Between Globalization and Regionalization
What is the Future of the Automobile Industry?

Michel Freyssenet, CNRS-Paris
Yannick LUNG, Bordeuax 4

Internationalization: the 'Fin de Siècle' Challenge Facing the Automobile Industry

If the challenge facing automobile producers in the 1980s was how to change their industrial model, that of the 1990s will probably be how to reorganize themselves internationally. Of course the internationalization of the automobile industry is nothing new, having been one of the industry's characteristics since its inception, and international trade has accounted for a higher proportion of sales than it does today at several periods in the past (Bardou, Chanaron, Fridenson, Laux, 1997; Tolliday, 1996). History therefore reveals that this kind of change can ebb and flow, in part due to the economic, political and social tensions that it engenders (Hirst, Thompson, 1996). Incapable of creating by itself the rules which might assure its growth and longevity, it first caused the reaction of protectionist policies during the 1930s, and, later, national policies of 'autocentric' growth in the context of the pax Americana during the post-war boom. Globalization has neither been achieved nor is irreversible nor is unavoidable.

Yet the current tendency towards internationalization differs from previous phases, in particular the one during the 1970s and 1980s analyzed by GERPISA during one of the initial research projects of the network (GERPISA, 1984), in part due to the global context of deregulation and the emergence of new growth poles but above all because of its origins. The clash between the industrial models used by companies and between national growth models to which we have been witness over the last twenty years has destabilized employment relationships and in turn the markets of many mature countries, including those of countries which have benefited from this confrontation. Companies can no longer rely upon markets that are relatively predictable both quantitatively and qualitatively.

They are therefore faced with the following choice. Either they organize themselves in such a way that they can remain profitable in an unstable international economic environment while they await a possible homogenization of competitive conditions in terms of products, capital and labour, or they seek out local and regional economic spaces where they can recreate the conditions of regulated growth. Which process will win out? The analysis of international trade does not yet permit us to arrive at a clear conclusion. It is therefore necessary to undertake a detailed description of the internationalization trajectories that are currently being followed by companies (producers, suppliers, distributors) in order to identify their actual strategic choices and to understand the outcomes. If what we have said is correct the question of future paths towards internationalization is obviously an essential one for companies in the automobile industry.

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It is also an important question in scientific terms if we are to understand what is happening and what is going to happen in the automobile industry. Either companies are going to adapt or transform their socio-productive model as a function of the new global context and the regional spaces that are being created, or they are going to focus on the spaces that contain or may in the medium term contain the preconditions for the continued functioning of their existing model, or alternatively they will misunderstand or underestimate the choices before them, as a result of which their performances are likely to be seriously compromised. An understanding of the actions and outcomes of the actors who make up the automobile industry in all its aspects (organization of production and employment relationships) therefore requires an understanding of the concepts and paths towards internationalization that each of them is following.

The Recomposition of the Global Economic and Political Space

The 1990s do not in practice appear to be a mere continuation of the crisis that started in the early 1970s but a new phase. It would appear that after having reduced the competitive gaps between them, automobile producers and their suppliers are once more attempting to increase their production volumes and penetrate their competitors' markets. But this offensive is occurring in a global space which is undergoing a process of recomposition under the impact of four different, and sometimes contradictory, processes which are having a major effect on the automobile industry in the sense that they are reinforcing the global character of the competitive process: financial globalization, the liberalization of world trade and deregulation, the constitution of regional entities around each pole of the Triad and finally the emergence of the newly industrializing countries, particularly in Asia.

Financial globalization

While the issue of the internationalization of the automobile industry remains open, particularly with regard to the form it takes (globalization or regionalization), financial globalization has been largely completed, even if this process has not been accompanied by the development of a system of regulation appropriate to the new configuration. Even without evoking the systemic risks that make the whole world economy fragile (Aglietta, Brender, Coudert, 1990; Bourguinat, 1989), companies are permanently subjected to the erratic fluctuations of exchange rates. These fluctuations have immense effects on the competitiveness and profitability of companies, and can undermine the parameters of an industrial strategy that had long been planned, and can force modification of investment projects (Dohni, 1995). The three principal automobile producing countries, the United States, Japan and Germany, also have the three main currencies used in the international monetary system, the US dollar, the Yen and the Deutschmark, which are immediately affected by the transactions of financial institutions and through which governments may try to create new competitive advantage. Japan and Germany are currently reacting to the appreciation of their currencies, particularly against the dollar, by relocating part of their output towards their markets or into developing countries. Conversely, the recovery of the American automobile industry has benefited from the depreciation of the dollar (the yen-dollar exchange rate changed from 150 yen per dollar in 1990 to less than 100 yen in 1995).

These significant and sudden fluctuations affect not only the relationships between the three world regions, but also occur within regional spaces including those which are supposed to be partly protected from currency fluctuations thanks to local regulatory mechanisms such as those that have been adopted in the European union. Given the importance of intra-regional trade both for final products and components, automobile companies are wide open to the risks of exchange rates. By protecting themselves from these risks with increasingly complex financial arrangements the automobile producers are accelerating the finance-dependency of the world economy.

Recent events bear witness to these risks, with the collapse of the Mexican Peso against the dollar in the fourth quarter of 1994 and above all the turbulence of the European monetary system which affected the five main automobile producing countries. The industries in countries with strong currencies (Germany and France) were affected by the depreciation of the Spanish, Italian and British currencies which meant that the competitiveness of their products (finished vehicles and components) was increased by the decline in the value of the currencies by 20-30%. These changes led to significant losses for the German and French producers. A directly industrial response to guard against these currency risks is to internationalize production, and this is favoured by the liberalization of trade.

The liberalization of automobile trade

The wave of free trade which dominates the end of the twentieth century has brought about a negotiated development of new rules to govern international trade. These rules seek to eliminate tariff and non-tariff barriers to trade, either immediately or after a variable-length period of transition. The creation of a supra-national regulatory body, the World Trade Organization, bears witness to the will to do this even if it is not yet powerful (especially given the prerogatives of the major economic powers, such as Act 301 in the United States). The automobile industry is particularly affected by the reduction and indeed elimination of barriers to trade in automobile products (vehicles and components) which has taken place in recent years with regard to both the major automobile powers and the smaller countries that have long been concerned to protect their national industry.

As far as trade among the United States, Europe and Japan is concerned, tariff protection is almost non-existent and the other forms of protectionism are subject to a negotiated and planned dismantlement, notably between Japan and its partners. The agreement that was reached between Japan an the European Union to assure a voluntary restriction of exports by Japanese producers until the final opening of the European market on the 1st January 2000 (Vigier, 1992; Surzur, 1995) illustrates this trend. The abandonment of import substitution strategies has led to the reduction of tariff barriers and quotas in countries like Mexico, Brazil and Australia which have suddenly opened their markets to international competition.

This tendency appears to be strong even if there may be some reversals in crisis situations. An example is the 1995 decision of the Brazilian government, faced with a sudden increase in imports that deepened its external deficit, to unilaterally increase tariffs on automobiles first to 32% and then to 70% before adopting a quota regime, including for its partners in MERCOSUR. Even if this reaction was later tempered after bilateral negotiations with Argentina and multilateral negotiations with the World Trade Organization (Roldan, 1996) the situation appears ambiguous and there may still be

reversals. The globalization of competition is in practice leading to an erosion of the national bases of the automobile industry both in terms of final markets (increased imports and decline of national producers) and in terms of components (internationalization of the components industry) which is making the situations of domestic companies and whole supply chains in every country more fragile.

Yet the globalization of competition does not imply the creation of a world automobile market. A world market presupposes that in various countries it is possible to find homogeneous products or product ranges and the same price for the final product (vehicle or range) and for intermediate goods (production equipment and components), which would facilitate an international decomposition of the production process at the world scale. We are far from this situation, in part because the process of regional integration is continuing apace.

The process of regional integration

The internationalization of economies is occurring largely within the framework of the construction of regional groupings, even if this 'regionalization' is debatable (Sachwald, 1996). Integration in Europe is the most advanced case, with its economic and monetary union proceeding beyond the removal of barriers to trade to include the coordination of economic policies. The European union thus constitutes an integrated economic pole, particularly for the automobile industry, in which companies define their sales strategies and their production investments at the continental scale: 'Europeanization' (Bordenave, Lung, 1996; Hudson, Schamp, 1995). In North America companies have not waited for the official creation of a free trade zone (ALENA) in order to integrate their markets and production systems. Canada, which has always been attractive for the US industry, has thus widely benefitted from the 'Auto Pact' agreed with the United States as early as 1966, while North American investments designed to make the North of Mexico an export base began in the 1980s (Carrillo, 1990; Michelli, 1994). The growth of regional integration in the Southern countries (MERCOSUR, ASEAN) is a more recent phenomenon and is of particular importance to/for the automobile industry given the significance of size (economies of scale).

In a context of globalization of competition companies are drawn to develop a production activity in every region, including the Asia-Pacific zone where the integration process is economically dominated by Japanese companies even if it can take institutional forms that do not recognize Japanese political leadership (eg ASEAN). At the scale of each of these regions companies organize a division of labour in order to draw on the advantages inherent in each place with its specific competencies. This regional vertical division of labour is very clear at the European scale, in North America with the integration of Mexico and within the ASEAN countries.

The emergence of new automobile countries

The globalization of competition is not limited to renewed direct competition among the main automobile producing countries (United States, Japan, Germany, Italy and France). It also includes the emergence of new spaces in the automobile industry, both new markets given potential growth in demand and new production locations given advantages in terms of costs, particularly wage costs. Hence the output of the new automobile producing countries as a proportion of world output has doubled over the last

five years, rising from 8.4% in 1990 to 16.7% in 1995. Besides these countries (China, India, South Korea, the ASEAN and MERCOSUR countries) the new automobile regions also include other groupings such as Eastern Europe and the Middle East - in particular Turkey (Duruiz, 1996) or Egypt - which have strong potential.

Although these countries share the fact that they have a new role in the world automobile industry, they do not all share the same status with respect to the core spaces of the triad.

A first grouping is composed of countries which tend to be absorbed into the process of regional integration centred on these poles because they are directly inserted into the regional vertical division of labour. Following the integration into Europe of the Iberian peninsula during the 1980s, the process of 'Europeanization' is currently oriented towards central and eastern Europe (Balcet, Enrietti, 1996; Sadler, Swain, 1994). In North America the Big Three are branching out into Mexico following their investments in Canada.

In a second group of countries the development of an automobile industry appears to be part of a process of specific, peripheral, regional integration (Layan, Lung, 1996), as MERCOSUR (Laplane, Sarti, 1996; Roldan, 1996) and ASEAN (Doner, 1991; Lecler, 1996). However, the capacity of these configurations to resist the centripetal forces that emanate from the core poles (Japan and North America) is uncertain, particularly since the companies that are driving these processes are mostly multinationals from these countries. These peripheral integration processes therefore remain fragile given their status as 'satellites'.

Lastly, a third group is made up of South Korea and very large countries such as India, China and Russia. These countries have the economic and political means to develop a relatively autonomous automobile industry owing to the size of the potential markets they can offer to companies. They possess a significant level of power in negotiations to impose on Western and Japanese producers and components makers forms of local production investment that favour the development of a national automobile industry (supply chain or complex). The obligatory link to an indigenous company, the requirement to produce recent models with modern production methods (in terms of the whole process: organization as well as equipment) are means to accelerate the transfer of technologies which may eventually lead to the emergence of new competitors for the investing companies. In spite of this real threat these companies find it in their interest to accept these transfers if they are not to leave a place open to their competitors, since the countries try to take advantage of their competitive rivalry.

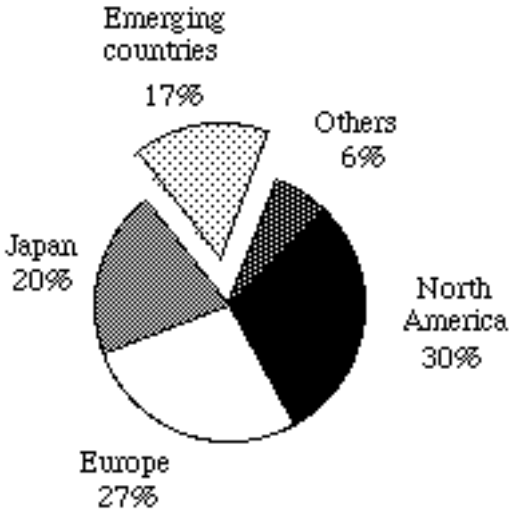
The automobile industry is thus greatly influenced by the recomposition of global economic and political space; the globalization of competition is a powerful factor in determining the rhythms and forms of internationalization by companies.

The Globalization of Competition

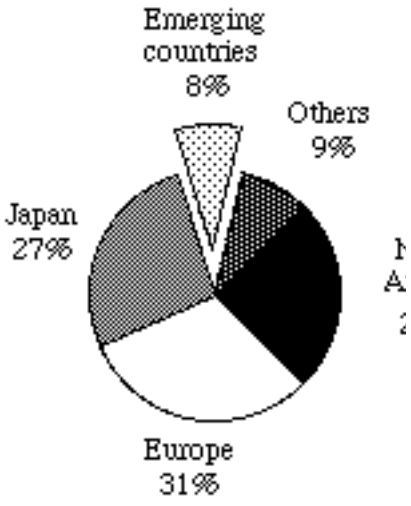
Internationalization in turn modifies the context of a competitive game which is dominated by three main characteristics. The first is the geographical redistribution of markets with the saturation of the markets of industrialized countries and the emergence of new markets in the Southern countries. The second is the reorganization of production which has transformed norms of production and trade. The third is the destabilization and the deregulation of employment relationships.

Figure 1 - Global Distribution of Automobile Production
(Number of vehicles produced)

en 1990



en 1995



Emerging countries: MERCOSUR, ASEAN, China, India and South KoreaNorth America : members of NAFTA. Europe : members of the European Union.*Source : Automotive*

The saturation of the 'mature' markets

As far as demand for automobile products is concerned the saturation of the 'mature' markets in the industrialized countries stands in contrast to the recent dynamism of the newly emerging countries. The stagnation of the automobile market in the Triad countries is not simply a cyclical phenomenon (recession in Europe and Japan). It reflects a relative saturation of demand for automobiles with the rate of growth in these markets not exceeding 2-3% per year over the long term. The utilization of automobiles for personal journeys is constrained by the concentration of the population in urban agglomerations which are often poorly provided for in terms of public transport systems and, where living spaces are predominantly dispersed (Dupuy, 1995; Orfeuil,1994). The emergence of multiple car households raises the level of ownership and this leads to urban congestion and increased air pollution. The success of the automobile becomes a threat for its industry in the sense that the car is criticized as a cause of the ills of modern society.

With the threat of radical measures by the public authorities becoming increasingly credible, automobile producers are exploring new social uses for the car (such as car pooling) and boosting research into technical solutions through new function (such as real-time drive-by-wire) or new products. If research into non-polluting vehicles (electric cars) does not come up with solutions soon, other ideas will be favoured, notably hybrid vehicles.

Hence new actors are emerging in the industry, such as electronics and electronics supplier companies, actors who may better be able to re-think and therefore save the principle of a self-propelled individualized vehicle that is diffused to the masses. In a deteriorating context more radical innovations are likely to emerge outside the automobile industry from actors less restricted than the vehicle producers by previous technological choices (see the concept of 'lock in': David, 1985). In the short-term, urgent competitive rivalries among automobile producers tend to favour retention of their traditional paradigm. They are obliged to respond to the saturation of demand with an increased segmentation of markets, by offering vehicles that are better adapted to new consumer attitudes such as the combination of comfort and practicality of the minivans in Europe, the pick- up in the United States and even the urban mini-car and its electric variants.

New automobile markets

Given the saturation of such markets and the emergence of excess production capacity (estimated to be more than two million units in Europe) with the arrival of new producers, the manufacturers are seeking out new markets in emerging countries. To be sure, markets in the North continue to account for three quarters of global automobile sales in 1995 - which accords them the number one position over the long-term in company strategies - but competitive positions there have already been acquired and are relatively stable whereas the game remains more open in the new markets.

We are witnessing what is almost an onslaught of the whole group of automobile producers, so much so that competition has become severe in markets that have long been reserved for subsidiaries isolated by protectionist barriers. The opening of these countries and the arrival of new competitors has led to the design of products more appropriate to their markets. Whereas until recently the products manufactured and sold in

the South were obsolete models (not so long ago the Renault 12 and the Ford Taunus were being assembled in Turkey) manufactured with worn-out equipment that had been replaced in the core country factories, the new products are the most modern versions of the basic models in the core countries, and may even be versions adapted and developed specifically for the Southern countries (Fiat Palio, Asian car . . .). Given the low income levels in these countries (though they are rising sharply) and the need to attain significant volumes in order to finance investments the models have to be produced at competitive costs.

Within these emerging markets, just as in the industrialised countries, producers are therefore trying to increase their market shares through basic industrial strategies, which, far from being antithetical, are indeed complementary: on the one hand by supplying more specific products, which leads to a wider variety of supply (Chanaron, Fujimoto, Lung, Raff, 1996); on the other hand, through cost reductions. The price factor plays a predominant role in the attitude and choices of consumers since even though the range of products supplied by each producer is increasingly diversified (broadening of the range), the ranges themselves are increasingly homogeneous across producers and the nature of the vehicles (characteristics, quality) has become much closer within each market segment and even across segments.

Industrial reorganization

The automobile companies are confronted with this new competitive context, and in recent years they have extensively reconfigured the ways they organize production by adopting new techniques to manage production so as to permit quality, variety and productivity to be increased simultaneously. Such structural changes arose out of differentiated trajectories (Freyssenet, Mair, Shimizu, Volpato, 1996) and as a function of different time-scales in the creation of coherence within the new 'apparatuses' which link market relationships (organization of production) and management of work (employment relationship).

This diversity of trajectories and the often underestimated plurality of industrial models is a result of the different responses of producers (Boyer, Freyssenet, 1997) given the new global norms of production and trade in the automobile industry. Of particular note is the relative levelling of quality gaps compared to the situation that prevailed about twelve years ago (McDuffie, Pils, 1994), as well as the relative homogenization of ranges in the sense that producers have diversified their models in order to be present in the same principal market segments. At the same time, companies (both suppliers and producers) have significantly increased factor productivity thanks to more efficient modes of organization which have permitted the simultaneous management of the main dimensions of production efficiency: quality, variety and productivity. Significant increases in productivity have been achieved recently, even if there remain differences. Internationalization therefore offers new opportunities to restore profit margins that have been reduced by price competition and attempt to rediscover quasi-profitable situations.

There have been reconfigurations of industrial models (Boyer, Freyssenet, 1995), but only at the local level, at the level of each of the companies that has attempted a more or less completed process of creating internal coherence and external relevance of the various technical, organizational and managerial 'apparatuses' and practices aimed at reducing the uncertainties of the market and the labour process. However, these local

reconfigurations have not led to new macro-economic coherences, and this has contributed to continuing uncertainties regarding the evolution of automobile markets.

The destabilization of employment relationships

In practice, the reorganization of production has led to a contraction of employment in the automobile industry, a contraction worsened by the draconian cost-reduction solutions adopted by both producers and suppliers in order to reinforce their price-competitiveness. This has proved to be dramatic in countries where the sector plays a major role: in France for instance, over the past fifteen years more than 100,000 jobs have been eliminated in the automobile industry. The drop in employment has contributed to an accentuation of the social dichotomies resulting from the destabilization and deregulation of employment relationships (Castillo, Mendez, 1996), notably through the crumbling of the systems for collective bargaining which had been created in the post-war period in different forms in different countries (Boyer, 1987). The reduction in employment in the automobile industry has led to an increase in the numbers of the unemployed, both directly through redundancies and especially indirectly through cutbacks in the hiring of young people who have just finished their training. In single-industry regions centred on automobile production the crisis has been particularly sharp, as for example in Detroit in the United States (Trachte, Ross, 1985), impacting on the whole local economy and society. The elimination of jobs in the automobile industry has certainly sometimes been compensated by a rapid expansion of the service sector, yet the precarious nature of the jobs created, the low levels of pay and the absence of collective bargaining may well lead to a decrease in the real wages of workers. In this context the current questioning of the welfare state accentuates social inequalities further.

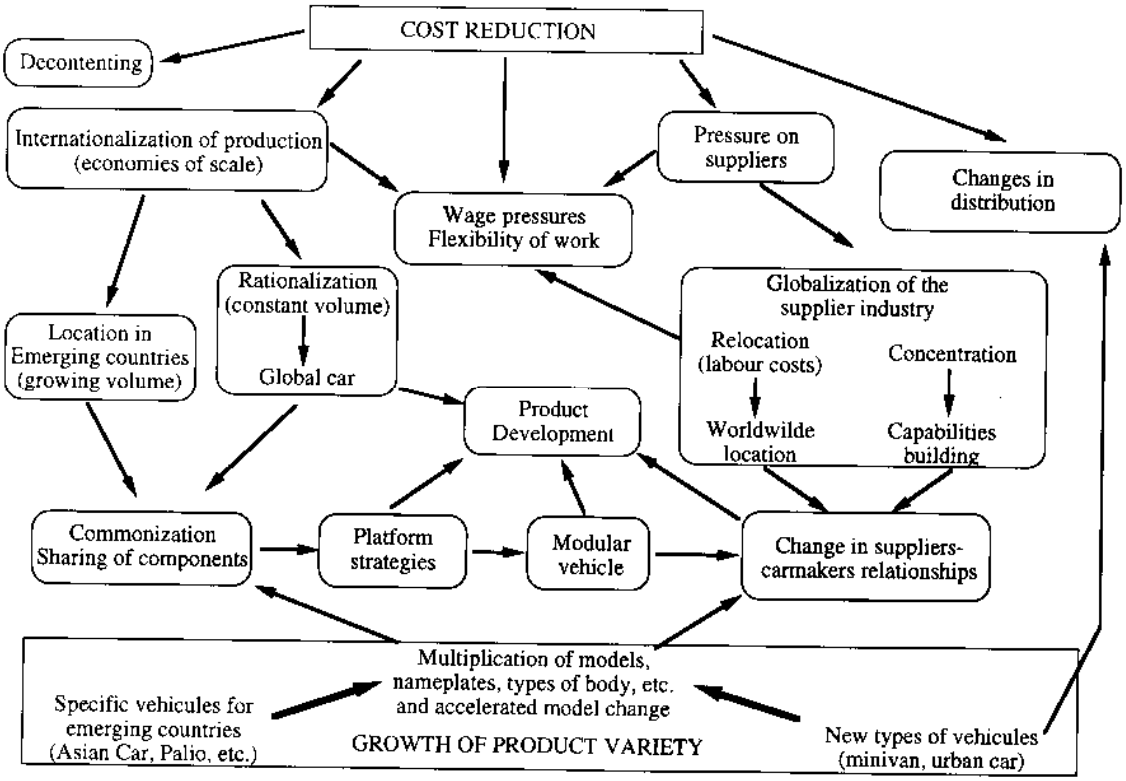
This situation tends to raise questions about dominant consumption behaviours and favours the development of new consumer attitudes (Rochefort, 1996), particularly new social uses for the automobile and new expectations hence other products. Meanwhile, the diffusion of unemployment throughout Europe and the reduction of real wages in the United States are leading to the exclusion of part of the potential automobile market (notably the young). Social crisis reinforces the saturation of the automobile market and encourages producers to offer specific products to the low income clientele (Renault Twingo or Fiat Cinquecento). However the shift in demand towards smaller cars jeopardizes the profitability of producers because profit margins on these cars are lower than for luxury cars. The contraction of the European automobile market (just over 12m new cars were sold in EU countries in 1995 in contrast to 13.3m in 1990) is being accompanied by a contraction of the luxury car segment (segment 'D', such as the Renault Safrane) which declined from 3.6% to 2% of the market over the same period. At the lower end of the market consumers are acutely sensitive to price differences, which accentuates price competition and reinforces the need to curb costs.

Internationalization to Reduce Costs and Increase Variety

Cost reduction and increased product variety remain two major objectives for automobile companies wishing to strengthen their competitiveness - objectives that have only been incompatible in exceptional circumstances (Jetin, Lung, 1996). Internationalization lies at the heart of these challenges, as can be deduced from an analysis of the five main tactics producers are adopting to attain these objectives: the simplification of products

('decontenting'), the reorganization of distribution, pressure on wages and flexibility of work, reducing the costs of components, and, naturally, the internationalization of production.

Figure 2 - Internationalization as a Strategy to Reduce Costs and Increase Variety



The vogue for 'decontenting'

Lately, the vogue within the automobile industry has been towards 'decontenting' - the simplification of the product - by stripping the car of superfluous complexities, in particular technical refinements that do not always have a purpose. Such complexities directly increase costs through the costs of components manufacture or the 'complexification' of assembly; alternatively, indirect costs result from, for example, excessive weight or even the costs of managing an excessive variety of certain components (even simple ones like carpets). The necessary technical or managerial sophistication cannot always be justified, particularly when it remains invisible to the consumer and contributes no additional use value to the product. To a certain extent this vogue for 'decontenting' is in large part an attempt to compensate following certain excesses on two levels: firstly, in terms of the introduction of new technologies aimed at improving comfort, quality or safety, which has led to a significant rise in the real price of cars recently (while real

wages remained stagnant or even regressed); secondly, through an excessive proliferation of model variety and of variations and combinations associated with each model.

These excesses were particularly noticeable in Japan during the economic boom (bubble) of the latter half of the 1980s, so much so that the sudden change in the economic situation revealed an 'over- engineering' or 'fat design' (Fujimoto, 1996) that has compelled producers to rationalize costs (Ikeda, Nagakawa, 1996).

Through a process of copycat competitive behaviour the Americans followed and then the Europeans imported this tendency, just as before with re-engineering or benchmarking. While 'decontenting' is not a major factor in internationalization, it may go some way towards facilitating it through a rationalization of models and components from a global perspective (parts sharing, fewer platforms).

The reorganization of distribution

Prior to the vogue for 'decontenting', another relatively recent tendency adopted by producers to curb costs was the reorganization of distribution systems. There is much room for manoeuvre in this domain given that marketing and distribution costs account for close to a third of the sale price (excluding taxes) of a vehicle. The concern to curb distribution costs is not only an outcome of competition among producers but also a reaction to the appearance of potential new competitors in the automobile distribution sector. Producers are having to take account of the shift towards the sale of new vehicles by large groups specialized in the sale of second hand cars in the United States, the effects of competition on services associated with distribution from specialised automobile repair groups (such as Midas) and the effects of deregulation of distribution in Europe (Julien, Chanaron, 1996).

Automobile producers have therefore been forced to rethink their distribution systems by testing new forms of distribution, notably at the launch of innovative products (for example with the marketing of the Mercedes/Swatch 'Smart' minicar through hypermarkets). Nevertheless experiments have remained limited, and restructuring largely confined to within particular countries even in Europe. Distribution practices are rooted in strong institutional inertia which reflect not only the impact of national regulations but also the cultural practices of consumers, as illustrated by the traditional distribution system in Japan. In this context, one might speculate on the possibility of creating large international distribution companies that might become a threat to the automobile producers.

Pressure on wage costs

The third avenue for producers to curb their costs is well known: pressure to contain or reduce wage costs. While a number of studies indicate that these costs only represent a small part of the value of the automobile (7-10%), companies are permanently concerned to limit the growth of direct and indirect wages paid to automobile workers (or to social benefit institutions) to avoid cost inflation. While the indexing of wages to prices - whether tacit or recognized in collective agreements - characterized the golden age of Fordism, de-indexing is now the norm and the tendency is to vary wages as a function of the company's economic results as a form of profit sharing. Producers are also attempting, moreover, to obtain a fresh start from their employees and unions with regard to modes of organizing work, reconfiguring the employment relationship in order to

obtain greater flexibility of work both externally and internally. External flexibility mainly refers to the various ways of facilitating the quantitative adjustment of employment levels as a function of the short-term economic situation: hiring and laying off, seasonal adjustments to weekly working hours over the course of a year, etc. This concern may be compatible with claims made by unions for shorter working hours, and hence negotiations between union and management may permit progress in this area. Volkswagen has, therefore, at least temporarily, conceded a 32 hour working week to its German workers, which has allowed the company to deal with a surplus labour force. And yet what is also at stake in such negotiations is often the internal flexibility of labour through the redefinition of modes of involving workers, notably within a teamwork framework (Durand, Castillo and Stewart, 1996), the intensification of work, and schedules that allow the longer use of equipment (eg night and week-end shifts) so as to accelerate the rate at which it is amortized.

In order to reinforce their positions during these negotiations (whether explicit or implicit) and obtain concessions from their employees, most companies make use of a double threat:

The first is the threat of relocating production operations abroad. Widely used throughout the 1970s against workers in the automobile industry in the United States (towards Canada and then Mexico) and Great Britain (relocation to Spain), this strategy paid off. The same tendency is currently operating in Germany. While the traditional advantage of German industry (its non-price competitiveness) is crumbling under the impact of growing foreign competition, particularly from Japan, its high salary costs combined with the appreciation of the mark make the idea of relocation abroad increasingly credible. Examples are the recent investments by BMW and Mercedes in the United States and the joint venture between Mercedes and Swatch in France, as well as German investments in central and eastern European countries (Poland, the Czech Republic and Hungary). Most of the automobile producers operating in Germany have obtained significant concessions from the unions (VAG, Mercedes, Opel, Ford). In a reversal familiar to history, after having been associated with threats to British workers (Bordenave, Lung, 1988), Spain has now itself become threatened by the prospects of relocation from Southern to Eastern Europe;

The second is the externalization of production of components previously undertaken internally, when suppliers are able to offer the same products at lower costs and with a wide adaptive flexibility (volume, quality, just-in-time, technical competencies, etc.).

Pressure on the supplier industry

Pressure on suppliers is another basic strategy in the automobile industry aimed at reducing costs, given that almost 70% of the value of a car is produced by the components industry and sub- contractors. With the reinforcement of price competition producers have therefore turned towards their suppliers in search of significant price reductions in order to reduce their costs.

The rationalization of the supplier industry should therefore accelerate, particularly under the impact of the globalization of this sector which constitutes one response to the various strong constraints placed upon it. Companies have to reinforce their technological competencies if they are to design components with a high technology content (electronics, composite materials, etc.) or high technology process, supplied to the highest quality standards not only in terms of absence of defects but also in terms of 'product

integrity' (characteristics in use); hence there are strong pressures to innovate. These competencies have to be consolidated when producers delegate a growing proportion of the design, production and assembly of components and whole functions and sub-systems of vehicles to their suppliers. Suppliers therefore need both reinforced competencies and lower costs, which constitutes a force for relocation of labour intensive activities to countries and regions with low wage costs like the peripheries of the Triad: Mexico (Carrillo, 1996), Eastern Europe and South East Asia (Lecler, 1996).

Global sourcing' is becoming a leitmotiv; this involves a special supply relationship between the producer and the supplier (often the sole supplier of the component in question) which supplies all of its client's factories, wherever they are located worldwide (for an illustration of these strategies in Spain, see Alaez, Bilbao, Camino, Longas, 1996). The assembly lines may be supplied by components imported from a global factory, or by products manufactured locally at a supplier factory located in the same country or region as the producer factory. Global sourcing permits both :

Mergers and Acquisitions in the European Supplier Industry for the Years 1995 and 1996

Table 1.A 1995

Main acquisitions ot European companies announced In 1995		
Target / Country	**Acquirer / Country**	**Sector**
Acts / UK	Tsuchiya / Japan	Manufacturing
Altissimo / Italy	Amiclas / Italy/France	lighting
Automotive Products / UK	Automotive * / UK	brakes
Becker / Germany	Harman Int / US	Interior parts
Bellino / Germany	UPF Group / UK	pressings
CEAc / France	Exide / US	batteries
Ebyl Durmont / Austria	Magna / Canada	interior parts
Empe / Germany	MBO1 / Germany	interior parts
Euroval	Motorenkomponenten / Germany	Mahle / Germany
FSO Clutches / Poland	Valeo / France	clutches
GKN axles / UK	Dana / US	axles
Hammerverken / Sweden	Autoliv / Sweden	Seat sub- systems
Harman SA (50%) / France	Magneti Marelli / Italy	mirrors
Hohe / Germany	Donnelly Mirrors / US	mirrors
Isodelta (49% + options) / France	Autoliv / Sweden	steering wheels
Mannesmann Fahrzeugtelle / Germany	Lunke & Sohn / Germany	pressings
Manufacuras Fonos / Spain	Tenneco / US	exhausts
Melfin / UK	Tricom Automotive / UK	seating
Mercedes-Benz, plastics operation, Woerth / Germany	SAI / France	plastic parts
Plastifol / Germany	Automotive Industries / US	interior parts
Reydel / France	Plastic Omnium / France	plastic parts
Roth Frères / France	Johnson Controls / US	seating
Safiplast / Italy	Ergom / Italy	fuel tanks
Safiplast / Italy	Solvay / Belgium	fuel tanks
SEIM / France	MGI Coutier / France	wiper pumps
Sommer Alibert (50% of UK	Masland / US	interior parts

subsidiary)		
Styr-Daimier-Puch / Austria	Daewoo / Korea	engines & drivertrain
Thermal- Werke / Germany	Valeo / France	heaters
Vaisala Technologies / Finland	Breed Technologias / US	sensors
VDT / Netherlands	Bosch / Germany	gear boxes
Viktor Achter / Germany	Milliken / US	textiles
**Management buy out [1]CVC and Goldman Sachs*		

Sources : UBS and Automotive News Europe (does not include acquisitions by Europeans outside Europe)

Major Automotive Manufacturing Sector Transactions in Europe in First Half of 1996

Table 1.B First half of 1996

Target company	**Acquirer**	**Country**	**Sector**
Automotive components			
Dunstable Ltd., UK	Tridon Inc	USA	Wiper motors
Britax Vega Ltd, (50%) UK	Koito Mfg. Co	Japan	Lightning
BSK Holdings Ltd., UK	TransTec plc	UK	Aluminium die-castings
Davidson Marley			
BV (50%), Netherlands	Textron Inc.	USA	Interior trim
Fiat (cable operations), Italy	Labinal SA	Franc	Wiring
Fist SpA, Italy	Valeo SA	France	Door Handles, locks
Fonlem, France	Groupe Valfond	France	Castings
Callino Plasturgia S.r.I., Italy	Breed Technologies Inc.	USA	Plastic parts
Gebr Happich GmbH., Germany	Becker Group Inc.	USA	Interior Trim
International Radiator Services, UK	Partco	UK	Radiators
Isodelta SA, France	Autoliv AB	Sweden	Steering/ Wheels
Marley Automotive			
Components group, UK	Magna		
	International, Inc.	Canada	Interior Trim
Momo SpA, Italy	Breed Technologies Inc.	USA	Steerings, Wheels
Pebra GmbH, Germany	Magna		
	International, Inc.	Canada	Plastic/metal/parts
Phoenix Airbag GmbH.,	Safety components		
Germany	International, Inc.	US	Airbags
Pioneer Holdings, UK	UPF group plc	UK	Exhausts
Rearsby Automotive Ltd., UK	Adwest Group plc	UK	Metal parts
Renault (2 valve plants), France	TRW Inc	US	Valves
Scandmec AB, Sweden	Kongsberg		
	Automotive AS	Norway	Gear parts
Silenciadores PCG SA, Spain	ECIA SA	France	Exhausts
Way Assauto srl, Italy	Arvin	US	Exhausts

* Including increases of share to over 50 percent

Acquisitions by European automotive groups in the rest of the world, first half 1996

Allied Signal brakes US	Robert Bosh GmbH. Germany	Brakes
Metal Leve SA, Brazil	Mahle GmbH & Consortium, Germany	Pistons
Plexicor Australia		
Pty. Ltd., Australia	Mc Kechnie plc, UK	Plastic parts
Woven Electronics Inc. US	Marling Industries plc. UK	Seat belts

* Also, Varity Corp. of the US and Lucas Industries of the UK announced their merger

Reliance on a supplier of international scale, which has the requisite 'capabilities' (Chandler, 1992) since it has developed basic competencies and possesses adequate financial resources to invest in research and development and to innovate by offering new components;

Costs cutting thanks to economies of scale permitted by increased production volumes.

Hence the concentration of the supplier industry (Sadler, 1996) appears to be accelerating through merger and acquisition tendencies operating at the global scale (for Europe, see Tables 1.A and 1.B). The criss-cross flows of investment across the Atlantic are reinforcing the presence of American suppliers in Europe (the component division of GM, Delphi, has been a likely candidate to buy Valeo, a solution to which the French producers PSA and Renault have been opposed), and the European industry has tried to respond by investing in the United States and around assembly factories being built in emerging countries. Internationalization continues the industrial concentration already taking place under the impact of the restructuring of supplier relationships through the adoption of hierarchical patterns (Chanaron, 1995; Helper, Sako, 1996; Chanaron, de Banville, 1996). This is not to be interpreted as an alignment on some Japanese model; Japan itself is being affected by a questioning the traditional and prevalent supplier relationships (Ikeda, Nagakawa, 1996; Guelle, 1996).

At any rate, globalization has become the key word for an automobile supplier industry which is now being thoroughly restructured by this race to global scale. With the externalization of a significant proportion of production (a tendency which now seems to have stabilized), the emergence of major multinational supplier companies which possess the technological competencies and adequate financial resources to negotiate on an equal footing with the automobile producers ought to stimulate changes in power relationships between the participants in the automobile system and lead to a reconfiguration of relationships between producers and suppliers.

The internationalization of production

Finally, and more directly, cost reductions may be based on the internationalization of production. Internationalization permits companies to benefit from economies of scale obtained from the increased volumes resulting from relocation to emerging countries thanks to the rationalization of production made possible by simultaneous presence in the markets of the industrialised countries. In practice, at constant volumes, the production and sale of the same products (generally designed and manufactured domestically) in each market, rather than offering different products, leads to economies of scale. The 'global car' strategy takes up the attempts to create a 'world car' by the Americans in the

1970s as a response to successful Japanese incursions into various markets (Maxcy, 1981). The aim is to produce and market a vehicle in the major markets (particularly those of the Triad) which responds to the expectations (sometimes diverse) of consumers in these markets, sharing a number of components whilst accepting local adaptations. This strategy, which was initiated by Ford (Bordenave, 1996), is now being taken up by General Motors for engines and certain market segments (in particular, small cars). To a certain extent, Japanese companies are involved in an inverse tendency with their strategy of local adaptation of models while they had previously marketed an homogeneous product throughout all their markets (global localization: on Honda, see Mair, 1994).

If we accept that there is a relative convergence of automobile markets, 'commonization' and the sharing of principal components fit in with the automobile producers' strategy to reduce the number of platforms used at the global scale (see Table 2). The idea is to distribute, over a greater volume, the growing costs of designing an ever increasing number of models the life cycles of which are reduced due to the accelerated pace of product replacement. The platform strategy permits cost reduction to be reconciled with the greater variety that results from the competitive battle: the new products in the industrialised country markets (minivan, urban minicar) and the special vehicles that some producers offer in the emerging markets can be developed based on the same platform, which reduces design costs, accelerates the development cycle and increases economies of scale for shared components.

Table 2 - Platform Strategies

Automobile Group	Brand	Current number	Planned number
Volkswagen	VW, Audi, Seat, Skoda	16	4
Ford Motor Company	Ford NorthAmerica, Ford Europe, Lincoln, Mercury, jaguar	24 *	16 *(2004)
General Motors	Chevrolet, Buick, Oldsmobile, Pontiac, Cadillac, Saturn, Opel, Saab	14	7
Renault and PSA	Renault Citroën, Peugeot	5 6	3 3

*World-wide number of platforms of passenger cars and light trucks

Source : Companies, Press.

Hence the 'Palio', developed on the platform of the Fiat 'Uno' model, may be produced in volumes up to 750,000 in the new car producing countries of the South (and in Poland). The Japanese cars adapted for South East Asian markets ('Asian cars') are derived from domestic models (for example the Honda 'City', produced and marketed in Thailand, is based on the 'Civic'). Increased variety involves a broadening of the product range due to an increased number of models, variants and accelerated product replacements. This increased variety cannot however be permitted to generate excess costs, and this leads the producers: to utilize its components and platforms to the maximum (commonization, platform strategy), to conclude alliances with competitors for low volume product, vehicle and component (de Banville, Chanaron, 1996), to delegate a significant proportion of development, production and even assembly to suppliers.

This externalization reduces financial commitments and therefore the risks run by the producer. It permits the processing of a greater number of projects and prevents limitations due to the restricted means (labour and capital) of the producer in terms of design and production. Lastly, it is based on the specific competencies of the suppliers and thus improves the quality of the product.

The evolution of the automobile product

These developments assume both a certain convergence among the principal markets so that platforms can be shared among models which respond to the different expectations of consumers, and a technical development of the product towards a 'modular' vehicle concept. Here, there are two contrasting conceptions of the automobile product. From one perspective the automobile is a 'product-system' whose qualities and characteristics in use in a highly variable environment contradict an 'assemblist' approach (proceeding by simple summation). Several examples illustrate this proposition: the way the vehicle holds the road does not depend only on the steering but on a chain of reactions within the whole vehicle; vibration and acoustical characteristics are determined by numerous components and their way they are arranged. The car is a 'product system' in the strong sense of the word 'system': the characteristics of the vehicle are more than the sum of the characteristics of the parts. The increasing demands of consumers for quality (product integrity) should lead producers to design low volume yet better adapted products.

From a contrasting perspective the automobile product is considered to be modular; it can be reconfigured, at least partially, by modifying the various sub-assemblies. This is the conception of the car which prevailed at the inception of the industry with a separation between the design and production of the chassis on the one hand, and that of the body and the fitting of the interior on the other, or again that of the engine and the mechanical components. This conception has been maintained in the heavy goods vehicle industry and perfectly corresponds to the demands of commonization and the delegation of design, production and the assembly of sub-systems to suppliers. It constitutes a perspective which lends credibility to the current efforts undertaken by producers, notably European; as long as it is only a swing of the pendulum which precedes a restoration of singularity. Given the specificities of the heavy goods vehicle industry, the first experiments took place in an assembly factory for Volkswagen trucks in Brazil (Marx, Zilbocevius, Salerno, 1996). The practice should be being employed in European automobile assembly factories over the coming months (notably for Skoda 'Octavia' or the 'Smart').

These developments position product design and the organization of design at the heart of current restructuring processes (Durand, 1996). Product development at the global scale implies new methods in relationships to different markets and in the management of relationships between the different services and departments involved in the design of a 'world car'. The aim is to have all employees belonging to different services (eg marketing and design) and who are located in different world regions (eg marketing employees in Europe and the United States) working together. The platform-based strategy, and more broadly the modular vehicle also entail the redefinition of organizational and design methods, to the extent that the early involvement of suppliers in the development of new products becomes the norm (Lecler, Perrin, Villeval, 1996; Laigle, 1995; Kesseler, 1996).

Following the restructuring due to the introduction of simultaneous and concurrent engineering techniques (Clarke, Fujimoto, 1991; Midler, 1993) globalization may bring about new changes to the organization of product development by automobile producers.

Internationalization Strategies Meet up with New Uncertainties

Internationalization is currently a primary concern for automobile producers and suppliers alike, including for those companies which have long defended the idea that a local player had a decisive advantage over a global company; by taking advantage of its extensive knowledge of local markets it can obtain greater profit margins than major companies that are paralysed by centralised bureaucratic structures in which decision making processes are too distant from the front line and constitute a major handicap. These companies are now tending to abandon this credo; examples are Chrysler and especially Renault, which has undertaken a major 'about-course' in its strategy for South America, where, after having gradually withdrawn over several years, it has announced ambitious investments in Brazil. In this context in which internationalization is all pervasive, companies are confronted with new uncertainties both in terms of relations to the market as well as in terms of employment relations. The new uncertainties differ between the industrialized and the emerging countries.

How will the traditional markets evolve?

In the industrialized countries, an initial group of factors reflects the general economic context. On the one hand, the automobile production activities are threatened by the coincidence of economic cycles of the major economic powers. In practice global integration accelerates the transmission of cyclical fluctuations between the major industrialised countries, which restricts possibilities of compensating for variations of demand between the main markets (Europe, United States and Japan) which were available when their respective economic cycles were out of phase. This prospect is even more threatening since such cyclical fluctuations have recently tended to become more accentuated in Europe - where they had been attenuated during the post-war period (see the debates on the return of the economic cycle in France) - and in Japan, which until the early 1990s was only experiencing regular and continuous growth (Fujimoto, 1994). The severity of the recession at the start of the 1990s seemed to signify the transition to a new stage for the Japanese economy.

On the other hand, company strategies have to take account of the hesitant nature of the process of integration both the Europe and in North America. As far as Europe is concerned, the end of the current decade is being marked by great difficulties in keeping to the timetable suggested by the Maastricht treaty, notably in terms of the single currency for the major automobile industry countries. While the two main producing countries, Germany and France, have confirmed their desire to keep to the 1998 deadline, will this be possible? What will become of the other countries, namely Italy, Spain and the United Kingdom? Beyond the European Union there remain uncertainties over the modalities of membership and integration of the new member countries from Southern and Eastern Europe. In North America, other issues arise. What shape will the free trade zone assume (expansion towards the South and the Pacific)? Can the co-existence of

countries with very different economic levels endure (eg Mexico and the United States)? Hence automobile producers experience the uncertainties over the process of globalization and its forms as well as the specific uncertainties associated with the industry.

In the long term, the changes under way in relationships between the various actors in the automobile system are likely to lead to a loss of control by producers who are forced to negotiate with large multinational groups upstream (concentration of the supplier industry) and downstream (rise of large automobile distribution groups). More immediately, producers are now confronted with two types of uncertainties regarding their markets: firstly, those related to new market segments, and secondly, those related to technical norms and regulations.

The increased segmentation of the saturated markets of the industrialised countries enables companies to create new niche markets where they can benefit from higher profits. This situation is always temporary since the mimetic behaviour of producers (Pointet, 1996) encourages, and sometimes quite quickly, the launch of similar models to compete with the products of the leaders in the new niches. As these are new types of vehicles for which consumer demand has only recently emerged and is therefore unstable, projections of future demand are subject to significant margins of error. Too much investment in the targeted segments may well cause excess capacity, in turn leading to a 'price war' which will reduce the profitability of the investments that have been made to enter the niche. Conversely, a lack of investment may well have opportunity costs if the segment turns out to be dynamic. In this case absence of the particular type of model in the product range weakens the competitive position of the producer. The recent evolution of the minivan market in Europe is illustrative, with the quasi- simultaneous launch of models by Ford, VAG (VW and Seat), Fiat (Fiat and Lancia), PSA (Peugeot and Citroën), Mercedes and Opel (which is importing a minivan from the United States) all to compete with the Renault 'Espace'. What will happen in the case of the urban minicar?

Modifications to regulations

Automobile producers regularly criticize the great diversity of regulations and technical norms for homologation across countries as well as the strengthening of pollution standards. The rise of regulation has been criticised, especially in the United States, as one of the sources of difficulty that has faced the automobile industry since the 1970s. As well as safety standards, both active and passive, there were pollution standards (emissions of gases and particulates) and standards for energy consumption (CAFE). Each country developed its own regulatory arsenal, with protectionist impacts that were more or less well disguised and which led at worst to a closing of access to the national market, at best to higher costs.

Producers must in practice modify each of the vehicles assembled on their production lines as a function of the country to which the product will be exported. Strong diversity engenders higher costs for producers at the design level (the development of even minor adaptations), at the level of technical homologation (which has long been a non-tariff barrier in Japan as in other countries) and naturally at the level of production, given the resultant complexity production programming. Even while they attempt to reduce the costs due to the variety of consumer demand (fewer variant, multiplication of options by using 'packs' or 'limited series') producers are still calling for the harmoniza-

tion of norms at the global scale. While partially achieved in Europe, harmonization still needs to be undertaken at the world level, not only across the major European, North American and Japanese markets but also with the emerging markets, if an increased fragmentation of markets is to be avoided. The United Nations and the World Trade Organization may have to take charge of this convergence process ('global harmonization') which, while unanimously demanded, cannot be assured given what is at stake for the various national industries.

As far as deregulation is concerned, one of the sensitive issues concerns the anti-pollution norms which are developing rapidly and sometimes chaotically under the pressure of ecological concerns. These norms also vary among the three major markets and even among members of the European Union. Following the skirmishes in Europe over catalytic converters, which are now widely accepted, issues surrounding the diesel engine are becoming sensitive, in particular for the French producers for whom half their sales come from diesel vehicles, because it is the automobile that is regularly blamed when air pollution limits are breached in major urban centres. Emissions of particulates by diesel engines become a particular focus of concern. In June 1996 the European Commission announced plans for directives aimed at reducing emissions of polluting gases (nitrous oxides, carbon monoxide) and particulates by 20-40% as well as the elimination of leaded fuels by the year 2000.

No doubt lobbying by the producers will attempt to moderate these measures, despite the fact that in some quarters they are seen as timid, in hopes of obtaining as much understanding from other public authorities as has been shown recently in the United States. Thus the United States, with more rigour than Europe, had tried to force the hand of the producers in making a transition to 'clean vehicles', in the knowledge that the only technical solution currently available is the electric vehicle. The State of California, followed by thirteen other American states, had proposed a short deadline of 1997 for producers to sell at least 2% of emission-free vehicles, a proportion that was to rise to 10% in 2003. This programme is currently suspended given the difficulties faced by producers in supplying an electric vehicle at a reasonable price under current technical conditions, and this has raised the prospects for hybrid solutions in place of coercive measures. It seems that the incentive measures of the 'Clean Car' programme launched by president Clinton in 1994 are preferred. General Motors has now abandoned its plans for mass production of its EV-1 model and is restricting itself to small scale production, and so electric vehicles will remain rare. In France prospects are no more favourable, as revealed by the poor sales of the electric versions of the Renault Clio and other small models despite the financial support of the state and EDF (Electricité de France, the French electrical company).

The destabilization of employment relations

Developments with respect to new regulations are taking place under pressure of public opinion, reflecting the emergence of new consumer attitudes as one expression of uncertainties over the employment relations. However, this is a good example of the ambiguous attitude of the consumer who defends ecological values and demands that the state undertake measures in the name of the collective interest, yet declines to buy an electric car, not because of the high cost, but rather because of the potential limits which would be placed on its use. The weak relative autonomy of the electric car seems to present a strong psychological barrier.

The symbolic virtue of the automobile both at the individual level (the sense of free movement [see Dupuy, 1995]) as well as at a social level (conspicuous consumption) will not disappear even if consumer practices seem to involve more utilitarian concerns in the current socio-economic context.

The automobile industry, as well as its internationalization, has long experience of the instability of employment relations in the industrialised countries. Hence investment abroad which includes relocation of production has an immediate effect of reducing the volume of industrial employment even if this may be partially compensated in other activities. The threat of relocation has a direct influence on employment relations and enables significant concessions to be won from employees and their unions in various domains: wage moderation, changes in the organization of work (3x8 teams, weekend work) and worker participation. The attitude of the workers and the union response remains an uncontrollable factor for companies, and even unions for that matter (Stewart, Martinez, 1996). It is true that recently companies have appeared to hold the strong positions and that the threat of unemployment has contributed to a moderation of wage claims, but reversals and more or less uncontrolled social movements (see the recent strike at GM or the social unrest in 1995 in France) are always possible.

In this context, if each company taken individually has been able to improve its situation in its relations with workers, this is not the case at the macro-economic level. The automobile industry has traditionally played a leading role in collective bargaining. Wage moderation in this sector has therefore been extended to all sectors, which has moderated household demand or indeed favoured stagnation or declines in real wages. Given the other components of demand such as investment (automobile sales to companies are significant), the depressive effect on consumption is amplified by unemployment and social exclusion, which makes demand for automobiles more uncertain despite the emergency palliative measures like 'Balladurette' or 'Jupette'. In terms of both the composition and the volume of demand reconfigurations of the employment relationship have accentuated the market uncertainties faced by the automobile producers.

Issues relating to emerging countries

As it integrates new countries, the internationalization of the automobile industry generates new uncertainties in their markets. The prediction of automobile industry growth in third world countries is a risky exercise in which numerous experts have been misled, including those of the international motor vehicle programme (Altshuler, et al, 1984; Jones, Roos, 1985). A decision to invest in a new assembly factory is very rapidly forced to deal with the performance levels and capabilities of the local industrial fabric; will it be able to supply components and machinery which meet international quality and cost norms? In the newly industrialising countries local industries are often far from these norms, particularly because of the protectionist measures which have long prevailed. With a sudden opening a local supplier industry may be profoundly restructured through the reorganization of local companies - a process of concentration which seeks, following rationalization, to meet international standards - and through the opening of new operations by the major multinational supplier groups.

These investments accompany those of producers with 'global sourcing' strategies. These permit the problems inherent in the restructuring of the local industry to be overcome through the construction of transplant factories at greenfield sites with a work-

workforce which is well selected and adaptable. The investment may take place through joint venture arrangements, which may be voluntary or constrained by a policy of control over foreign investment. In the first case it is necessary to mobilize local financial resources for the investment or to link up with a partner with a better knowledge of the local 'scene' (and therefore better able to solve the numerous difficulties which will inevitably be confronted by the new investment). Constrained arrangements with local partners are quasi-systematic in the large countries that are able to impose them (India and China).

In countries with a long tradition of automobile protectionism (Australia and South America), the recomposition of the supplier industry leads to the disappearance of a number of local companies and to lower levels of employment (see Furtado (1996) on Brazil and Roldan (1996) on Argentina). Inevitably there is a loss of autonomy over national industries which are transferred to domination by foreign multinational companies. This corresponds to a short-term technology transfer. Over the long- term the latter is likely to aid the local learning process and to lead to technological 'leaks' if the appropriation of the technologies (the hybridization process) creates new production arrangements and therefore new competitors for existing companies. Given the experience of Japan, followed by that of South Korea, this threat certainly seems credible in the case of other countries (eg China). It is indeed the goal of certain automobile producers such as Maruti in India and Proton in Indonesia, the long-term existence of which remains uncertain given their external technological dependence on Japan or Korea.

These risks are greater to the extent that socio-political uncertainty and government instability where corruption is often part and parcel of the regulatory system leads to opportunistic behaviours for which it is difficult for the automobile companies to be prepared. In small countries the major multinational groups have a certain margin for manoeuvre. Hence General Motors is able to oppose the desire of the Philippines government to create its own 'national' automobile industry and to select Thailand as an alternative solution for the construction of a new assembly factory to serve the South East Asian market. However, power relations are reversed in the case of large countries, with which the producers are obliged to deal despite the price that has to be paid. The recent problems faced by Chrysler, which believed it had won a project to construct a minivan factory in China but was pipped at the post by Mercedes, is only one of the misadventures to which companies operating in certain emerging countries may fall victim.

Unconsolidated emerging markets

The choice of which type of vehicle to produce and sell in local markets adds a further element of uncertainty. These are rapidly growing markets swelled by new consumers, and companies do not possess the tools that would permit them to understand behaviours and forecast them with sufficient reliability to permit them to track developments in terms of volume and market structure by type of vehicle. While the most conservative solution is to manufacture a product identical to one made domestically (with a small number of adaptations) such as the Renault Mégane in Brazil this may be better than what is actually required when compared to models designed specifically for emerging markets (Fiat Palio, VW Santana). Alternatively, unexpected changes on the part of consumers or public authorities may make certain strategies inoperable and bring about important tactical changes: for example, the policy to favour the 'popular car' of under

1,000 cm3 in Brazil (Laplane, Sarti, 1996).

Lastly, in these emerging countries, is the most important risk not quite simply that the trajectories companies have followed have to be reversed? The 1990s have been marked by a real acceleration of economic growth of some countries in the South (namely in South East Asia and in Latin America) with annual growth rates of 8-10%. With such an economic take-off, one can deduce that these countries have entered a new stage of development that will endure, so much so that experts anticipate a prolongation of current tendencies when they make projections of demand. Yet there can be sudden upheavals in economies that have not yet been consolidated, as witnessed by Mexico, where automobile sales collapsed by close to 70% after the Peso crisis (falling from nearly 600,000 vehicles in 1994 to less than 185,000 in 1995), or even the case of Turkey.

In this case excess production capacities may appear suddenly since, with their oligopolistic strategies, producers quickly imitate the production investment announcements made by their rivals. Among the numerous examples of such as race, one can cite the recent case of Turkey, where for a local market of some 300,000 vehicles, producers rushed to announce investments which will create a total capacity of almost 1m vehicles per year. The case of Vietnam is even more noteworthy: scarcely 2,500 vehicles are sold every year and yet producers are jostling with one another to invest there.

The risk is even greater when automobile demand remains unstable given the recency of the economic take-off in these countries, the low institutional density, the openness internationally and the absence of stable forms of regulation at the global and national level, particularly in terms of employment relations. The low level of wages limits demand by workers, with demand for automobiles being for the most part the preserve of middle and upper social layers. With a clientele largely composed of a non-wage earning population the income of which can vary greatly, demand is fragile. Beyond training and the use made of incomes, work is also a subject of emerging uncertainty.

Companies may come against resistance at work, on the part of migrant peasants who are newly discovering industrial work as well as on the part of existing automobile industry workers who may be opposed to the introduction of new practices which differ from the Fordist methods which prevailed within the protected industries. In these countries, companies must take account of union organizational forms which may have evolved earlier on corporatist or political foundations. Paradoxically, the problems worsen when economic growth in these countries becomes a reality since it aggravates social inequalities which lead to oppositional reactions. On another level, companies may also be confronted with a scarcity of skilled labour since not all emerging countries have an adequate level of technological training (eg Thailand). These constraints, in their various local configurations, may lead companies to explore new production solutions and engage in a process of hybridization (see Boyer, Charron, Jürgens and Tolliday, 1996).

Which Strategies of Internationalization?

The success of the internationalization of automobile companies and their suppliers will therefore depend upon their aptitude for facing the multiplicity of uncertainties over markets and employment relations. Moreover, on the success or failure of this internationalization will depend the survival and position of companies. Hence the working out

of internationalization strategies will largely determine their futures. Their strategy will more or less relevant depending on developments in markets and in work, developments which can initially at least be grouped into three major scenarios: 1) global homogenization at one extreme, 2) regional 'heterogenization' at the other extreme, and 3) regional diversification/global 'commonization' at an intermediary level.

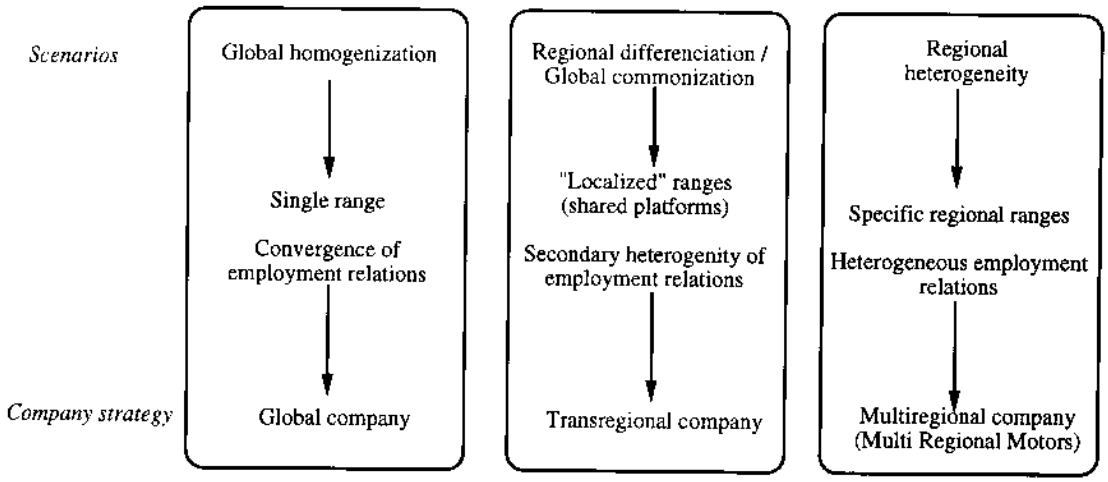
The scenarios

The configuration global homogenization would correspond to the case in which the liberalization of global trade prevailed over the processes of creating more restricted economic spaces, with all automobile markets or at least the most important amongst them tending to homogenize, with employment conditions converging under the impact of constraints that were common to all. At this point the decision to create a global range would be relevant, whether a classic range or a niche range. This scenario assumes that the reduction or elimination of customs duties is not in practice replaced by other restrictions on trade, notably the requirement to produce locally to have the right to sell. In the medium term at least, companies should invest where they want to sell, though even in this case the creation of a world range is by no means impossible.

In this context, a strategy of internationalization might consist of specializing production operations and regions in one segment of the range, either for components or for finished vehicles, in order to benefit from maximum economies of scale. If, moreover, market variations for the same segment balance each other (the upper end of the mass market in the United States, the lower end of the mass market in Europe, for example), the requirement for flexibility and polyvalency in the factories would be quite weak. Given that each region is specialised in one segment, one can imagine that each local subsidiary has its own particular socio- productive system without this affecting the coherence of the whole, except that it the differences were profound they might reflect a significant form of income distribution and therefore different automobile markets, thus moving away from the hypothesis of an homogenization of global demand. More moderately, the scenario of regional diversification/global 'commonization' presupposes that without attaining complete homogenization both product markets and work share certain fundamental traits across the different world regions, only being differentiated on secondary factors. In this framework a strategy of sharing principal components (global commonization) and platforms and a relatively similar policy regarding the basic elements of workplace relationships would enable companies to offer differentiated regional product ranges and workplace relationships with regional specificities which were still targeted at the same ends, such as flexibility and polyvalency.

This scenario would lead to a centralization of platform design and the creation of the overall employment policy and would lead to a globalization of components production and consequently of the supplier industry. At the same time, it would be accompanied by a regionalization of model design, locally derived from global platforms, and of course of their production. Autonomy would remain in the determination of concrete modalities for workplace relationships as a function of the local context (with respect to rules regarding the determination of wages, for instance). One might imagine that production could be transferred between regions if necessary, since each factory would assemble different models on shared platforms. A global planning of production programmes might therefore be envisaged. Ford and Honda have some of these characteristics.

Figure 3 - Which Configuration of Global Economic Space? Which internationalization strategy?



Finally, in the regional heterogeneity scenario, homogenization clashes more directly with the creation of regional complexes that are relatively heterogeneous. In this hypothesis it is the dynamic of regional integration that prevails, including among countries at different levels of development and with somewhat different competencies. Within each region this dynamic produces a specialization and concentration which relaunches growth. However, regional integration may assume different forms, whether a simple free trade zone (in which economic and social power relationships are permitted to work themselves out) or true economic, political and social integration (in particular involving a controlled policy to increase the purchasing power of the population).

Markets and work would be so different, and permanently so, between world regions that product ranges and employment policies would be specific to each region, except for inter-regional trade in some niche markets. This scenario could tolerate the persistence of less internationalised companies, which would remain local players with an intricate knowledge of the regional market and great agility. However, given the handicaps which this type of company would experience (see above), this scenario seems to support a multi-regional configuration: regional subsidiaries would have great autonomy in terms of their product strategies with the group would exercising financial control and probably distributing knowledge and experience between the different regions. Here we recognize 'Multi Regional Motors', described as the optimal form of international organization in Chapter 8 of The Machine that Changed the World (Womack, Jones, Roos, 1990) in contrast to the 'global company' (see Figure 4.A).

A plurality of strategies of internationalization

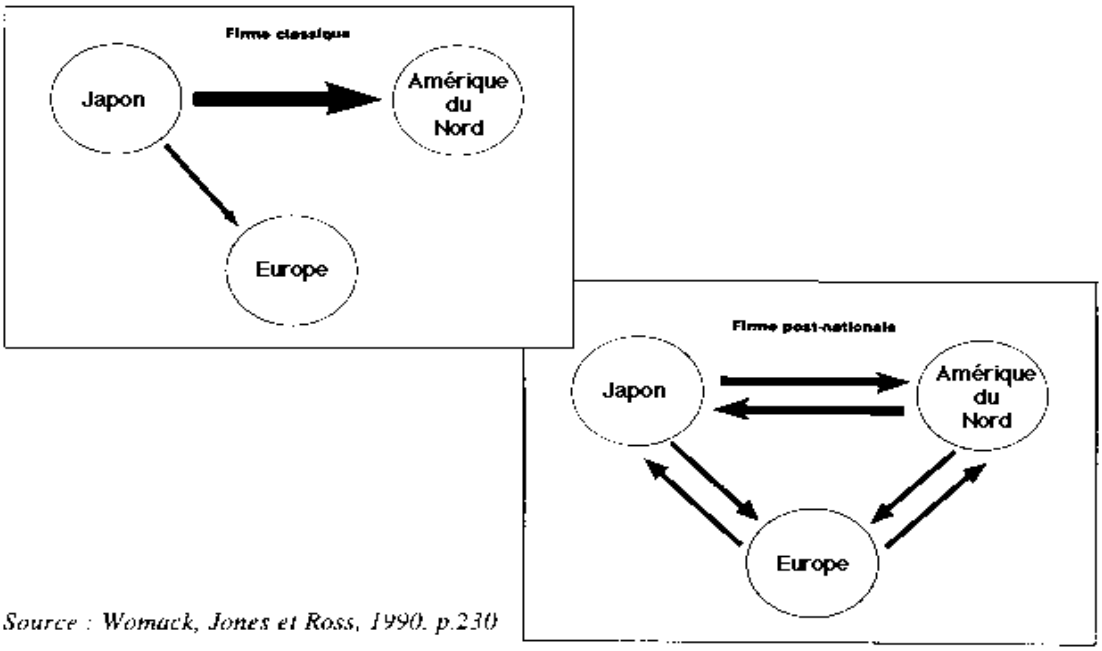
The first GERPISA international programme 'The emergence of new industrial models' (1992-95) revealed that besides the adoption of certain shared principals and apparatuses which might lead one to an over-hasty conclusion of convergence towards a single optimal solution, the diversity of trajectories pursued and hybridization processes

started off by the transfer of production units into other economic, social and institutional contexts lead to the creation of several industrial models (see the whole set of publications from the first programme, notably the 'joint conclusions': Boyer, Freyssenet, Volpato, 1996).

Similarly, the second programme rejects the idea that there is an optimal strategy for internationalization which can guide all companies. There is no 'one best way' for internationalization (such as the 'trans-national solution': Bartlett, Ghoshal, 1993) just as was the case with the industrial model. To be sure, the current discourse surrounding the automobile industry favours the idea of a convergence of national and regional automobile markets, which would confer a significant competitive advantage on global companies engaged in the principal markets of the Triad and in emerging markets. This discourse reminds one of that over 'lean production', and is indeed one element of this latter. The hypothesis that there is a since equilibrium in terms of the international configuration of the company is a consequence of the hypothesis of a convergence of nations and global economic homogeneity (Boyer, 1993).

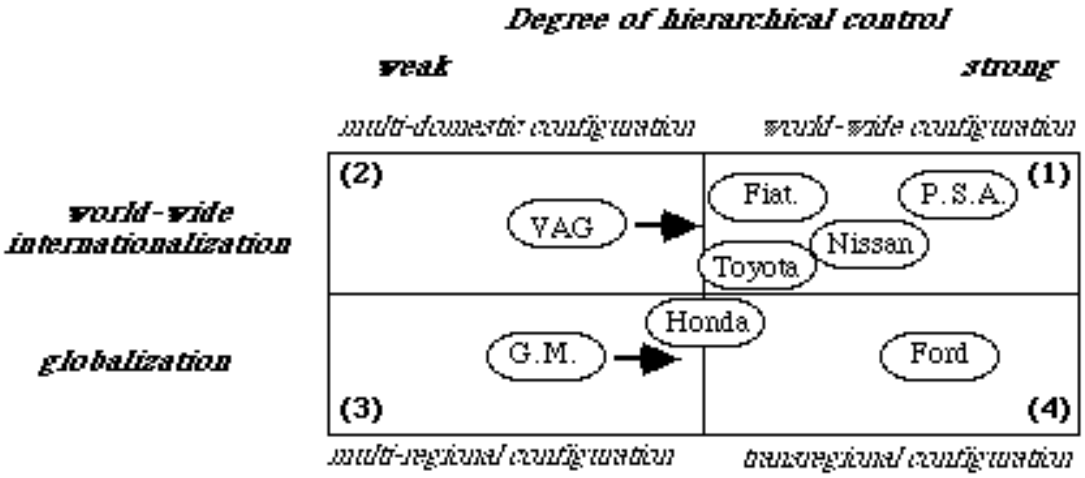
Our intent therefore is to question the idea of the globalization of the automobile industry (see Solvel, 1988; Chanaron, Lung, 1995) and to explore the hypothesis that the creation of new economic regions and their co-existence will produce new heterogeneities that go beyond short-run or apparent convergences. This viewpoint is justified because their very constitution is the result of different economic, political and social processes. Consequently such processes can be contradictory and lead to social and political tensions with uncertain outcomes. They will therefore enter competition maintaining or endowing themselves with particular advantages.

Figures 4.A - The Myth of Post-National Company



Source : Womack, Jones et Ross, 1990. p.230

Figure 4.B - The Configurations of the Major Automobile Companies



Source: Bélis- Bergouignan, Bordenave, Lung, 1996

Automobile companies therefore coordinate their local activities between the different regions of the world according to approaches which fit their internationalization strategy. The variety of configurations is greater when the scopes of activity have different contours and are heterogeneous. Even when faced with the same environment companies organize themselves in different ways depending upon their own history, their previous learning and their strategic horizon (see Figure 4.B).

Hence while the two principal American producers, Ford and General Motors, have had parallel internationalization trajectories for more than seventy years, operating in the same regions according to very similar chronologies, there have been significant differences throughout this history (Dassbach, 1989), as there are today (Bélis-Bergouignan, Bordenave, Lung, 1996). With its 'Ford 2000' plan Ford has launched the global integration of its activities with a trans-regional configuration based on local competencies (United States, Europe, Japan). GM has not yet followed its rival, retaining a bi-regional structure with GM North America on the one hand and Opel, in charge of the rest of the world, on the other. A similar variety can be seen among the Japanese (Boyer, Freyssenet, 1996); the idea that they are converging towards a model of glocalization may be disputed (see also the case of the Korean companies: Chung, 1996). In any case, refining initial typologies (see also Ruigrock, van Tulder, 1995) on the basis of a more detailed understanding of the internationalization strategies of producers and suppliers is one of the challenges facing the new programme.

The Organization of a New GERPISA International Research Programme

If internationalization seems to be an obligatory rite of passage for automobile companies today, it remains to be seen under what possible forms, existing or emergent, it will appear: in particular regarding the alternatives of globalization and regionalization. By questioning the theory of convergence it will be possible to offer a more detailed analysis of the developments under way and the related challenges. In order to examine this

research question it is important to utilize multiple angles of attack, developing both a company centred approach (as was done during the first GERPISA International Programme) as well as a more general approach which takes account of forms of regional integration and national level regularities. It will also be necessary to create case studies focused on one firm or one country or region while simultaneously deepening our analyses with the aid of transversal studies. Beyond these overall analyses the experience of the preceding programme showed that comparisons on precise points are indispensable to make particular arguments, which is difficult to do when studying company trajectories or regions because one tends to focus on what seems to be the essential element in the trajectory of each company or each region. Overall, we can envisage four main fields for scientific investigation; this will help us evaluate how they can be established and the demands they will make when compared to the current structure of the GERPISA international network if we are to succeed with this research project.

The trajectories of internationalization of automobile companies

The first step is to study the internationalization trajectories that are actually being pursued by companies (producers, suppliers, distributors) with great precision; for between the announced strategy, between the claims of this or that form of global organization, and the reality, there may be a considerable gap. Just as in the case of the first programme, we need to be descriptive rather than reasoning on the basis of various discourses or certain facts erroneously considered to be significant. The method developed in the programme 'The emergence of new industrial models' can be adopted again: identify the problems that firms have had to face, study the solutions they have adopted, analyze the role of internationalization in the solutions, understand the reactions and evaluate the results.

It will be useful to make some comparisons with other periods of internationalization, hence our interest in an comparative historic approach to clearly underline the specificities of the current period. While network members have already undertaken some research in this domain, a comparative systematic approach will enable us to arrive at more general conclusions. We will need to obtain the competencies necessary to study producers that were not studied in the first programme, and above all suppliers and distributors for whom strategies of internationalization have been less widely studied despite the fact that globalization - whether led by supplier groups or obligatory when accompanying producers - is now central. The internationalization trajectories could constitute a first major topic and the first major working group, as well as perhaps including sub-groups.

Emergence of new automobile spaces

Then it is necessary to examine the development of the new regions involved in the internationalization of companies - in other words the emerging countries or regions which are being created - if we are to understand the likelihood of success of the various internationalization strategies. For each type of region we need to know how markets work and what institutional frameworks (in particular state intervention) are evolving. Beyond this overall framework we need to identify the problems being encountered by companies, given their international structures and industrial models, the solutions they have discovered and their performance in each location. It would appear essential to

analyze the impacts of investments on host regions as functions of the modalities of local penetration (relationship with the local industrial fabric or position in the international division of labour organised by a multinational company for instance), particularly with regard to the development of the technological potential of these emerging countries.

The study of company trajectories will of course partly overlap with that of the regions. Yet they offer different and complementary perspectives. As with the first group, we shall need to find the competencies necessary to study these new regions, in particular South East Asia and Eastern Europe. The emphasis placed on the emerging countries should not cause us to neglect analysis of the new regional groupings (NAFTA, Mercosur, EU); several of the network's researchers are already working on these.

Convergence or divergence of markets and employment relations

From a transversal perspective there arise issues of the homogenization/'heterogenization' of markets and employment relations on the one hand and of production organization and workplace relations on the other hand. These issues need to be separated because it is possible to have homogeneity of one and heterogeneity of the other. The two themes can in fact be separated because one is more macro-economic and the other focused on the company. Yet the experience of the first programme, which sometimes distinguished the economic from the social a little too much, suggests that we should simultaneously study developments in markets and employment relations given that the latter have a strong influence over the former. At the same time a production organization can only endure if it linked to a workplace relationship with which it is coherent or at least compatible. This therefore suggests two working groups.

One group will study the convergence or divergence of automobile markets and the ways these are related to employment relations. The idea will be to compare (discriminating factors relating to) mobility and the uses of the automobile, the structure of markets, the products offered by companies, and the determinants of these in terms of social structures, labour markets, income distribution, transport policies, form of urbanization, and so on, in the various countries. Each of these themes can be studied separately, perhaps within a framework of sub-groups.

Convergence or divergence in productive organisation and work-place relations

Lastly, the purpose of one group would be to coordinate comparative and detailed studies revealing the convergence or divergence of productive organization and workplace relations according to the internationalization trajectories of companies (producers, suppliers, distributors). The idea will be to identify the discriminating factors on the basis of a systematic approach to targeted themes related to the various areas of concern such as product/service strategies, purchasing strategies, relationships with partners, product design/manufacture, the organization of production and work, distribution, and so on. In the case of this group the possibility and the usefulness of sub-groups functioning in a decentralised way are obvious.

Conclusion

The first GERPISA international programme, 'The emergence of new industrial models', focused on the identification of the processes leading to coherence among the new institutional apparatuses and the new production practices at company level. The 'regulatory sphere' was the company, even if the relevance of these apparatuses - their ability to create an industrial model - depended fundamentally on the company's relationship to its environment (see the definition of an industrial model: Boyer, Freyssenet, 1995).

Our procedure started from the crisis of Fordism viewed as a rupture in a mode of articulation and regulation of the production organization (economic logic) and the employment relationship (social logic) at the national level (macro- economic) that had prevailed during the post-war period. In this context the goal of the research programme was to observe how automobile producers tried to reconstruct a coherence at the micro-economic level (that of the company) between the various apparatuses that enabled them to manage the uncertainties of the market and work. These two dimensions referred to different levels:

The market at a global level given the internationalization of competition which led to a convergence of the principles of production organization;

Work at a local level, the company, the factory or even the workshop in the case of work groups. Here there is a transition from the employment relationship to the workplace relationship and the macro-economic dimension of the former is lost in the focus on local problems of work organization and wage determination.

Given the trajectories of each producer, which have permitted the development of unique managerial competencies, and given the local conditions under which the two levels are articulated, there have been a variety of production practices and above all different configurations and hence a plurality of industrial models.

The second GERPISA international programme has as its goal the development of an analysis which will link the two approaches (production organization and workplace relations/markets and employment relations) more closely in order to understand how internationalization is a process of rendering the two dimensions coherent under new forms. Using the case of the automobile industry, the idea will be to examine certain aspects of a 'new model of development' which links global factors of market constraint and local factors of employment relationship, focusing on the inter-dependencies between these levels of analysis. This reintegration of a linkage between the two instances, no longer at the micro-economic level but more directly at the macro- economic level, presupposes the issue of work to be understood at a societal level, that of the employment relationship and not the workplace relationship.

The debate focuses on 'globalization-regionalization' because intuitively we hypothesize that this linkage occurs at the level of the 'regions' since the region is a level of homogenization in terms of both markets and employment relations. Regions include not only the three poles of the Triad but also the emerging countries, which can be approached either as one 'region' or as several sub-regions. However these are but working hypotheses....

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