(1) ALENA: Canada, États-Unis et Mexique.
Source: CCFA, OICA

ANNEX 2

TABLE 1 - International comparison of hourly labour costs in the automotive industry

Table 4.6: International comparison of hourly labour costs in the automotive industry

	Conversion to US $ based on PPPs			Conversion to US $ based on exchange rates		
	1990	1995	2001	1990	1995	2001
Korea	5,4	8,4	12,9	4,3	8,0	7,3
Japan	17,8	24,1	29,0	24,0	43,5	35,7
USA	25,4	34,3	33,8	25,4	34,3	33,8
EU-15	19,1	26,3	32,7	23,1	31,6	25,7
Austria	13,4	21,0	23,8	16,6	29,6	19,7
Belgium	20,7	27,9	31,5	24,4	34,7	25,2
Denmark	12,8	17,0	21,4	26,4	40,8	31,5
Finland	12,5	18,3	21,0	19,4	25,5	21,7
France	17,4	22,2	25,6	19,2	19,0	15,8
Germany	20,5	29,0	26,8	20,8	24,5	18,6
Greece	7,4	10,6	12,2	21,1	28,7	21,1
Ireland	9,5	13,1	17,5	6,5	9,3	8,0
Italy	17,0	21,4	23,9	10,9	13,3	15,6
Luxembourg	13,0	14,8	19,2	20,2	20,4	17,2
Netherlands	13,2	17,2	24,1	15,5	19,5	17,2
Portugal	8,1	14,7	19,3	15,7	21,8	19,7
Spain	17,9	19,4	23,3	5,9	11,7	11,1
Sweden	15,8	18,5	19,4	24,9	25,3	18,3
UK	17,9	22,3	26,2	19,2	23,0	24,2

Source: see text.

Purchasing power parity (PPP) rates calculated by the OECD to convert national currency to US dollars are used.

UVR automotive unit value ratios

TABLE 2 - Unit labour costs in the automotive industry

Table 4.7: Unit labour costs in the automotive industry

	Total Labour Costs per Gross Production (%)			Total Labour Costs per Value Added (%)		
	1990	1995	2001	1990	1995	2001
Korea	14,4	16,7	12,2**	41,0	46,2	42,1
Japan	12,9	15,2	15,1*	52,0	60,2	55,6
USA	19,0	21,1	18,7	88,1	70,7	59,7
EU-15	n.a.	n.a.	n.a.	75,0	73,2	78,9
Austria	20,8	18,1	15,9	74,6	64,9	53,1
Belgium	n.a.	13,4	12,5*	76,3	70,1	73,2
Denmark	21,2	28,3	26,5	56,2	71,9	63,7
Finland	21,6	28,0	28,6	64,5	76,2	76,2
France	14,9	14,2	10,0	63,8	65,2	46,4
Germany	26,3	25,6	21,7	74,8	75,3	79,7
Greece	n.a.	27,5	25,8	94,6	102,1	86,0
Ireland	19,6	17,5	14,1	98,0	95,3	n.a.
Italy	n.a.	n.a.	n.a.	70,9	74,1	69,6
Luxembourg	n.a.	n.a.	n.a.	58,3	72,8	86,5
Netherlands	14,8	14,7	13,7*	74,9	74,0	73,9
Portugal	n.a.	n.a.	n.a.	98,5	75,5	50,8
Spain	22,9	14,9	13,5*	88,9	62,6	70,9
Sweden	21,1	15,9	n.a.	73,7	59,2	56,9
UK	24,0	21,8	20,1*	75,2	77,6	81,5

*:2000; **: based on employees only.

Source: OECD Stan Database, Internet Version March 2004

TABLE 3 - Average yearly working hours in the automotive industry, by coubtry

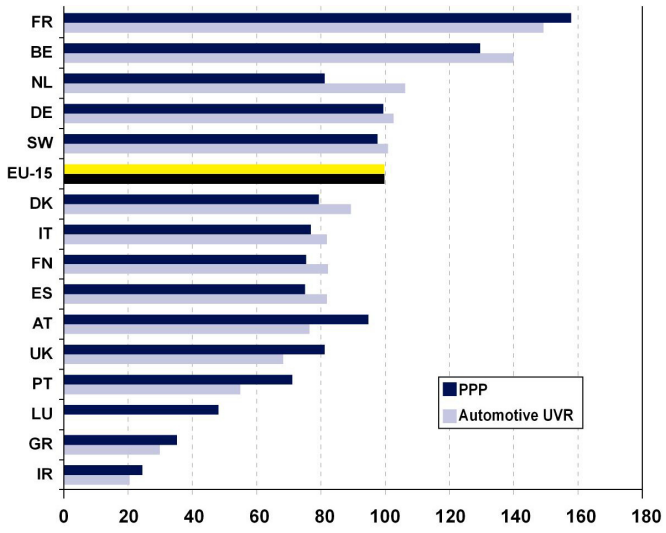
Table 4.8: Average yearly working hours in the automotive industry, by country

	Hours worked per employee per year relative to US US = 100					Average working hours per year per employee
	1981	1985	1991	1995	2001	2001
Korea	140,8	130,0	129,8	121,7	121,1	2460
Japan	114,8	112,3	115,6	98,4	99,6	2023
USA	100,0	100,0	100,0	100,0	100,0	2032
EU-15	90,9	84,0	84,6	79,7	77,9	1583
Austria	97,6	91,1	92,9	81,5	80,0	1626
Belgium	92,5	86,1	87,8	80,2	77,2	1569
Germany	82,5	78,5	78,0	73,8	71,2	1447
Denmark	92,1	85,0	84,8	80,7	79,2	1609
Spain	102,8	92,3	94,2	88,6	89,3	1815
Finland	90,0	86,3	84,4	76,9	80,8	1641
France	101,1	87,3	84,6	79,1	77,4	1572
Greece	104,4	96,8	98,7	93,9	94,9	1929
Ireland	103,7	94,8	99,2	89,6	82,8	1682
Italy	87,4	80,7	84,2	77,8	80,3	1631
Luxembourg	89,6	82,1	84,6	76,5	76,8	1560
Netherlands	92,1	84,3	93,9	77,9	76,4	1552
Portugal	100,1	93,1	97,2	89,0	84,4	1714
Sweden	77,6	75,0	79,1	83,1	83,5	1697
UK	96,7	94,3	98,0	91,5	88,9	1806

Source: Groningen Growth Development Centre Industry Data Base, OECD/STAN.

TABLE 4 - Labour productivity of Member States relative to EU-15 average, 2001

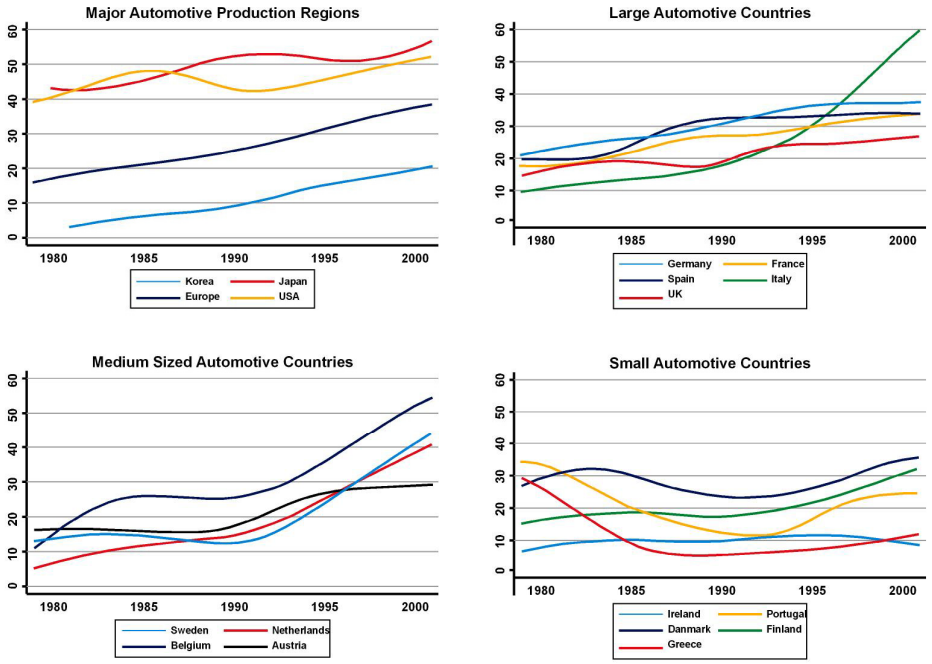
Graph 4.35: Labour productivity of Member States relative to EU-15 average, 2001



Source: ZEW calculations.

TABLE 5 - Trend labour productivity by country, 1981-2001 (in US dollars; automotive UVR)

Graph 4.36: Trend labour productivity by country, 1981-2001 (in US dollars; automotive UVR)



ANNEX 3

LABOR FRAMEWORK

The reforms undertaken in 1994 and 1997 in Spain have introduced high flexibility in the labor market. The most recent reform has rationalized and simplified the labor contract system, by reducing the number of available contract forms from 18 to 9; it has also clarified the terms of dismissal and introduced a new type of long-term contract with lower dismissal compensations. As the Spanish growth rate between 1996 and 1999 was way above the EU average, the increase in the employment rate outpaced the rest of Europe, reaching 3.5%, which compares favorably with the 1.1% EU average. A great deal of this improvement was due to the market labor reform.

1.- Types of contracts

Indefinite contracts:

This category includes the normal indefinite contract as well as several types of indefinite contracts with government incentives.

The main characteristics of the **normal indefinite contract** are:

-

In the absence of any other formalized contract type, the contract is presumed to be normal indefinite.

-

Severance pay for improper dismissal is a maximum of 45 days salary for every year worked, up to a maximum of 42 months equivalent salary.

-

There are no Social Security subsidies or any other financial incentives.

Indefinite contracts with incentives may be used when hiring:

-

Workers over 45 who have been unemployed for at least one year.

-

Women unemployed for more than a year who have been hired for work in sectors where women have been traditionally under-represented.

-

Workers between 30 and 44 who have been unemployed for more than a year.

-

Unemployed workers under 30 years of age. Workers with disabilities.

If you are interested in a detailed description of indefinite contracts with incentives, click here

The main characteristics of Indefinite contracts with incentives are:

- Severance pay for improper dismissal is 33 days salary for each year worked with a maximum of 24 months equivalent salary.
- Subsidies of up to 75% from the employer's social security contribution.
- Tax benefits.

Temporary contracts:

The main types are:

- "Contract for a specific project or service", arranged for the purpose of performing work or providing a service which is temporary but of uncertain duration.
- "Casual contract due to production overload or backlog". The maximum duration of this type of contract is six months in any twelve-month period.
- "Contract to sit in for employees entitled to return to their job". The duration of this contract is the period during which the absent employee retains the right to return to his or her job.
- "Work experience contract". This contract can be arranged with university or junior college graduates or persons with vocational qualifications or recognised equivalent qualifications, provided that not more than four years have elapsed since they completed the related training. The duration is from six months to two years.
- "Trainee contract". This type of contract can be arranged with workers aged 16 to 21 who do not have the necessary qualifications to obtain a "work experience contract". The duration of this contract ranges from six months to two years, although it may be extended to three years by a collective labor agreement.

Transitory employment needs may be met through workers provided by temporary work agencies

2.- Working hours

1. Duration

- Working hours shall be as agreed in the collective agreement or work contracts.
- The maximun normal working hours shall be an average of 40 hours per week calculated on a yearly basis.
- No more than nine hours of normal working hours may actually be worked per day, unless daily working hours are distributed differently under a collective agreement, or failing this, under agreement between the employer and workers' representatives. The rest period between working days must be respected.
- Working hours may be distributed irregularly throughout the year under collective agreement or, failing this, by agreement between the employer and the workers' representatives. This distribution must respect the minimun daily and weekly rest periods in all cases.

2. Increasing and reducing working time

For sectors and jobs whose special features so require, the government may, at the proposal of the Ministry of Labor and Social Affairs, and after negotiations with the most representative unions and employers' organisations, increase or reduce working hours and rest periods and alter their distribution.

3. Night work

Work performed between 10 p.m. and 6 a.m. is considered night work. Any employer who regularly resorts to night work must report this circumstance to the labor authority.

4. Rest periods

There must be at least twelve hours between the end of one working day and the beginning of the next.

5. Holidays

As agreed under a collective agreement or an individual work contract, but never less than 30 calendar days

ANNEX 4

TAXES: CORPORATE INCOME TAX

What are the main features of the corporate income tax regime?

The Spanish tax system is modern and competitive. Within the framework of economic globalization, the Spanish tax system has undergone a series of reforms designed to increase the competitive advantage of foreign companies that begin operations in Spain.

Corporate Tax Law 43/1995, Non-Residents Income Tax Law 41/1998 and Directive 537/97 are the main regulations.

In June 2000, Royal Decree/Law 3/2000 included a series of measures to affect favorably the tax-paying status of small and medium enterprises (SMEs) as well as innovative firms.

The key factor in determining the application of corporate income tax is "residence". A company is deemed to be resident in Spain for tax purposes if it meets any of the following conditions:

- That it was incorporated under Spanish law.
- That its registered office is located in Spain.
- That its effective management headquarters are in Spain.

In the event of a conflict of residence, the provisions of Spain's tax treaties with other countries where applicable, will prevail. Resident companies are taxed on their worldwide income. Taxable income includes all the profits from business activities, income from investments not relating to the regular business purpose, and income derived from asset transfers.

1.- Taxes for small and medium-sized companies

The tax rate for these companies is 30%, applicable to the first € 90,000 of taxable income. Any taxable income above that amount is taxed at 35%.

Companies whose net sales in the immediately preceding tax period (or in the current tax period in the case of newly-incorporated companies) amount to less than € 3 million qualify for certain tax incentives:

- Accelerated depreciation of their tangible fixed assets up to certain limits, provided that certain job creation requirements are met.

- Accelerated depreciation of new fixed assets whose unit value does not exceed € 600 (up to an aggregate limit of € 12,000), without having recorded it for accounting purposes.

- Entitlement to increase by a coefficient of 1.5 the maximum depreciation rates permitted by the official depreciation tables. When companies reinvest proceeds from the sale of tangible fixed assets in the purchase of similar replacement assets, the special amortization coefficient multiplier is increased from 2.5 to 3.

- Ability to record provisions for bad debts based on 1% of such balance at the end of the tax period.

- A 10% tax credit for investments and expenses in Internet, Information Technology and communications.

ANNEX 5

INCENTIVES

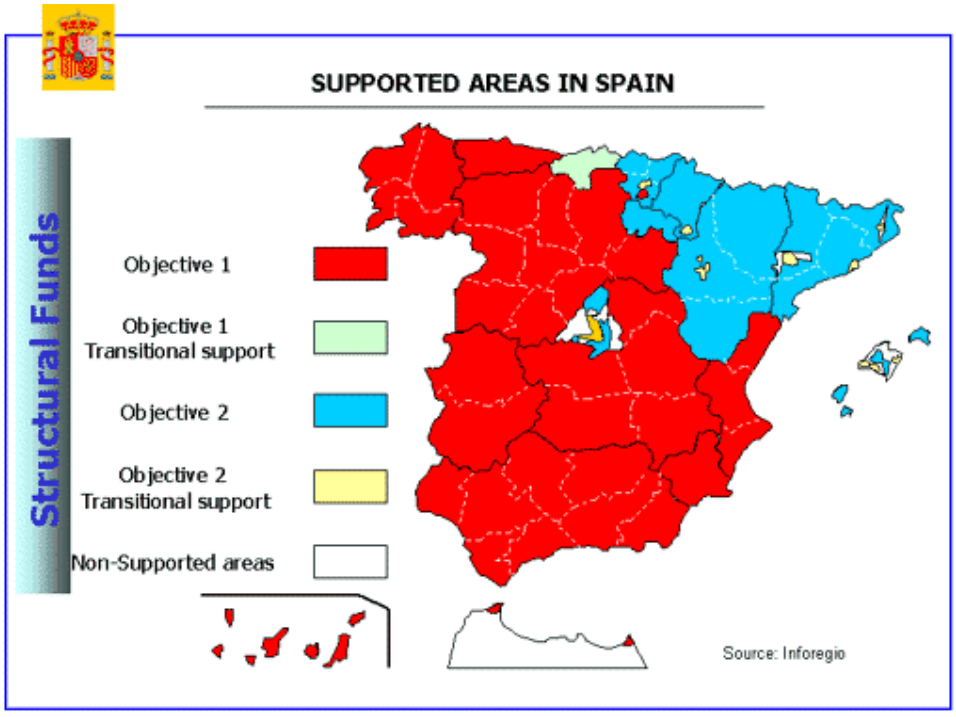
1.- Investment grants and incentives

All aids and incentives offered by the state and the Autonomous Communities are governed by the regulations and limits which the European Union has established for its Members.
The European Commision only permits aid and incentives in those regions defined in objective 1 and objective 2 .

Objective 1: Regions in which the gross domestic product (GDP) is below 75% of the Community average.

Objective 2: Regions in which it is necessary to revitalise areas facing structural difficulties, whether industrial, rural, urban or dependent on fisheries.

Transitorial support: Regions which, by 1999, had attained an economic social position no longer justifying, for 2000-2006, the previous high levels of Community aid, but are still eligible for a lower amount.
See map



1.1.- Incentives for Investment in Certain Regions

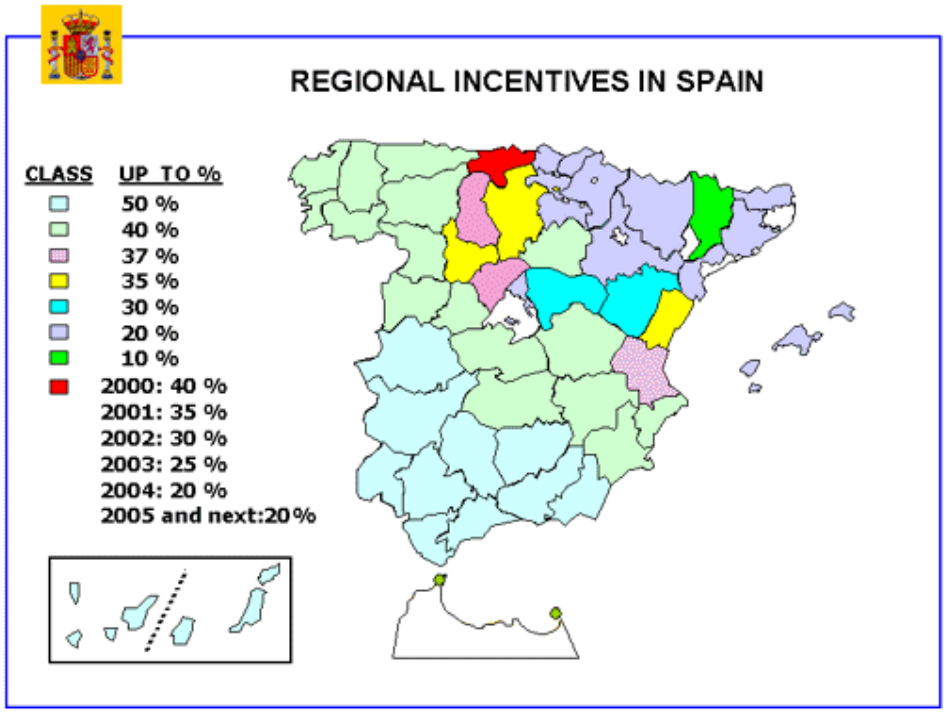
A) Granted by the Central Government (2000-2006)

Regional Incentives are granted by the state in accordance with EU requirements and limits. This assistance is based on *nonrefundable cash subsidies* for a percentage of eligible investment expenditure to be located in determined regions. They are granted to *investments in eleven autonomous communities*: Galicia, Asturias, Castilla y León, Castilla-La Mancha,

Extremadura, Valencia, Andalucía, Murcia, the Canary Islands, Aragón, Cantabria and the autonomous cities of Ceuta and Melilla.

- **Incentives Ceilings:** The maximum subsidies vary from one region to another (see Regional Incentives Map). In most Spanish regions, the scope of state assistance is between 40% and 50% of the approved investment.
- **Qualifying Projects:** Greenfield operations; expansion of existing activities or start-up of new activities in the same site; modernization of the business; relocation.
- **Qualifying investments:** Subsidies must be generally allocated to land purchases; installation of services such as gas and electricity; civil engineering for plants, offices or warehouses; capital goods and other fixed assets; planning and design of the projects; R&D; training.
- **Main Requirements:** Project within eligible sector; 30% of the investment must be self-financed; job creation and a minimum investment of € 601,012.
- **Qualifying sectors:** (1) extractive and processing industries; (2) specific food processing and fish-farming industries; (3) industrial support services which markedly improve commercial structures; and (4) specific tourist facilities with an impact on development in the area.

APPENDIX I: Map of Incentives Ceilings by Region



B) Granted by the Autonomous Communities, Municipalities and City Councils

Similar programs in all the Spanish regions reinforce the national government's program of regional incentives. These incentives are compatible with the central programs shown in **A).** Together with other incentives, they cannot exceed the limits set by the EU in the particular region.

Madrid and Cataluña have an incentives ceiling of 20%.

I.2.- Incentives for Training and Employment

- **Training**
  There are subsidies that partly cover training plans (mainly the cost of instructors, leases on the facilities used, materials, etc.).
- **Employment**
  Spain offers incentives consisting mainly of relief from employer social security taxes and some grants:

1) Fostering of discontinuous employment (full-time or part-time)

- 20% relief from the employer's social security contributions for the first 24 months per contract with unemployed persons for at least six months. The rebate is 30% in the case of full-time hiring of women.

- 25% rebate in the employer's social security contributions for the first 24 months in the case of full-time or part-time hiring of women aged 16-45.

- 50% relief from the employer's social security contributions for the first 12 months and 45% relief thereafter per contract with unemployed people between 45 and 55.The rebate is 60% and 55% respectively in the case of full-time hiring of women.

- 55% relief from the employer's social security contributions for the first 12 months and 50% relief thereafter per contract with unemployed workers between 55 and 65. The rebate is 65% and 60% respectively in the case of full-time hiring of women.

- 50% relief from the employer's social security contributions for the first 12 months and 45% relief during the second year per contract with unemployed people who have a right to draw unemployment benefits for at least one more year.

- 65% relief from the employer's social security contributions for the first 24 months per contract with long-term unemployed persons. The rebate is 75% in the case of full-time hiring of women.

- 100% exemption of the employer's social security contributions for 12 months in the case of hiring two years following the birth of the child unemployed women for at least one year.

2) Fostering the employment of women in industries where women are underepresented

- 70% relief from the employer's social security contributions for the first 12 months and 60% relief for the second 12 months for women unemployed for at least six months or over 45 years old.

- 35% relief from the employer's social security contributions for the first 24 months and for women unemployed for up to 6 months and younger than 45 years old.

3) Fostering of local job creation

- 75% of the expenses to support management activities during the first year after the incorporation with a ceiling of € 12,020.

- A subsidy for technical assistance for the hiring of high-qualified technical experts, covering 50% of total labor costs. This is a one-time subsidy with a ceiling of € 18,030.

I.3.- State Incentives for Specific Industries

The Spanish Administration provides substantial financial aid and tax benefits for activities carried out in certain industries which are: agro-food and related activities industries, energy and environment, mining, technological innovation and R&D. Some of the financing programs are:

1) Program to Foster Technological Innovation, Research and Development (PROFIT 2004-2007)

The Ministry of Science and Technology is directly responsible for technological development and the application of achievements to industry. In order to do this, this Ministry has designed PROFIT to manage R&D&I policy. The basic objectives of the program are to raise companies' capacity to incorporate new technology, strengthen rapid growth sectors and markets and create and develop technology-oriented companies. PROFIT has been structured around two areas: (1) the scientific-technical area, covering biotechnology, industrial design and production, materials, chemical processes and products, natural resources, agro alimentary technologies, information and communication technologies, socio-economics and biomedicine; and, (2) the industry area, covering aeronautics, the car industry, energy, space, the environment, the information society, transportation, and urban and country planning.
The projects financed by the program can be located in any of Spain's Autonomous Communities.
The types of funds considered in this program include:

a) Repayable advances. They consist of interest-free loans whose payment schedule will be determined in function of the characteristics of each project. **The loans can amount to up to 75% of the project, with a 15-year interest free repayment period.**

b) Grants. They will be given to projects or actions concerned with advanced technological development, to those developed by non profit-making institutions and to special projects and socioeconomic research. In special cases funds can be provided in the form of grants and reimbursable cash advances, if the evaluation of the project so advises. These subsidies can cover up to 25-35% of the total cost.

The projects qualifying for funding include: apparatus and equipment, personal expenses of employees, perishable material, collaboration with other companies (as long as the outside collaboration is under 50% of the total) and other expenses.

2) Funding from the Center for the Development of Technology and Industry (CDTI)

As concerns Spanish and foreign private companies, the CDTI, a government organism in charge of the development of technological innovation, *promotes projects basically through refundable credit schemes***.** Credits are awarded on a competitive basis through public competitions for technology projects during the year. The projects to be financed are structured around 3 areas:

a) Technology Development Projects: projects that carry a moderate technical risk and require the development of new processes and/or products for their marketing. In many cases these can be developed jointly by companies and regional technology centers, CDTI funding can be awarded hand in hand with grants from the Spanish Ministry of Science and Technology and/or funding from the Autonomous Communities.

b) Technology Innovation Projects: projects directed at facilitating the introduction and assimilation of new technologies in companies. These projects carry a low technical risk and a short maturity period.

c) Technology Promotion Projects: projects directed at marketing the technology overseas, covering the necessary costs of protecting the technology (patents, trademarks, etc.) the negotiations and the international marketing plan.
The CDTI evaluates the project both in terms of its technical/commercial field and the financial/economic departments of the company. In order to do this, the following criteria are taken into account:

1. Appropriateness to the overall funding program's aims of regional financing, with special emphasis on the capacity to produce a competitive industrial advantage and create jobs, particularly in the case of small and medium-sized businesses.
2. The feasibility and scientific-technological standard of the proposal.
3. The suitability or possibility that the results of the financing will report the expected socio-economic benefits.
4. The adequacy of the estimated financial resources to the proposed objectives.
5. The participation of the firm in European projects.
6. The level of cooperation with other companies.

Among the various forms of CDTI funding, the most notable ones are the previously mentioned refundable credits, which have the following characteristics:

• They are granted for up to 50% of the cost of the project.
• In the event of the failure of the project, the credit becomes an outright grant.
• In the event of the project's success, the credit will be repaid interest free at its nominal value in regular installments in a five-year term starting from the completion of the project with one year’s grace.
• The CDTI does not demand precise guarantees for the granting of the credit.