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► **To cite this version:**

Jean-Pierre Durand. The Competitiveness of the Automobile Industry: The French Way. Beyond Japanese Management. The End of Modern Times?, 1996. hal-03846227

**HAL Id: hal-03846227**

**<https://hal.science/hal-03846227>**

Submitted on 19 Apr 2024

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# Competitiveness of the Automobile Industry: The French Way

JEAN-PIERRE DURAND\*

Translated by Teresa Hayter

The French automobile industry is now one of the most successful in the world. It has had considerable success in resisting the pressures of other European or Japanese competitors in its home market. It has moreover been able to penetrate other European markets, including those that are reputed to be the most difficult, such as the German market. The Renault Clio was the best selling foreign vehicle in Germany in 1993. In addition, the two French companies PSA Peugeot-Citroen<sup>1</sup> and Renault SA have made profits continuously since 1987 (except PSA in 1993) while PSA in 1991 and Renault in 1992 were declared the most profitable manufacturers in the world. In 1991, with a profit rate of 3.5 per cent, PSA was well ahead of Toyota (2.9 per cent). These results, even though they appeared more precarious in 1995-96, are based on the major restructuring carried out by the two manufacturers following the crisis they experienced in the first half of the 1980s, which nearly caused them to disappear altogether<sup>2</sup>.

These upheavals are mainly the result of desperate efforts made by each company to survive and to adapt to a market in which the principles of flexible mass production replace those of straightforward mass production. To the requirement of a growing diversity of products were added concerns about quality which, for example, was not the strong point of Renault, while costs had to fall dramatically, in particular in order to cope with depressed markets. It was therefore not the threat of Japanese imports which caused the transformation of the French automobile industry (imports had been restricted to 3 per cent of registrations in France since 1977), as was the case for example in the United States. The need for radical transformations was based primarily on the need to deal with the manufacturers' massive losses (12.4 billion francs in 1984 in the case of Renault, which had debts amounting to 55 per cent of its turnover in 1985). In a search for solutions to their problems, the manufacturers made numerous visits to Japan, to understand why Toyota in particular was so successful. They brought back ideas for production methods (sometimes transformed into 'recipes') such as Just in Time, Total Quality Management, Total Productive Maintenance or *Kaizen*. They also brought back ideas about production goals (the reduction or absence of buffer stocks, the number of vehicles produced per employee and per year, the time it should take to design a vehicle...) and models for organizing their relationships with suppliers.

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<sup>1</sup> The PSA Peugeot-Citroen group (abbreviated as PSA) brings together Peugeot Automobiles, Citroen Automobiles and several subsidiaries (including Peugeot Cycles) which work mainly for Peugeot Automobiles and are mostly located around Sochaux.

<sup>2</sup> I am grateful to Jean-Louis Loubet for his careful reading of this study and for the improvements and wise advice which he provided.

In fact it was impossible to put all these ideas into practice immediately in France for a number of reasons. First, Toyota's engineers and managers set up the 'Toyota system' through a process of trial and error over several decades (cf. the writings of T. Ohno and of Shingo). The system was made up of organizational adjustments whose coherence was only made explicit and reconstituted *a posteriori*. The French manufacturers could not reconstruct this coherent system in a few years. The consultants who assisted them (especially at Renault) were often more concerned with their own interests than with the concrete results of their actions, and they introduced 'Japanese methods' without a systematic concern with the coherence on which their success is based. Second, the differences between French and Japanese employment relations mean that a particular type of organization of work, production, quality, and maintenance which is successful at Toyota may not work at Citroen, Peugeot or Renault. A system of organization cannot be separated from its context, and in particular from the nature of the employees' involvement in work, the system of wage determination, skill levels or the ability of trade unions to block a reform which appears to them to run counter to the interests of the workers.

Thus the teams of engineers visiting Japan brought back concepts, ideas and goals rather than solutions. The survival and then the success of the French automobile industry derive from the ways in which these ideas were put into practice in the real life situation of the companies, and especially of the shopfloor. It is possible to speak of a French Way, which links the trauma of a drastic reduction in the number of employees (and especially of shopfloor workers) to a general commitment to an experiment whose positive results are widely accepted.

This 'French Way' of modernization was largely based on the weakening of militant trade unionism. This weakness had existed for a long time at Citroen, where company unions occupy a dominant position. It is now prevalent at Renault where, after the closure of Billancourt and the long struggle of its chairmen Georges Besse and Raymond Levy against the *Confédération Générale du Travail (CGT)*, the latter lost its majority in the Company Committee and in most of the company's plants. At the same time, this does not mean that militant trade unionism has disappeared. Social movements, sporadic work stoppages or longer strikes (as at Peugeot in 1989 or at Renault in 1991) show the relative dynamism of militant trade unionism. On a day to day basis, workers who are supported by one or more trade unions continue to resist or to refuse changes which are against their interests. The situation is therefore ambivalent. Trade unionism is still present but an intelligent management can obtain the acceptance of reforms which would have triggered strikes in the 1970s. A particular example is continuous working, that is, the continued functioning of production lines (assembly, welding) during breaks, thanks to the rotation of the workers who look after the machines.

In summary, the considerable increase in productivity was largely the result of management's ability to suppress pockets of resistance, both weakening the militant trade unionism of the 'Golden Age', and by convincing the workers and certain trade unions of the urgent need to work in different ways and with greater efficiency, in order to secure the survival of their company and thus to save jobs. In spite of all the differences that exist with the Japanese

context, a profound transformation of the employee relationship in France is taking place and is moving in the same direction. The majority of wage earners carry out the tasks which are assigned to them in the way they have been told to do so because there is no reason - and no possibility - to do otherwise.

At the same time, and this is the other particular feature of the French Way, management, especially at Renault but also at PSA, has carried out a large number of experiments, either at headquarters level (for example in the central engineering department) or at factory or even shopfloor management levels. These experiments are generally intended to improve productivity or quality.

Subsequently management was able to graft onto these practices, and onto the sense of commitment to the company, the goals imported from Japan, in particular those of quality and above all those of productivity growth. Thus it is incorrect to speak of a 'Japanization' of the organization of work and of the company in France. In reality, Japanese methods were profoundly distorted when the experiments were generalized. But the goals of quality and productivity persisted, were shared and were quite often attained, even though this was achieved through the detailed working out of solutions which were closely linked to the French organizational fabric, rather than through radical upheavals inspired by Japanese methods. For example, French factories usually had difficulty in eliminating internal buffer stocks on a production line (especially in the engine shop) or between two lines, since these run at high speeds (easily 50 per cent or 80 per cent faster than those I have encountered in Japan) and have therefore not been made totally reliable. However, thanks to strong commitment by employees, to a degree of pressure at work, and to sometimes acrobatic behaviour which is far removed from extreme Japanese rigour (Total Productive Maintenance, the five S's, total quality approach...), the results in terms of quality are good, and those in terms of productivity much better than in the previous decade.

In this contribution we shall therefore examine the nature and content of the syncretism of Japanese organizational techniques and the French social fabric: what is the French Way of achieving the modernization of the automobile industry? What are the foundations of its successes in quality and profitability? In order to answer these questions, we shall first analyse the conditions in which recovery took place in the 1980s and then several particular situations among French manufacturers, especially on the shopfloor. Finally, we shall show what remains to be done to secure the future of the automobile industry. While benchmarking remains essential (within Europe but also in relation to Japan and to Toyota in particular), it seems that the solutions will be more and more French ones, based on general principles which go beyond Japanese methods, since the issue at stake is the continuous growth of productivity, the fundamental goal in a period of stagnation of capitalism.

### **The 1980's recovery**

After the losses of Renault and of PSA Peugeot-Citroen, the results of the two groups for

recent years are as follows<sup>3</sup>:

**Financial Results of French Automobile Groups**  
(Net Profits in billions of francs)

	1988	1989	1990	1991	1992	1993	1994	1995
Renault	8.83	9.28	1.21	3.07	5.68	1.07	3.63	2.14
PSA	8.84	10.30	9.25	5.52	3.37	-1.41	3,10	1,70

Renault has considerably reduced its debt, which fell from 55 per cent of its turnover in 1985 to 10 per cent in 1992. The state, which at the time owned practically the whole capital of Renault, contributed to the absorption of the debt through supplying capital<sup>4</sup>, in spite of the complaints of M. Jacques Calvet, chairman of the PSA group and main competitor in the French market, and the investigations of Brussels.

The two companies have been able to contain foreign penetration into France (at about 40 per cent), helped by the agreements to limit Japanese registrations to 3 per cent in France from 1977 onwards. In parallel the two groups, thanks to a distinct improvement in their products, improved their export performance. Exports now account for 66 to 68 per cent of PSA's turnover and it occupies third place in the European market, hoping to overtake General Motors; Renault was in fifth place in 1994.

*The Foundations of Recovery*

As with all the manufacturers in other European countries or the United States, industrial and financial recovery was based on improvements in quality, new design concepts and cost reductions.

As far as quality was concerned, Renault succeeded in transforming its image as a general producer, relying mainly on the lower and middle sectors of the market and producing vehicles of average quality. By creating a Quality Institute in 1988 Renault imbued in its personnel the idea of the importance of quality, in particular through intense programmes of training for final assembly operators. From the point of view of the design and manufacturing of vehicles, simultaneous engineering and project by project management techniques reduced delays in launching vehicles and somewhat improved the manufacturability of products. Both automobile groups also rationalized the use of components, beginning with vehicle platforms. For example, the PSA group uses common platforms for its two Peugeot and Citroën makes.

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<sup>3</sup> The two groups' good financial results in 1995 obscure much worse result in their automobile operations: PSA profits from these were only 0.5 billion francs, while Renault lost 1.7 billion. This situation was the result of a price war on the European market, with lossmaking sales in Italy for example, and of manufacturing costs which were still too high.

<sup>4</sup> Thus Renault was recapitalized to the extent of 20 billion francs, directly or through the cancellation of debts. According to PSA and Brussels, Renault received 28 billion francs between 1982 and 1994. Cf. Jean-Louis Loubet (1995), *Citroen, Peugeot, Renault et les autres. Soixante ans de strategies*, Paris: Le Monde Editions, p.85.

But it was from the point of view of reductions in manufacturing costs that the results were the most spectacular, even though they are still inadequate. First the manufacturers rationalized their relationship with suppliers. by reducing their number (800 in 1995 compared with 2,000 in 1985 and 600-700 in the near future) and by creating Assured Quality Suppliers (AQF) procedures which guaranteed total quality in all the parts delivered, often at reduced prices. In addition, the manufacturers no longer order parts but demand complete systems (braking systems, windscreen cleaning systems, for example) from the suppliers. This extended integration and partnership with the company guaranteed increased productivity and quality, since the goal of quality was shared and taken account of from the beginning of the process. Second, both automobile groups considerably reduced slack time and modernized their productive equipment through massive investment, as soon as they had more or less sorted out their finances after the crisis of the early 1980s. For example, Peugeot PSA, which was investing only around 4 billion francs in 1983, invested 7.3 billion francs in 1987 (7 per cent of its turnover) and 15.1 billion francs in 1990 (15.1 per cent of its turnover). But productivity increased mainly through a reorganization of work which had as its aim a massive reduction in wage costs. According to Jean-Louis Loubet the share of employee costs fell from 27.8 per cent of turnover in 1984 to 18.8 per cent in 1990 (8). Peugeot and Citroen lost nearly 60,000 employees in a decade between 1981 and 1990, or 27 per cent of their total workforce. Peugeot's management claims that the average yearly growth in productivity for the last decade was 7 per cent. It sets its factories annual goals of 12 to 13 per cent growth, often attained. As for Renault, it too considerably reduced its workforce which fell by 31,000 (14.5 per cent) in only two years, between 1984 and 1986. The Flins factory increased its production from 1,600 vehicles per day in the mid- 1980s to 1,650 vehicles per day at the beginning of the 1990s with 25 per cent fewer employees; but the average age of employees in this factory (47 years) is much higher than that of Japanese firms in Britain (30-31 years).

The principle ways in which the workforce was reduced in France were early retirement, aid for immigrants to return to their country of origin (an individual grant which might range from 40,000 to 80,000 francs) and the encouragement of voluntary redundancies (with an even more substantial bonus than the above and with various aids for setting up businesses). Today, the tools for dealing with variations in volume (flexibility in volume) are the use of over-time, temporary work or fixed term contracts in periods of high demand (or the launching of new models) and the use of 'technical unemployment'<sup>5</sup> in periods of depression.

The competitiveness of the French automobile industry is also based on the rather low level of wages compared to those of Northern Europe, the United States or Japan. During the last decade, a raising of the skills level of the workers looking after automated equipment was accompanied by reclassifications and wage rises. But these personnel are few in number. On the other hand the growth in wages of the great majority of workers with low levels of skills has been rather slow in the last decade. The trade unions themselves have had great difficulty in putting forward wage demands at a moment when job losses and 'social plans'<sup>5</sup> are prevalent.

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<sup>5</sup> The 'Social Plan' is a procedure authorized by the state which has nothing 'social' about it since it is a case of dismissing employees. The social plan organizes training for the personnel concerned and seeks to 'redeploy'

According to a CGT trade unionist questioned on the issue, 'the fear of losing one's job is much greater than before'. A CGT pamphlet (published in March 1994) reported that an employee of Renault-Douai (a factory in the North of France, near Lille) had been refused a loan by the DIAC<sup>6</sup> because his wage was too low! And the pamphlet pointed out, in conclusion, the contradiction between the growth in the productivity of work and the impossibility of buying the product manufactured by that worker.

### *The Price of Success*

The industrial, commercial and financial successes of the French automobile industry have a considerable social cost (job losses and low wages, for shopfloor workers in particular). One might therefore ask why employees remain as involved and as motivated as they are today. In response to the same question, asked in relation to the automobile manufacturers of Japan, we answered<sup>7</sup> that 'Corporate Welfare' was a sufficient condition: remaining in a big Japanese company guarantees good social coverage, a pension and high wages which allow employees to be better housed and to provide their children with a good education (especially in evening classes or *juku*). In order to stay in the big companies Japanese employees submit themselves and conform to the standards of behaviour and productivity set by management. It seems that in the West and in France, the fear of losing one's job (the pressures of unemployment) acts as a functional equivalent to the threat of leaving a big company in Japan and its Corporate Welfare.

Thus compliance with the standards set by the company becomes obligatory for keeping a job in France, beyond a certain age, or for obtaining promotion and building a career for younger people. This is the more so as the automobile industry generally speaking pays its employees better than many other sectors. Among the standards to be respected by employees, clearly the most important are an absence of protest and trade union militancy. At the same time this situation, which is not new but which constitutes a new imbalance in the the relationship between capital and labour, does not mean that the company has become a concentration camp where a permanent and omnipresent form of social control of work holds sway, as a whole school of sociology maintains. The new standards and the pressures to respect them are in fact fairly willingly accepted by most of the employees who remain in the companies (hence the difficulties experienced by militant trade unionism). They are all the more easily accepted as they are reconstructed and reinterpreted in daily working practices so as to make them more acceptable and make life at work bearable, though monotonous and repetitive. This constitutes a possible reinterpretation of the work of M. Burawoy on 'making out' in piecework, which argues that employees, especially older employees, play at reinventing the social rules of the game of work relationships to make them more liveable and agreeable. The employees' commitment to their work rests in part on such foundations, and on the local and constantly

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them to other companies or other activities; the oldest can leave in a process of early retirement financed both by the UNEDIC and by the employer, in the framework of an agreement signed by the state and the company.

<sup>6</sup> A Renault subsidiary providing loans for the purchase of cars.

<sup>7</sup> Cf. the final section in Robert Boyer and Jean-Pierre Durand (1996), *After Fordism*, London, MacMillan.

repeated reinterpretation of the standards prescribed by management into rules of the game which mark out and regulate the activity of the operators.

In summary, the achievements of the automobile companies, and in particular those of the individual shops, rest on this new equilibrium in the balance of forces between capital and labour which favours consensus and work satisfaction. and in which protest does not really have a right to exist. This is what we shall now look at in a number of concrete situations within French manufacturers.

### **The consensus. Quality and productivity in French manufacturers**

The transformations carried out since the mid- 1980s were concerned both with production techniques and with the organization of work. The ways in which these transformations were put into practice - which clearly have social effects - are at the heart of the concerns of this study. We shall deal successively with the cases of Citroen and Renault.

#### *Citroen and the Plan Mercure*

From 1980 onwards, aware of the deterioration in the social climate and of their backwardness in relation to Japanese firms, Citroen's factory managers suggested to the company's head office that they should jointly consider possible reforms to improve the performance of the company. Thus the initiative for change did not come in the usual way from head office, but from 'operational' personnel, that is from those who were directly responsible for production and who wished to transform the productive system.

This discussion lasted for more than three years. It brought together those who had initiated it and the head office's functional directors in order to work out the generic principles of the transformations which were to be carried out. These were eventually translated into a plan of action<sup>8</sup>, the *Plan Mercure*. This title comes from the name of the hotel in which the discussion group's bi-annual seminars were held; it also relates to the fact that the god Mercury is the god of commerce. Since Citroen hoped to transform itself from a 'manufacturer' to a 'seller' of cars, this was an affirmation of the priority to be given to customers over the internal relations of the company. The *Plan Mercure* was then explained to supervisory staff through numerous meetings, which affected more than 5,000 people.

The *Plan Mercure* addressed both technical and social matters. From the technical point of view inspiration came essentially from Toyota and from the teachers Shingo and Ohno, since the goals were to accelerate and intensify production flows within factories and between factories and suppliers. At Aulnay, near Paris, where the AX and the ZX are manufactured, die changes for new production runs now take place in less than 15 minutes, which allows work to

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<sup>8</sup> Cf. Sylvie Celerier (1990), 'Le Plan Mercure de la Societe des Automobiles Citroen' in ECOSIP, *Gestion industrielle et mesure economique*, Economica. Xavier Mercure (1989), *Citroen, une nouvelle culture d'entreprise*, Paris: Les Editions d'Organisation.



be carried out with small hatches and reduced stock. The same goal led to a considerable increase in the periods of availability of machines, in particular through preventive maintenance promoted through a reorganization of work (see below in relation to modules). Finally, the concept of freeing the flow of goods makes bottlenecks caused by quality defects unacceptable; quality checks are therefore carried out while products are moving by operators (self assessment) and quality defects are continuously evaluated through failure marks which position negatively certain sectors of production (and their men!) in relation to others. This systematic self-assessment has made possible the total, or almost total, elimination of rectifiers at the end of lines, and a reduction of the associated costs.

The originality of the way in which these ideas were adopted in France is that stock reduction and the adoption of Just-in-Time methods were a goal to be pursued; they were not applied immediately as the advocates of Toyotism recommend, with their aim to show up the weak points of the productive system with a radicalism which sits ill with Citroen's culture of adaptation. On the contrary, caution required that, while maintaining the goals of Just-in-Time, the main problems of availability and quality should be resolved first. The reduction of buffer stocks and the introduction of Just-in-Time methods were therefore introduced in stages so as not to make the flow of products vulnerable, until these goals were attained.

To meet the challenge of the *Plan Mercure*, the social organization of production was substantially changed. First the hierarchical chain was shortened through scrapping two layers, those of setters (who, in France, traditionally performed both a technical and an elementary managerial function) and shop managers. The new hierarchical chain includes the operators, the AMI (level 1 supervisors), the AM2, sector managers and factory directors. If necessary, and for technical problems, the AMI and AM2 are joined by Production Assistants (ADP) who are area technicians. The number of operators directed by each AMI gradually fell from about 30 to an average of 18 in a decade, as a result both of job cuts (the workforce at the Aulnay factory has an average age of 41 years) and of the desire to reduce the gap between the AMI and the operators. The goal is to have one AMI per 15 operators, with this number varying between automated and manual sectors (around 15 in final assembly and up to 25 in the components factories; this figure has fallen to 7-8 on the assembly lines at Aulnay).

At Aulnay, in the assembly shop (with an average level of robotization) maintenance always takes place off the line, unlike in the Rennes factory (for the medium to upper Xantia models and the top of the range XM) where it is integrated into the production line, since the workforce there appears to be more flexible than at Aulnay. In the assembly shop at Aulnay, the operators, who over a few years have significantly improved their skill levels, deal with breakdowns which require less than 15 minutes' work; beyond this point they call the maintenance workers who are at the end of the line. On manual jobs<sup>9</sup>, the operators change jobs fairly frequently so as to diversify tasks, even though these tasks are in fact quite similar to one another and are equally

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<sup>9</sup> According to an interview with an AM2, Jacques Calvet, chairman of PSA, is holding back robotization and automation in general in order to maintain flexibility in the volumes produced; the depreciation of robots carries on even in periods of weak demand, whereas operators can be put on 'technical unemployment'.

repetitive. In the Rennes factory, there is little rotation of operators and multiskilling only applies to a small percentage of the operators; those who are multi-skilled on three tasks do not have any additional status, which limits multi-skilling; they clearly have a higher level of autonomy and a better understanding of the manufacturing process. Multi-skilling favours promotion, which remains an advantage for the most dynamic operators.

The responsibilities of the AMI have increased compared to those of the former foremen: on the one hand they are responsible for their budgets (for tools, spare parts ...), on the other hand the results they obtain in terms of quality and volume have an effect on their careers (but not on their immediate pay; there are no productivity bonuses such as exist at Toyota). The AM I have a computerized information display in their area and follow daily production levels; they are responsible both for the management of production and for the management of personnel. Once a year the AMI carry out individual interviews, based on an evaluation programme, with each of the operators in their section. Normally each AMI has attended a training session for these interviews organized by the Human Resources Department. According to one AMI, the idea is to make the operators talk so that they evaluate themselves; then during the interview the AMI present the results of the preceding year: attendance, participation in quality circles, quantity and quality of the suggestions made, satisfaction in relation to the declared objectives. The interview is also intended to oblige the management hierarchy to engage in discussion with the operators, both to make clear to them what is expected of them and to show them which development paths are available to them; it is on this basis that training is proposed to those who are interested.

The AMI generally have at their disposal a production assistant (ADP) for technical problems. The role of the AMI has clearly moved away from the resolution of technical problems, as was the case in the former system and in current Toyotism, towards management functions (administrative and productive) and responsibility for the motivation and management of personnel. The ADP are responsible for areas such as setting up production runs, and managing and setting up tooling; they have no hierarchical authority.

The AM2 - the rough equivalent of the former shop managers – work during normal hours and direct the AMI of two teams, or a total of four AMI. They have a minimum of two years of higher education and satisfactory shopfloor experience. Their functions are also largely administrative and if they are successful they have the support of a production technician. On the other hand the sector managers who are in charge of four AM2 (or between 300 and 500 operators) often have a more technical role since they also, in most cases, are responsible for maintenance in their sector.

From 1985 Citroen set up quality circles, which are voluntary. They bring together between 5 and 6 operators, those most interested in their work. They meet for one hour every two weeks (multi-skilled workers fill in on their jobs). The quality circle always includes the same operators who may however invite others to join them, according to the problem treated. Discussion is about working conditions, safety, production and of course quality. The quality circles are generally led by an AM I, or even by an ADP. Depending on the personality of the

leader, the circles may discuss particular problems in a rigorous manner over several meetings, or they may become the place in which social bonds are created in the team; sometimes a great variety of questions are debated, including life outside work.

The operators perceive that, through the quality circles, they may be able to modify and improve their jobs. Suggestions are debated there and this is one place in which they can be formalized with the support of the AM I, the ADP or a technician, since the operators are not adequately trained to be able to do this themselves. Subsequently the suggestions are dealt with by the AM2 and by the relevant technical services, who evaluate them and decide whether to put them into practice. The bonuses for suggestions range from 250 to 7,500 francs and each factory formally announces the prices paid for suggestions at an annual ceremony.

Beyond the suggestions and the quality circles, which concern up to 50 per cent of the workers in certain shops, Citroen has created under the *Plan Mercure* 'modules', which constitute an original way of resolving manufacturing problems. Ad hoc modules may be set up, for example when a piece of machinery is bought, but the spirit of the *Plan Mercure* is to create permanent modules to improve the processes of production. Each module brings together the AM2 of the area under consideration (as leader), any other AM2 who are concerned, the production technician, the maintenance technician, an engineering technician and a representative of the relevant peripheral services. The module meets every month or every two months, with each participant carefully preparing for the meeting, to discuss a particular technical problem and questions of productivity, quality or reliability. As can be seen, the operators are absent from the modules, given that they are technical meetings which go beyond their level of skills; it is the AM1 who make the links with the operators and with the quality circles on the matters with which they are concerned. While the quality circles and suggestions appear to be above all tools of social integration, with limited technical concerns and effects, the modules are considered to be the solution for the technical integration of the different participants and services which used to exist in a splintered form. Even if the module does not meet frequently 'it is permanent and permits the everyday management of the relations between manufacturing and functional tasks'<sup>10</sup>. In this sense it is strategic, since the traditional organization of production suffered greatly from its compartmentalization.

In the analysis of Citroen's transformations, an attempt can be made to distinguish between what is imitation and what is local creation. The general application of the Just-in-Time system can definitely be described as imitation, with all the consequences this entails, as at Toyota, in the rigourousness required in matters of equipment reliability and immediate quality at different levels. The second type of imitation is undoubtedly in the new importance attached to the technical integration of services (manufacturing/functional) to resolve problems and to improve the performance of the industrial system. The modules constitute a kind of diffusion and dispersal throughout the various parts of the factory of the job of determining organizational methods, in the same way as this occurs in the Japanese automobile companies and at Toyota

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<sup>10</sup> Sylvie Celerier, op. cit., p.347.

in particular<sup>11</sup>.

The third form of imitation is the yearly individual evaluation of operators by their direct superior in the hierarchy, which deals mainly with the goals set for them and their participation in suggestions and the quality circles. But is this an imported idea or is it rather the systematization of a practice which already existed? In fact, supervisors have always had an important role at Citroen and to some extent had the same coercive functions as at Toyota. Promotion to supervisory jobs required membership of the SNIC<sup>12</sup>, the company union which appears even less capable of putting forward claims and of defending the interests of workers than most of the company unions in Japan.

According to one AMI, membership of unions, including the SNIC, is low. The SNIC is considered to 'sit on the fence too much' and to 'put forward "realistic" wage rises which seem too low to a lot of employees'. What is most striking is that no soothing speeches are made about 'teamwork' in its Japanese version (formalized by the advocates of 'lean production'). In the same way, there is only a minimum of displays of performance indicators on the shopfloor, unlike in most European factories which use them as an obvious barometer of the workers' level of commitment. Finally there are no, or very few, daily or weekly information meetings where supervisors attempt to motivate their workers.

In other words, apart from the imitations and imported techniques referred to above, employee relations at Citroen remain profoundly traditional, with a form of work organization which is typically Fordist (with the traditional Fordist work team, and no attempt to introduce group working). Which does not mean that there is not strong social integration, as in Japan, thanks both to the nature of the dominant trade unions and to the very effective role played by supervisors, most of whom belong to the company union. It is these supervisors who hold together the team and who influence daily events through informal and yet effective means, thus enabling Citroen to avoid having recourse to the devices which are part of the Japanization process.

### *Renault and Cumulative Experiments*

After the crisis and the financial losses of the early 1980s Renault's management decided it needed to carry out fundamental reforms in the company's culture. It recognized that even in prosperous periods (such as 1991-92) there was a need to make preventive changes designed to cope with future crises; this is why the period 1984-85 is described as a creative crisis.

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<sup>11</sup> Cf. J.P. Durand and Joyce Durand-Sebag (1992), *The Hidden Face of the Japanese System*, Paris: D.T.T. Universite d'Evry.

<sup>12</sup> The *Syndicat National Independent Citroen* (Citroen National Independent Trade Union), a member of the *Confederation des Syndicats Libres* (CSL - Confederation of Free Trade Unions). At the Rennes factory the results of the 1993 elections to the *Comite d'Entreprise* (Company Committee) for the different trade unions were as follows: CSL (58%); CGT (30%); CFDT (6); FO (3%); CGC (2%); CFTC (1%).

At Aulnay, the CSL and the CGT have approximately equal support, with a slight advantage to the CSL; but with the alliances between unions, the CSL generally obtains a majority of seats on the Company Committee.

Renault management considered it necessary to change mentalities in the company and prepare for an uncertain future by pulling an end to certainties, established structures and fixed or rigid forms of organization. It appeared as though a culture of instability was being deliberately created. I shall take two examples to illustrate the current changes: that of the implantation of Just-in-Time systems (JIT) on the manufacturing lines of old gear boxes at Cleon, and that of the launch of a new vehicle in the assembly plant at Douai.

Instead of creating a new building to manufacture the new PK gear boxes at Cleon (in Normandy), management decided in 1988 to make extra space in an old workshop. At the time of the reconversion of the old production lines (and therefore of the old machines), management wished to introduce JIT. Its intention was that JIT should show up the technical and human weaknesses of the manufacturing lines so that the employees could compensate for them. We are thus at the heart of the application of the methodologies of the consultants who take their inspiration from Japan: the tensions of JIT were to enable quality to be increased and costs (especially labour costs) to be reduced, thanks to a continuous improvement in reliability.

To attain these goals, a number of new principles were applied: the transfer of gear box manufacturing from homogeneous machining units to line production, ordering single parts as they were needed, multi-skilling of the operators who were to be trained to carry out first level maintenance tasks, and collective responsibility. In reality, as is shown by a detailed study of Renault's achievements<sup>13</sup>, the changes brought about by the reorganization and by JIT fell well short of these goals:

- while buffer stocks diminished compared to the old system, the operators created new stocks (not foreseen in the plan) to cope with machine breakdowns or slow production changeovers;
- quality barely improved;
- the productivity gains were evaluated at 11 per cent, but maintenance costs (indirect costs) were slightly higher;
- there was no multi-skilling over the whole line (considered too complex for the operators), but 'homogeneous sequential sections' were created, similar to the old 'technological pools';
- the impossibility of moving to strict JIT led to a multiplication of regulations, the creation of small buffer stocks and greater complexity in the management of flows;
- the imposition of JIT from outside and the weakness of participatory measures (the supervisory staff did not believe in the reorganization) meant that the operators did not take ownership of the new organization; at the same time the more active role of the operators and especially of the setters allowed the elimination of one foreman's job;
- JIT increased pressures and stress;

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<sup>13</sup> G. Bauché and al. (1991), *Réussir une organisation en juste-à-temps. L'exemple d'un atelier de mécanique chez Renault*, ANACT.

- faced by these changes in their working conditions, the operators, who had temporarily lost their way in the organization, developed individual (and sometimes collective) strategies to protect themselves;
- the operators still had only a limited view of the line as a whole. Linked to an insufficient knowledge of the machines, this truncated view of the manufacturing process did not give them sufficient control over the information they received; their ability to anticipate was thus also limited.

We are here in a situation which is far from the situation described at Citroen, where the organizational changes linked to the implementation of JIT methods were introduced progressively, by stages. However the results are equally interesting. By completely different routes, learning about change was on its way. There was a real teaching effect and the conditions are now ripe for the introduction of a real JIT management system. The operators, the setters, the supervisors possess a “vision of the process of production, of the product, of the machines, of the flows, of their relations with their colleagues and the hierarchy which is totally different from the view they had of them in the previous form of organization. They have found themselves essential actors in a new system, while their minds were still filled with the doctrines of the old organization (priority for volume rather than flows, the job station or the link in the chain rather than the line as a whole, volume indicators rather than the satisfaction of the client...). They have gone from a world where work was prescribed to one where it was less and less so, where it was necessary to react to unpredictable events, to know how to resolve problems...”<sup>14</sup>

At Renault, unlike in Citroen's culture of adaptation, the French Way of taking on competitiveness objectives was the a priori transformation of employees' perceptions and understanding of their social environment (the rethinking of their relationships with others) in order to prepare them for future changes. This meant that, in this slow process, management now accepted the long term nature of social change, aware that it required time.

Another dimension of the French Way to a new productive model, closely linked with the transformation of mentalities and perceptions, is that of organizational experiments and step by step change, through the collective learning of those involved.

For example, the forms of productive organization put in place on the manufacturing lines for new engines at Cleon, and JIT on the manufacturing lines described above, were based on lessons learnt from the organization of integrated lines for the manufacture of the JB gearbox (installed at the beginning of the 1980s), which itself was inspired by organizational experiments in the manufacturing of crankshafts<sup>15</sup>. In the same way, in the second case concerning Renault to be examined here, the productive transformations accompanying the

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<sup>14</sup> Ibid., p.156.

<sup>15</sup> Cf. J.P. Durand, 'Usinage en continu et nouveaux savoirs professionnels' in J.P. Durand *et al.* (1986), *L'enjeu informatique : former pour changer l'entreprise*, Paris: Les MeridiensKlincksieck.

launching of the R 19 in 1988 at Douai (in the North of France) were based on the results of experiments conducted during the manufacturing of the R9/R11 from 1980 onwards, which integrated professional maintenance workers in the manufacturing process.<sup>16</sup>

The launch of the manufacturing of the RI9 was much better prepared and planned than the previous launches, thanks in particular to the setting up of a project group<sup>17</sup> which brought together several engineers and technicians. This project group first recruited the future operators and production technicians from the old shops. Not only were they better trained since they took part in the project before the launch took place, but they were motivated because this procedure made the project *their* affair. Finally, this practice permitted advance planning of jobs and careers.

The manufacturing of the test batches did not take place in as linear a fashion as had been foreseen on paper and did not attain its objectives. But the technical and organizational innovations which followed were facilitated by the fact that the operators, maintenance workers and supervisors already knew one another well and were committed to the project. The degree to which the team was able to respond to unpredictability and unforeseen events was proportional to its technical preparation and the internal quality of its social relationships. At the same time it became clear that the levels of achievement of the various categories of participants were directly related to the potential effect of their new role on their careers and professional advancement. For example, the operators and especially the line charge-hands (generally formerly unskilled shopfloor workers said to have potential, that is capable of advancing technically) succeeded better than expected because they committed themselves totally to the challenge; for them it represented an opportunity to escape from their condition as lifetime shopfloor workers. On the other hand, the maintenance workers and technicians failed to ensure the total reliability of the system in the designated time; their future in the new organization was less secure than that of the operators and line charge-hands because they saw themselves as being in competition with the latter in first level maintenance operations. Finally, the supervisors, coming from traditional manufacturing systems, failed to meet the demands of multiple functionality in their new role, by providing the lead in internal relations in the team and in training, both organizational and technical, for the new productive system.

Thus the first group, motivated by the prospects of promotion (financial but also symbolic) seemed destined to succeed while the others, even though they were equally committed to the project, were aware that their prospects were somewhat uncertain in the new organization. As a consequence the system reverted, provisionally, to the former form of organization, under which the maintenance workers rediscovered their autonomy and their identity through their differentiated status in manufacturing. It is true that this took place at the time when production of the new vehicle was being brought up to speed. Concerns with short-term production goals took on more importance than the structural improvement of the productive system; problems

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<sup>16</sup> Cf. C. Mahieu, 'Experimenter et former pour gérer la production flexible' in J.P. Durand *et al.*, op. cit

<sup>17</sup> Cf. F. Charue and C. Midler (1992), 'Mutation industrielle et apprentissage productif' in G de Tersac and P. Dubois (1992), *Les nouvelles rationalisations de la production*, Toulouse: Cepadues-Editions.

were not seriously addressed and palliatives were resorted to keep up the planned rate of production. The statistical result was positive, since Douai broke the European record with a production of 1,500 vehicles per day after six months and I, 700 vehicles per day after a year. But in this organizational step backwards, the hopes that the line chargehands had placed in the original project were not met.

Further analysis suggests that this situation is even more complex, since the form of organization which became entrenched at these high levels of production was hybrid. Formally, the separation between maintenance and manufacturing sectors was maintained, but in practice exchanges between the two sectors were dense and fairly harmonious, on the basis of the introduction of techniques for improving and measuring performance. As a result of a number of concrete methodological innovations in work organization (such as 'Total Productive Maintenance') and new management tools (such as performance indicators and other measurements ...), goals common to the different categories of workers were rebuilt and local leadership was reactivated.

This does not mean that these management tools and participatory methods were enough to motivate the shopfloor. On the contrary, it is because the introduction of these tools took place in the context of the long process started by the creation of the project-group that they were accepted and used, so that they promoted exchanges between competing categories of employees and helped them share the same company objectives.

The significance of this case is that, although the target-organization was never actually put in place, the cumulative effect of the experiments, and then of the process of trial and error, in fact allowed the company to get near to this objective without conflict or excessive traumas<sup>18</sup> and to reach and then overtake it in a new cycle.

The French Way to the modernization of the automobile industry is not a carbon copy of 'lean production' or Toyotism. In the most determined and successful forms of implementation, it can be said that management:

- announces a target-organization or a guiding principle (which is to varying degrees inspired by what is known about Japanese productive realities);
- prepares the transformation of understanding, perceptions and mentalities through changes in concrete practices, that is through organizational changes which are limited and therefore acceptable;
- uses experiments which have already been carried out or conducts gradual and repeated changes, with advances and retreats, leading towards the target-organization.

In other words the French Way is that of gentle rationalization<sup>19</sup> - since all the Toyota techniques are in fact new rationalizations of old techniques-, by small steps, gradual and carefully

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<sup>18</sup> For a short critique of the concept of target-organization, see Part 2 of R. Boyer and J.P Durand, op. cit.

<sup>19</sup> Cf. 'Critique de la rationalisation douce' in *Futur antérieur*, n° 10, 1992/2



assessed. It is perhaps here that its specificity and the basis of its success are to be found. But these successes do not mean that we should not raise questions on the limits or obstacles encountered in the current transformations, and thereafter on their real nature and that of the 'new productive model'.

### **Renault: a hybrid form of work organization?**

At Citroen and Peugeot, as we have seen, the organisation of work remained quite traditional - which did not prevent it from being effective and was based largely on the Fordist work team. At Renault, management decided at the beginning of the 1990s to adopt a system of Basic Work Units (*Unités Élémentaires du Travail* - UET). This was intended to be a break with the past, and to achieve more quality and productivity. The idea was to reorganize the work into teams with a maximum of 20 people (8 to 10 in services) managed by a unit leader, who was to be the first step in the hierarchy.

By looking at the origins of the idea of the UETs, it is possible to demonstrate the extraordinary complexity of the history of team and group working at Renault. These were sometimes inspired by foreign models, but on each occasion they were reinvented and influenced by the culture of the factory and even of parts of the factory. I shall then examine the concrete experience of the establishment of the UETs in order to show that their functioning is the result of permanent adjustments between the goals of management, the practice of the supervisors, the relative autonomy of the operators and the demands of production.

Renault was influenced by Swedish organizational methods. It set up semi-autonomous work groups at Douai from the mid-1970s onwards, in particular for engine dressing. At Cleon, at the beginning of the 1980s, final engine assembly took place on Automatic Guided Vehicles on which the operators installed themselves; each engine was accompanied on this guided vehicle by its 'picnic basket' which was filled with the parts that were to be assembled. The vehicle stopped at various job stations where operators used suspended electric or pneumatic tools (to improve ergonomic conditions). The loop, with seven job stations, lasted about 21 minutes and the work group was responsible for its internal organization; the operators could carry out the entire cycle of the 21 minutes loop or a fraction of it, at their discretion.

In other factories, and especially at Le Mans, team working was organized from the beginning of the 1970s after a double phenomenon: the establishment of automated lines and strike action by shopfloor workers in support of a wage increase. The factory management was allowed by Renault's central management to recognise certain operators as 'authorized leaders of automated units', who thus became professional and therefore better paid workers. These led a small team of operators which had collective responsibility for production and its quality. The unit leaders carried out minor maintenance tasks which justified their new classification.

In the automobile assembly plants (Flins and Douai in particular), the installation of lines of welding robots also led management to reorganize work. It created work teams which were

responsible for their own production and which therefore had the capacity to maintain the robots in working condition. Depending on the situation, they might or might not have recourse to an independent maintenance team<sup>20</sup>. Whatever the case, these teams had much greater functional autonomy than previously, essentially because the various participants in production had invented a scheme to cope with the technical demands of the robot lines.

In another Cleon shop where new manufacturing and gear box assembly lines were installed in 1980, a firm of consultants, given responsibility for the reorganization of work, proposed the establishment of operator teams directly inspired by the 'Japanese model'. Each team of operators (former unskilled operators trained to become skilled workers) was made responsible for the functioning of the line, for production, for the machines and for quality, with precise goals for the availability of equipment. The team leaders (who for a long time were called 'Super-operators', which demonstrates the force of the inherited culture and vocabulary) were made responsible for the leadership of the group and its external relations. As in the Japanese system, the team leaders take part in production once they have carried out their specific tasks.

In summary, when teamworking became the policy through the decision to create Basic Work Units (UETs) from 1992 onwards, the ground was not uncharted and a number of units of production or shops had experimented with teamworking, 'inspired' by Swedish or Japanese models, through inventing hybrid methods specific to their circumstances. This did not mean that the majority of shopfloor and salaried workers had experienced one or other of these innovations. For those who had had this experience for a protracted period, team-working had built a culture of collective responsibility and commitment. This team spirit also meant growing autonomy and responsibility for individual team members, and thus also an increase in skills and competence.

These various experiments, that is experiments which were not systematized but which fostered a growing culture of the collective spirit and the wish to 'work otherwise'<sup>21</sup>, brought together certain principles which formed the basis for the 'Living Agreement' (*Accord a Vivre*) which was signed in 1989 by Renault management and all of the trade unions except the CGT. The 'Living Agreement' can be understood as a shared awareness on the part of the social partners, apart from the CGT, of the need to transform the company's professional relationships and work organization so as to improve its financial results and secure its survival. The 'Living Agreement' aims essentially to develop new forms of work which increase multi-skilling and productivity, through training for the workforce in general<sup>22</sup> and for shopfloor workers in

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<sup>20</sup> Cf. Michel Freyssenet in J.P. Durand, J. Jose Castillo, P. Stewart (eds), *Teamwork: a Real Change or a Passing Fashion?* Oxford: Oxford University Press.

<sup>21</sup> This was the slogan of trade unionists in the 1980s.

<sup>22</sup> This was the purpose of the creation in 1990 of a 'jobs watchdog'. Consisting of a central organization which worked closely with the watchdogs for each unit, 'this joint consultation structure is responsible for identifying problematic trades at Renault, to establish the state of affairs and to follow its evolution. This work is then intended to enable the supervisory staff to propose, two or three years in advance, various in the areas of training, mobility or redeployment. On their part, the employees can obtain a clearer understanding of their jobs and give thought to

particular, since the latter generally have a low educational level in French industry. The 'Living Agreement' also ensured that organizational transformations - and training ~ became part of the concerns about quality improvements of the Renault Quality Institute, set up in 1987.

The creation and then the generalization of the UETs after 1992 was one of the key aspects of the work reorganization. The organizational principles of the UETs were as follows:

- a single responsible employee placed in a short line of seniority (first level in the hierarchy, in charge of one UET, or exceptionally several UETs in the case of very small units);
- a maximum size of 20 people, depending on the technology to be applied, working together in the same time framework;
- a unit with a clearly defined product, with definite entry and exit points (principle of the client/supplier);
- physical management allowing, through performance indicators, the evaluation of the unit's competitiveness;
- bringing together and development of skills (multi-skilling and the integration of peripheral activities);
- a scheme of contractual participative organization (performance indicators, goals, progress plans known to all the unit's members, yearly interviews)<sup>23</sup>.

The UET leader is on the first step of the hierarchical ladder, which clearly differentiates the UET system from the Japanese team or the Swedish (or German) work group. The team is quite large, which is another point of difference. The UETs, on the other hand, possess a functioning autonomy and evaluate their own performance through formal indicators, while their role and its boundaries are clearly identified through relationships of the client-supplier type; this brings them somewhat closer to the Japanese systems with their precise, multidimensional and permanent evaluations.

The establishment of the UETs could not be general or immediate. This is why six stages of development were planned, starting with the splitting up of each shop into UETs, with the identification of the main client and supplier, and moving to a structured organization functioning at full capability (with individual interviews, various meetings, follow-up of performance indicators). By demonstrating the extent to which it had achieved its goals, each UET could position itself in relation to the others. By multiplying the state of development of each UET by the number of UETs, the state of their development in the department or the factory as a whole could easily be measured. Finally, audit systems were created to help management to carry out this evaluation.

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their professional prospects' (from the journal *Avec Renault*, March 1993). Several jobs sectors such as the commercial secretariat, maintenance and administration were analysed. The greater knowledge acquired led to the development of training programmes for the personnel concerned.

<sup>23</sup> 'Les UET', *Les dossiers du progrès*, No.1, 1992.

Two years after the start up of UETs at the Sandouville factory, its management reckoned that the establishment of the new work organization was 46 per cent complete. Sandouville claims to have initiated the UETs. From 1982, its management undertook simultaneously to 'broaden the outlook' of the supervisory staff through training in the leadership of work groups, to break down the compartments between services, to create quality circles and working groups for Just-in-Time production, to organize a contest on cleanliness (the 'five S's), to set up displays of performance indicators, up to the point of creating units, foundations for the future UETs. There are now only five levels in the hierarchy (operators, UET leaders, shop managers, department managers), as opposed to seven in 1985. The UET leaders have partly absorbed the functions of the setters (who should not be needed because of the operators' training) and those of the former foremen. They have the following functions:

- the management and leadership of the team,
- the provision of additional information on problems of quality in procedures and parts,
- relations with the engineering department,
- the organization of work (beyond the prescriptions of this department), in other words the assignment of operators to particular jobs (filling in for absentees, training for multi-skilling, rotation between jobs, checking of supplies, the malfunctioning of machines)

As a member of the factory management pointed out to us, 'all this takes place in a difficult environment; there are many demands on the UET leaders and some of them cannot cope with it!' The tendency is to recruit UET leaders from among employees who have two years of higher the age of the operators (the average age at the Sandouville factory is 44), since it is generally considered that the best elements have already risen from the ranks.

In relation to the operators, management had already introduced a substantial socio-technical innovation: self-regulation of the line speed. On the assembly line, the operators moved forward the platform (on which the vehicle being assembled is fixed) to the next job station according to whether they had accomplished their tasks (within fixed limits, of course: the cycle time at that time was 1'49"). Through this form of self regulation, management considered that it had circumvented the permanent frictions and conflicts between supervisors and operators over working speeds (while previously these had been controlled through the speed of the line). According to our informant, this had been achieved through the transparency of self-regulation, since neither party could accuse the other of 'cheating': 'the mood has changed on both sides, with a return to greater confidence, and management has also made supervisors understand their mistakes: today rulings are negotiated and therefore accepted'.

At the same time, the self-regulated lines allowed work to take place at fixed stations, which is much less tiring for the workers, partly because the platforms position the cars at the right height. When self-evaluation (certifying that the work at that job station has been satisfactorily completed) gives negative results, the workers do not send the vehicle on to the next station and can call the UET leader, or more often the UET's technical assistants who deputize for the UET leaders in their technical functions. The technical assistants work in production for 50 per

cent of their time; they assemble cars to keep their hand in, train the operators for multi-skilling and look after their machines. They receive about a hundred hours of training and are paid about 150-200 francs extra per month.

The operators have the benefit of an annual interview with the UET leader. This procedure also has similarities with the Japanese system, in which employees are very closely supervised, often with two interviews a year. But this similarity is formal since, in France, there are no open career structures in car manufacturing. In addition to the discussions on reciprocal expectations, the individual interviews are intended to distribute yearly 'career supplements' worth from 0 to 100 francs a month according to the merits of the worker<sup>24</sup>. Other forms of income may be added to the wage, such as those resulting from suggestions (*kaizen*) or linked to points won through 'Total Productive Maintenance', self-regulation or 'Statistic Process Control'.

As can be seen, the organization of work through the UETs remained traditional (which does not mean that it was not economically effective, as I have already said). The generalization of team-working appeared to have wiped out the benefits of the experiments which had been carried out at various places and times. It is of course always more difficult to generalize a success than it is to carry out a number of positive local experiments (positive because they were local?). It seems nevertheless that the creation of the UETs did not seek to build on the positive successes of the previous experiments, in the three following senses:

- in many cases the division into UETs was based on the old Fordist teams, thus failing to create technical units in the strong meaning of the words, that is sections of production which made sense to the operators as technical units autonomous from the others. Perhaps priority should have been given to the unity of the technical process in its antinomy, with the educational advantages that this would have entailed, rather than to the already constituted human group or the criterion of size;
- the considerable size of the groups (20 people) may have ensured that the team leader necessarily became the first step on the hierarchical ladder. In any case the UET reproduced precisely the Fordist team, while on the ground the UET leaders were often former foremen who, in spite of the training provided, lost few of the shortcomings inherent in the Fordist team. The restructuring could have provided the opportunity to create a more flexible leadership (see the role of team leader in Japan<sup>25</sup>), corresponding better to the new declared objectives;
- the UETs could have achieved much more if they had had more technical and management autonomy, that is if they had included men not engaged in direct production (maintenance, supplies, logistics, computing, quality). Instead, these

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<sup>24</sup> Their distribution, as a percentage of employees, is as follows:

0 francs	30 francs	70 francs	100 francs
10%	5%	70%	15%

The career supplements are added together from year to year but are nevertheless subject to a platform (about 1,250 francs for a monthly wage of 7,000 francs).

<sup>25</sup> See on this subject R. Boyer and J.P. Durand, op. cit.

technical services were themselves organized into UETs alongside the production UETs; the synergies and multi-skilling envisaged by the promoters of UETs were thereby reduced.

Perhaps this over-cautiousness in the reorganization of work was the result of the fear of losing control, which tends to arise in any social innovation or change. For social conflict remains barely submerged at Renault. Even though the CGT lost its majority in the general companywide elections at Renault, it retains considerable power in the local shops, where the cars are actually produced. The reform of work through the creation of UETs has been too 'top-down' with formal objectives (organization into UETs) which did not greatly disturb the existing organization. To go further in paradigmatic work changes would have meant granting much more autonomy to the base units, thus delegating more trust to the operators. This risk, it seems, management did not wish to incur, given the trade union divisions which exist in France and the attempts by unions to outbid each another which can result from them.

In fact, the trade unions disagreed with one another on the question of signing the 'Living Agreement' and subsequently on the UETs. In 1992 CFDT-Renault stated the following in a pamphlet on the subject of the UETs:

The CFDT has taken a position in favour of the changes in the organization of work for two reasons:

- First, they are unavoidable for the maintenance of an automobile industry in France which employs several hundred thousand workers,
- Second, they may permit more interesting professional activity with continual evolution in job classifications.

But there is no question of maintaining a reactive attitude, merely adapting to the initiatives of Renault as they occur. On the contrary an offensive trade union attitude is required which demands and monitors the establishment of changes in work organization.

The CGT, on the contrary, which claims that it was not consulted on the question of the establishment of the UETs since it did not sign the 'Living Agreement', points out and challenges the concealed objectives of the new organization of work: an increase both in flexibility and in productivity, without any resulting job gains, or wage rises for the workers who have jobs.

The interpretation of employee relations at Renault is thus complex from the point of view of the influences which the Japanese model may have had on Renault management. Even though 'lean production' has been the official political line of Renault since 1991-92 - it should be remembered that Raymond Levy, chairman of Renault, wrote the preface of the MIT book<sup>26</sup> - the employment relationship has not (yet?) been Japanized in spite of management's efforts, in particular to weaken militant trade unionism<sup>27</sup>. In reality employee relations at Renault remain

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<sup>26</sup> The original title of the book in English was in the past tense (*The Machine that Changed the World*) but became voluntarist in French: *Le système qui va changer le monde* (*The system which will change the world*). This says a great deal about Renault's will to appropriate the concept of 'lean production' and its methodology.

<sup>27</sup> During the period when Pierre Dreyfus was chairman of Renault, his desire to make this nationalized company

largely unpredictable. Even though the CGT has lost some of its power (in particular with the closure of the Billancourt plant) and its majority on the Central Company Committee, it retains a certain ability to mobilize the workforce over classification and/or wage demands. The CFDT, in its critical support for management decisions, oscillates between effective support and more or less radical denunciation of management's cautiousness in the introduction of the reforms. Finally, FO, the second representative of the reformist position, feels obliged to maintain some pressure (particularly over wage demands) to increase its influence.

The situation in the factories is thus relatively tense but it is not explosive, as a result of the socio-economic context (the fear of unemployment), the weakening of militant trade unionism and the awareness of a certain degree of fragility in the company. As a result the supervisory staff play a pivotal role both in the application of the reforms and social change, and in the maintaining of social peace. In reality, supervisors are solely responsible for establishing the UETs, whose ambivalent effects they are aware of. Thus if the UETs have significant autonomy, the role of supervisors may be at stake. On the other hand the multi-skilling which is part of the policy enshrined in UETs makes it much easier to replace absentees and considerably reduces the number of supply workers, so lowering labour costs, one of the variables on which the evaluation of supervisors is based. The implementation of multi-skilling and rotation between jobs is therefore viewed quite favourably, although a drastic reduction of the workforce makes it impossible to free operators to be trained and become flexible. Hence the emphasis placed by management and supervisors on the struggle against absenteeism; the latter fell from 10 per cent at the beginning of the 1980s to around 3 per cent in the mid-1990s in Renault as a whole." It is well known that in the case of a 'Social plan' (see foot note 5) it will be the most frequent absentees who are the first to leave the company, while the career supplements (see above) distributed by supervisors are largely affected by the degree to which operators are present.

The unpredictability of employee relations is at the heart of managers' concerns. At times they use coercion. They also have recourse to integrationist policies such as those of the 'Progress Action Plans' which accompany the organizational changes and which, according to one manager, 'undermine trade union power by doing the job of trade unions'. This explains in a few words the specificity of employee relations in the automobile industry in France (with the variations between producers described above). They are unpredictable because of the continued existence of militant trade unionism and the failure to delegate trust. But they are also capable of creativity (hence the notion of progress plans) for mutual advantage when policies are pursued jointly and are based on trust (always for a limited period and needing to be constantly renewed).

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a 'social show-case' led him to a kind of 'gentleman's agreement' with the CGT which played a considerable, though indirect, role in the policies of the company (which did not however prevent there being strikes on the initiative of the CGT, especially on wage demands). With the arrival of Georges Besse following the big crisis of 1984, the reduction in the CGT's influence, power and representativity in favour of the 'reformist' trade unions was one of the goals pursued in the interest of transforming the company's culture.

## **The French automobile industry after the 'Japanese mode'**

Japanese exports woke up the Western automobile industries, first in the United States and then in Europe. By offering lower prices for superior quality and variety ('options' are integrated into Japanese cars when they are initially assembled, for reasons of distance and transportation), Japanese exports raised international competition to a much higher level. It could be said that it is a classic case of the current phenomenon of the globalization of markets and economies. It can then be asked what is the future of the French automobile industry: in spite of its achievements at the beginning of the 1990s, does its relative fragility, of which we have pointed out some elements, expose it dangerously to foreign competition? Or, on the contrary, will the French Way towards social experimentation, which allowed it to react positively to the big crises of the early 1980s, lead it to further successes?

After the total opening of European frontiers to Japanese competition in 1997, the level of penetration of Japanese vehicles is forecast at 16 per cent (excluding those built in the European Union), compared to 11 per cent today. In France, this penetration is expected to reach 9 to 12 per cent, compared to less than 12 per cent today as a result of the trade agreements. The risks French producers run of losing parts of their markets to Japanese vehicles are therefore real, but perhaps could be said to be at an acceptable level. What is at least as serious is that their market is being eroded, slowly but surely, by the other European producers, especially by German producers (including US producers in Germany) and to a lesser extent by Italian and even Spanish producers.

This erosion of French markets is counterbalanced by growing exports. But, as is well known, the costs of penetrating European markets is high, outside the producer's own strictly national space, in particular because of the price reductions that have to be offered. Renault wishes to become 'the best European generalist through the quality of its product and its service'<sup>28</sup>, a formulation which PSA would not reject. The two companies are also attempting to increase their presence outside Western Europe, not only through trade<sup>29</sup>, but in production. In particular, PSA is establishing strong bases in emerging areas such as China (where it hopes to produce more than a quarter of the total number of vehicles manufactured locally by the end of the century) and India. The gamble is relatively costly for very uncertain results, but if these markets do take off, the profits could be considerable.

If we return to the French and European situation, matters are relatively simple. The image of French makes and cars has distinctly improved in a decade, especially as a result of improved and continuously increasing quality. But a dilemma remains for both groups. Should they retain high prices in France so as to keep high profit margins which feed into their financial results<sup>30</sup> with the risk of losing some markets, or should they reduce prices (and thus profit margins) to resist the pressures of foreigners, or even to reconquer market shares? This

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<sup>28</sup> Cf. Renault's 'seven strategic goals'.

<sup>29</sup> PSA's goal is to achieve a quarter of its sales outside Western Europe in the year 2000.

<sup>30</sup> These are in fact lower for 1995 because of discounts offered for buying back old cars, in order to promote new car sales.



dilemma proves one thing, which is that French cars are too expensive in comparison with the competition.

There are two possible, complementary ways of reducing costs. The first is an improvement in the manufacturability of products. This will come from an increase in the effectiveness of simultaneous engineering which brings together research engineers, industrial engineers and factory technicians, to give joint consideration to manufacturing methods and the product itself. Enormous progress has already been achieved in reducing the development time of a vehicle (from its technical definition to its commercial launch). In particular, the French Way, with its accumulation of experiments, made possible a shortening of lead times while at the same time increasing substantially the quality of the final product<sup>31</sup> Today, each manufacturer brings together small teams (from 300 to 550 people) called 'plateaux' or 'platforms' which decide on the best technical choices (for products and processes), while teams which are linked to them finalize the agreed solutions. The next stage is to simplify the products<sup>32</sup>, and therefore the industrial solutions, so as to reduce costs while maintaining standards of quality. The advantages already acquired in the matter of 'concurrent engineering' should make it possible to achieve such cost reductions on future models.

The second way of reducing costs concerns the process of manufacturing (at equal levels of manufacturability and automation). At Sandouville, our interviewee compared the Toyota factory in Great Britain, which manufactures 400 Carinas a day with 800 people, with the factory at Sandouville which manufactures 750 cars per day (Safrane and Laguna) with 7,500 people. The comparison is difficult because on the one hand the vehicles do not belong to the same sectors of the range and, on the other hand, Toyota remains an assembly unit without manufacturing support services, while Sandouville builds two types of vehicle and the lines were only running at half speed all the time for various reasons (commercial for the top of the range vehicle and bringing up to speed for the other).

Nevertheless the difference in productivity remains considerable. Given French traditions and the history of French automobile companies and factories, it seems difficult - and indeed not very desirable - to seek to reduce direct labour costs by increasing line speeds, as certain managers and organizers are thinking of doing. In particular it should be borne in mind that the average age range in the assembly plants is usually between 41 and 45 years in France, compared to 30 in Japan and in the Japanese transplants in Britain. Even if job stations have

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<sup>31</sup> Cf. Gilles Garel (1994), *Déduction du temps de conception, concurrence et savoirs professionnels: le cas de l'emboutissage dans les projets automobiles*, Doctoral thesis, Ecole Polytechnic.

<sup>32</sup> It appears that French vehicles offer better use value (especially in fuel economy, road holding, and safety in general) than their competitors' vehicles (especially the Japanese), but that this value is not apparent to potential buyers who prefer other more immediately visible facilities such as power steering, electrically operated windows, sunroofs, or air conditioning. The French manufacturers may well have to challenge the 'engineers' power' which prefers an expensive *fine machine* rather than one dressed up in commercial attributes.

The engineers could in fact regain their power through designing cars in *modules*, or coherent sub-systems which could be assembled onto cars belonging to different sectors of the range. Renault is especially advanced in this technique while PSA assembles the vehicles of its two makes on the same platforms (see above).

now been better designed at Sandouville, Flins, Sochaux or Poissy with the help of experts in ergonomics, work there, as it is abroad, remains in most cases physically harsh because of the positions of the employees and the repetitiveness of their movements (hence, from 38-40 years old onwards, the occurrence of back and repetitive strain injuries).

The second comment often made is on the large numbers of indirect workers who accompany the manufacturing process in peripheral activities (planning, supplies, logistics, quality, preparation, balancing, time measurement). This labour surplus through hypertrophy of the peripheral functions, together with the increasingly recognized need to make final assembly jobs more attractive, might lead the French manufacturers to a fundamental reconsideration of the idea of assembly work. The young workers recruited for the lines might hope to benefit from a career path (and thus from a substantial difference in their wages between the end and the beginning of their professional life in the company), by taking over fundamental aspects of the peripheral activities. This indirect work would increase the interest of workers in their work and would make it necessary to recruit more assembly workers because of the integration of indirect work into their functions, but would mean an overall reduction in costs (through a significant reduction in the number of indirect jobs<sup>33</sup>).

This big reform is the one way to undermine the foundations of Taylorism, since the workers would make a substantial contribution to the preparation and design of their own work. It is possible to envisage such a reform on the basis of the incremental experiments which are currently occurring in French industry. It would be an additional paradox to see the very Fordist French industry proposing a radically different organization of final assembly and taking its inspiration from Swedish reflective production, in particular through the lengthening of cycle times and a return to meaningful work<sup>34</sup>. Although such a hybridization is not conceivable in the immediate future, the precepts of the 'Japanese model' are daily losing their attractiveness and force. The French manufacturers and their employees seem again to be facing their destiny on their own.

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<sup>33</sup> We are placing ourselves here in the context of international competition and of the search for lower costs. The question of the sharing of work, of its reduction and of a different distribution of wealth must also be posed, but it is posed at the macro-economic level and not *within* companies (see, for possible ways out of the crisis of employment in Europe, *After Fordism*, op. cit.).

<sup>34</sup> Cf., for such an outcome, my chapter 'Volvo: l'innovation brimee' in J.P. Durand (ed.) (1994), *La fin du modele suédois*, Paris: Syros. Cf., on the subject of reflective production at the Uddevalla factory, K. Ellegard, T. Engström, L. Nilsson (1991), *Reforming Industrial Work. Principles and Realities in the Planning of Volvo's Car Assembly Plant in Uddevalla*, Stockholm: The Swedish Work Environment Fund.