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Renault: From Diversified Mass production, to Innovative Flexible Production

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A cursory review of the history of Renault, combined with a glance at a few statistics and quotations, might lead one to believe that towards the end of the 1980s the French carmaker made the transition from a Fordist model to a 'lean production' model, which is proposed by the authors of 'The Machine that Changed the World' as the model for the 21st century [1]. Yet Renault tried to be a Fordist company, but never succeeded. Still less did it now conform to the idea of 'lean production'. In fact during the 1960s the company had adopted the Sloanist industrial model, named after Alfred Sloan, who developed it and later theorized it while CEO and then President of General Motors. The Sloanist model can best be summarized as follows: the mass production of a diverse automobile product range which share many components in common, within a framework of a wage compromise negotiated with trade unions which guarantees the regular increases in the purchasing power of the workers, in return for which the latter accept the particular form of work organization associated with it. Renault adopted this model in an environment characterized by strong growth in demand, shortage of labour, and a crisis of work. Yet the model was never really mastered, and the attempted transition towards it brought a significant rise in production costs. The difficulties Renault encountered at this point might potentially have led to innovative solutions. But the abandonment of fixed exchange rates and the first oil crisis led to a breakdown in economic growth in several of the industrialized countries and prematurely transformed the automobile market in France into a replacement market.

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During the following years, Renault sought to reestablish profitability without questioning its industrial model, that is, following a strategy based on volume and a broader product range. After a brief attempt to seek renewed growth in the countries producing primary materials, the company attempted to take market share from other producers in the industrialized countries, particularly in the United States, at the same time diversifying its activities beyond the automobile sector. Fleetingly, Renault became the largest carmaker in Europe. However, this was attained at the cost of growing indebtedness, and with no solution having been found to the crisis of work and the new problems of product design and manufacture which stemmed directly from the broader product range. Measures adopted to transform the wage compromise and reduce costs came too late to prevent a situation of near bankruptcy for Renault.

After Renault had drastically reduced its breakeven point in 1985 and 1986, management got the French State to play its role as the sole shareholder. The company then adopted a profit strategy in which the company's products were to be positioned at the upper end of each market segment, based on their quality and price, and of designing commercially innovative products, each with its own 'personality'. To create the conditions necessary for this strategy, a new social compromise was created. On the one hand, working time became flexible and worker's became more fully involved in the improvement of performance. On the other hand, the content of work was enriched, careers were guaranteed, and employees gained a financial interest in the company's results. Renault thus began a transition towards an industrial model characterized by innovation and flexibility (Boyer and Freyssenet forthcoming). The group was profitable for nine consecutive years, significantly improved the quality of its products, designed a new product range, eliminated its debt, and transformed itself into a private enterprise. And yet the 1993 recession and the failure of a planned merger with Volvo would pose severe tests for the strategy and forced decisions to be taken about the product range which might well prove contradictory with it.

14.1. RENAULT SELECTS THE SLOANIST MODEL FROM THE MID 1950S, AND SUCCEEDS IN ADOPTING IT DURING THE 1960S

Renault was nationalized in 1945 by the government of General de Gaulle. The company was now given the name *Régie Nationale des Usines Renault* (RNUR). Pierre Lefaucheux, the first managing director, clearly followed a Fordist strategy. However, he did not manage to make Renault's production system Fordist, if Fordism is understood the mass production over several years of a basic, perhaps single model, according to continuous, stable and standardized processes, by unskilled workers paid by the day at fixed rates that are high compared to the local average. He immediately opted for the mass production of a small 'popular' car, the 4CV, several prototypes of which had been made secretly during the war (Fridenson 1979). Specialized machine tools, and particularly transfer machines for machining, were purchased or made by the *Régie* itself. He also tried to obtain, for

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Renault's steel-making subsidiary, a wide rolling mill to make sheet steel. On the other hand, he was unable to install a continuous assembly line in the labyrinthine workshops of the Billancourt factory. The reorganization of work involved the enormous task of measuring the times needed to complete 25,000 tasks, which was undertaken during the two years prior to launch of the 4CV in August 1947. Piecework was abandoned and replaced by an hourly production rate and not a daily wage. Half of this hourly wage was based on the rate of production, calculated for each worker or group of workers depending on the nature of their work, and comparing the actual level of production with the theoretical level established by the production engineering department (Labbé 1990). This major upheaval in the organization of work and the wage system, in a context of high inflation which reduced the purchasing power of workers, lay behind a series of strikes against the production-based salary and in favour of equal wage rises for all. On this occasion it proved impossible to maintain the cooperation between management and the principal union, the CGT (*Confédération Générale du Travail*), which had started when the *Régie Nationale* was established, as a means of assuring its economic success. Cooperation would not be reestablished for a further ten years, this time on the basis of a clear division of roles.

The 4CV was a commercial success. Yet Renault did not restrict itself to a single standard product. Before launching the 4CV, the company had restarted production of a pre-war model, the Juvaquatre, which had independent front wheels and a monocoque body, in saloon and van versions and later an estate version, for small businessmen and artisans. This model was produced until 1959. Renault also launched two further models. The Frégate was a large saloon for its better-off clientele, the four versions of which were produced between 1951 and 1959. The Corale was a 14CV hybrid vehicle which was half passenger car and half commercial vehicle, the three versions of which were made between 1950 and 1956, and one of which, targeted at rural markets, had a rear door and flat floor, thus prefiguring one of Renault's principal designs of the 1960s and 1970s. While neither of these two models was as successful as expected, they did bear witness to the external pressures and internal compromises that led the *Régie* not to restrict itself to the mass production of a 'popular' standard model. Hence Renault's industrial model was not Fordist in product strategy, wage system, or production organization. At Renault, the production system and the wage relationship remained Taylorist. Output was diverse, and as a result volumes varied widely. Wages depended on production and the continuous and mechanized production line had not yet been adopted widely in machining and assembly.

Many of Renault's engineers were fascinated by the success of Volkswagen, and wanted the *Régie* to focus its efforts on a single model. However, Pierre Dreyfus, who became managing director in 1955 after the accidental death of Pierre Lefaucheux, pushed for the idea of a progressive shift upwards of the model range combined with a frequent replacement of models while at the same time reusing as many parts and components from the previous model as possible (Freyssenet 1979). The poor sales of the Frégate persuaded him that the demand for larger cars was still too limited amongst their potential clientele, composed largely of employees. He decided to maintain a close watch over the incomes of this part of the population, which was rapidly becoming the majority. Renault launched the Dauphine in 1956, when the 4CV was at the height of its production. This somewhat larger model won over a new clientele, permitting the 4CV to survive a further four years.

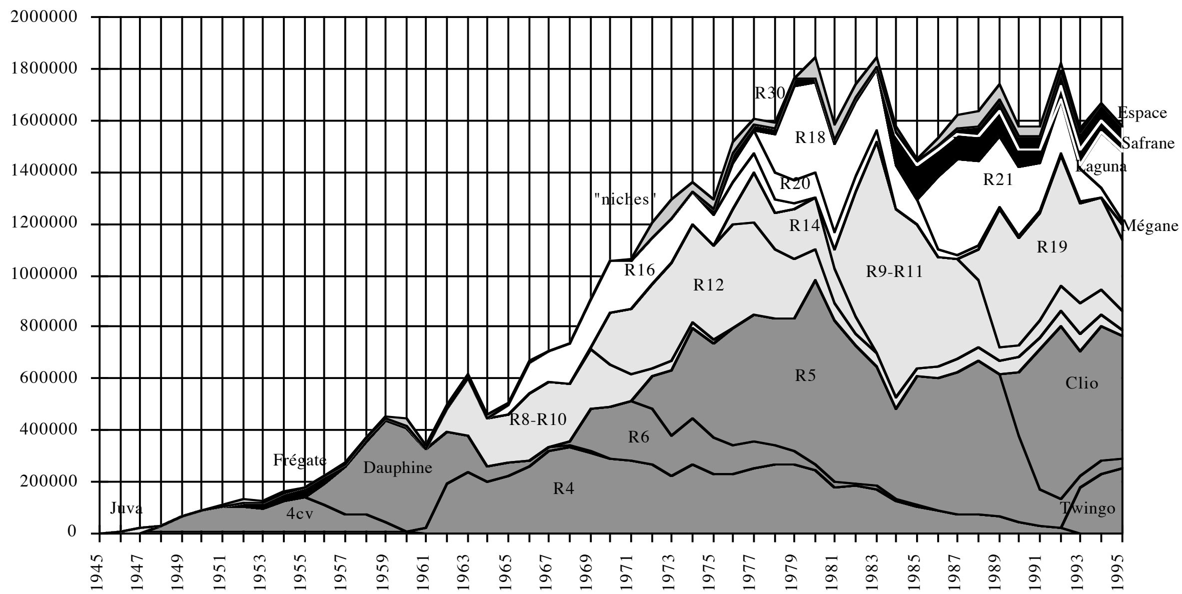

Fig. 14.1: *Total production of Renault passenger cars by model*
Source: Renault annual reports

The Dauphine was produced until 1970, with two derivative models, the sporty Dauphine Gordini and the better equipped Ondine. In 1959 two further models were introduced, the Estafette, a front-wheel drive commercial van, and a 'niche' model, the Floride, which had coupé, cabriolet and convertible versions as well as a version for the American market, the Caravelle.

To this classic Sloanist product strategy, Pierre Dreyfus added a strategy of differentiating products from those offered by the competition. He sought to design functional models that could be used both to transport people and to transport small loads. The first of these models was the replacement for the 4CV, the R4, a front-wheel drive model with a flat floor and five doors, one of which was a large rear door. Produced until 1995, total output of the R4 was to exceed 8.5 million units (Figure 14.1). When the Dauphine reached the middle of its life, in 1962, Renault launched the R8, just above it in the small-medium car segment. In 1965, the company introduced the R16, which overlapped the small-medium and medium-large segment. This model was part saloon, part estate, and had a sloping rear door, a body type that was later copied by many carmakers. Believing that the gap between the R8 and the R16 was still too big for owners of the R8, Renault introduced the R10, a derivative of the R8, between them; this was the company's last rear-wheel drive car (Loubet 1995). By 1965 there were six models in the range, with three platforms, and an average volume of 160,000 units per platform (Jetin and Lung

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1996).

Pierre Dreyfus also made exportation a priority of the *Régie Nationale*. Sales outside France rose from 25.9 per cent of overall sales in 1954 to 54.9 per cent in 1960. Indeed sales abroad had reached 61.1 per cent in 1959 with a rapid increase of exports to the United States. However, since the Dauphine was not adapted to the US market, the distribution network was underdeveloped, and the American carmakers reacted to its introduction, sales declined equally rapidly. Exports gradually rose again to 44.8 per cent in 1965, largely due to the growth in foreign factories and agreements to assemble vehicles abroad, of which there were 20 in 1965 (there had been 5 in 1955). By 1965, the main production sites for Renault vehicles abroad were in Spain (47,300), Belgium (46,100), Argentina (23,400), Brazil (13,464), Mexico (4,150), Venezuela (2,460), South Africa (2,350, and Canada (1,250). In 1964 Renault created a holding company in Switzerland, Renault Holding, in order to finance its investments abroad by borrowing abroad, and hence avoid weighing down its balance sheet in France and being penalized by the depreciation of the French franc (Fridenson 1993).

Renault's Sloanist orientation in the development of its product range was complemented by its relations with its workforce. In 1955, management and unions signed the agreement that would form the basis of the wage relationship at Renault until the end of the 1970s. Significantly, this agreement guaranteed employee purchasing power, which was overseen on a monthly basis by a roundtable committee that examined the cost of living. The agreement also introduced a third week of paid holiday, and the parties agreed not to resort to the lock-out or the strike until all other possibilities for finding solutions had been exhausted. Management had entered into a tacit alliance with the CGT, the main union, which would last more than twenty years. The alliance was centred around the objectives of Renault, which had to be simultaneously competitive, offer innovative products in mass quantities, position itself at the cutting edge of social advances, and respond as far as possible to the needs of France as a country, in terms of exports, industrialization, regional planning and the 'French role' in world affairs.

The workforce at Renault doubled between 1947 and 1965, reaching nearly 67,000 employees, despite the spinning off of certain activities and the growth of sub-contracting. In 1947 employment was concentrated in the Paris agglomeration (83 per cent), largely at the Billancourt site. By 1965 only 48 per cent of employees worked in the Paris region. The *Régie* had rapidly spread its activities down the valley of the River Seine in search of appropriate conditions for mass production - space to build continuous production lines, road, rail and river links to support components supply and the distribution of finished cars, and a sufficient quantity of unskilled labour - at the same time responding to the wishes of the public authorities in France to reduce congestion in the Paris agglomeration (Freyssenet 1979). Two principal factories were built: a body and assembly factory at Flins in 1952 and a mechanical components factory at Cléon in 1958. But growth was so rapid that Renault had to retain a significant workforce at Billancourt, where employment in 1965 was at the same level as in 1947, with approximately 30,000 employees. Billancourt had to bring in increasing numbers of immigrant workers, who by 1967 accounted for 20.1 per cent of the workforce there (compared with 13.2 per cent at the *Régie* as a whole).

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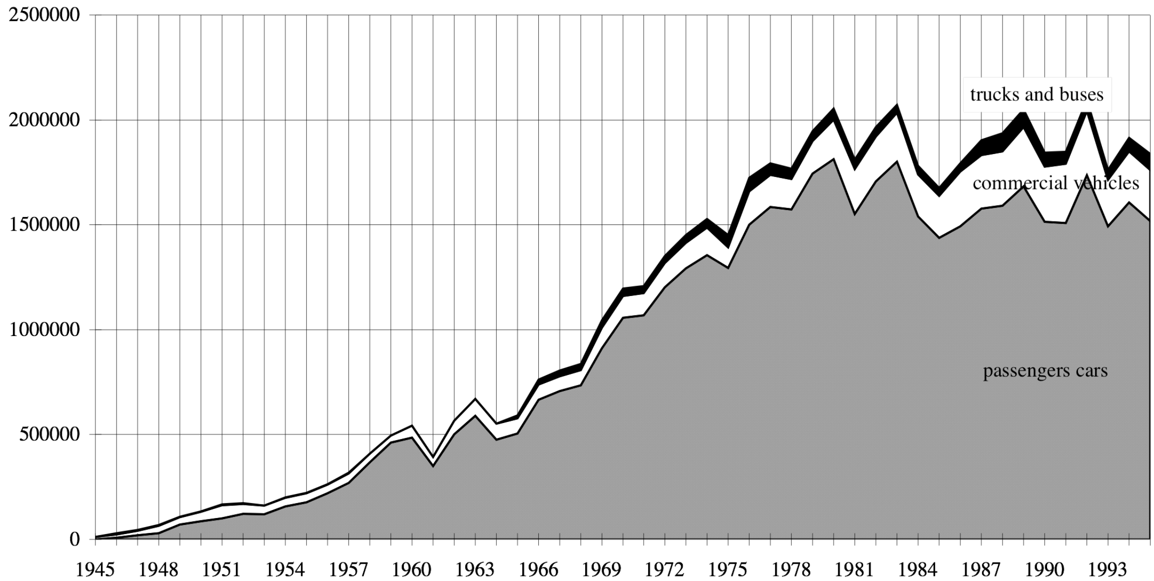

Figure 14.2: *Total production at Renault by category of vehicle: passenger cars, light commercial vehicles, trucks and buses*
Source: Renault annual reports.

The widespread adoption of the continuous assembly line combined with the complete replacement of the stock of machinery by specialized machine-tools and transfer machines modified the socio-professional composition of the workforce. Mechanization combined with reductions in cycle times, moreover, meant that the worker had less and less control over his production activities. In the end, the timing of tasks, which led to conflicts each time production was changed, gave way to numerous local arrangements which substantially modified the 'production rates' that served as the basis upon which wages were calculated, thus creating significant disparities which led to further conflicts and complications in the management of wage slips. Between 1954 and 1960, the timing of tasks was gradually replaced by time and motion studies, while the production-based rate was replaced by an hourly rate which varied depending upon the work post occupied. For the first time, there was no direct link between the amount of the wage and output. However, the output level that had been set had to be maintained, or the worker would be moved to another post, generally one less well remunerated (Labbé 1990). The management of Renault, concerned to maintain the social compromise that had pacified industrial relations, granted higher wages than those paid by other producers, as well as a fourth week of paid holiday in 1962.

The Sloanist orientation of the Renault management was also reflected in the development of the company's organization. The *Régie* inherited numerous activities connected to automobile production from the Company of Louis Renault. In order to identify and decentralize responsibilities, between 1955 and 1965 Pierre Dreyfus had created a number of divisions: 'agricultural machinery', 'railway products', 'general machinery', and 'machine tools'. In 1955 Renault merged its heavy goods vehicles activities (over five tonnes) into SAVIEM, a company created with two other producers, Latil and Somua, of which Renault would take control in 1965 (Figure 14.2). There were also two steel making subsidiaries created before the war, SAFE and SAT, and a subsidiary, SNR, created after the war at the request of the government to mass produce ball bearings, which French industry was lacking. Renault also eliminated some of its activities by subcontracting them. By 1960 there were about 5,000 suppliers. Subcontractors were also used to manage production capacity for some bodywork and for the assembly of some special versions of car models. The result was that the level of vertical integration (estimated by comparing value added to turnover) declined gently, from 48.9 per cent in 1956 to 41.4 per cent in 1965.

Hence by the mid 1960s Renault possessed some the basic characteristics of the Sloanist industrial model. The company's world-wide production of passenger cars and small commercial vehicles (under 5 tonnes) reached 590,431 units. The average breakeven point during this period was an enviable 38.2 per cent (Boyer, Freyssenet, Jetin forthcoming). The quality of the vehicles was average, according to Swedish tests and the criteria of the time. Renault was ahead of its competitors in France, was the third largest producer in Europe, and the sixth largest in the world.

14.2. THE CRISIS OF WORK AND PROBLEMS IN PRODUCTION, IN A CONTEXT OF STRONG GROWTH, INTERNATIONALIZATION AND THE DIVERSIFICATION OF OUTPUT, 1966-73

14.2.1 The doubling of volumes and the broadening of activities is accompanied by a rise in the breakeven point

The market for passenger cars and commercial vehicles in France grew from 1.21 million vehicles in 1965 to 2.02 million in 1973. During this period Renault also grew rapidly, with only two slower years, 1968 and 1971, both due to long and hard strikes. World-wide production expanded 2.4-fold, reaching 1.41 million units in 1973. Renault's share of the French passenger car market grew from 26.5 per cent to 30.1 per cent even though customs barriers between Common Market countries were eliminated in 1968. Two thirds of the increase in production was due to exports and to vehicles assembled or manufactured abroad, the volumes of which expanded 3.1-fold to 809,255 units (Figure14.3).

While these results were facilitated by the devaluation of the franc in 1968 and by the various difficulties being encountered by some of Renault's foreign competitors, especially Fiat, British Leyland and Volkswagen, they confirmed the validity of the strategy of moving up market and bore witness to the company's competitiveness. During this period, Renault began to replace its product range for the first time, at the same time broadening it. At the lower end of the range two five-door models were launched, the R6 in 1969 and a small urban car, the R5, in 1972. In the small-to-medium segment, a saloon, the R12, replaced the R10 in 1970. Renault pursued its niche strategy in 1971 with two coupés, the R15 and the R17.

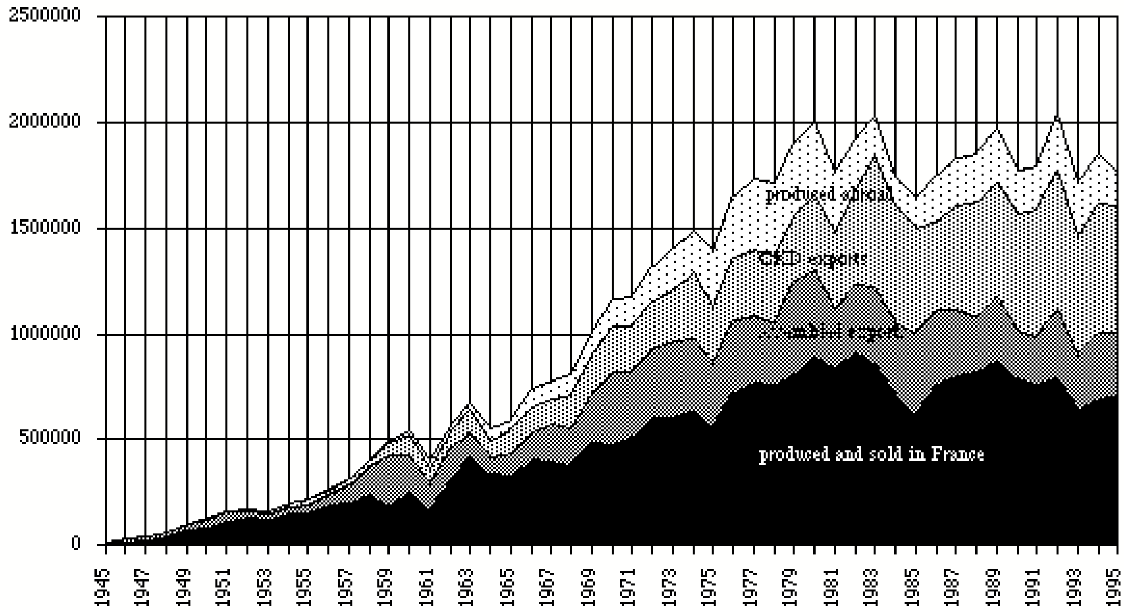

Figure 14.3: *Renault's world-wide production of passenger cars and light commercial vehicles by place of production and sale*
Source: Renault annual reports. CKD: author's calculation from 1945 to 1955.

By 1973 the *Régie* was offering eight models on four platforms, maintaining the 2:1 ratio. The average volumes for production in France had risen from 160,000 in 1965 to 275,000. In other words, Renault had strictly applied Sloanist recipes. Moreover, in 1966, the company joined forces with Peugeot, with which it had already cooperated in export markets, in order to organize joint research projects, to undertake production for each other so as to better utilize their respective production equipment, to construct shared factories that neither company could afford alone, to jointly design and produce mechanical components that both companies could use, and to help each other further in export markets. The Renault and Peugeot design departments began to cooperate. The two companies manufactured components for each other. Each invested 25 per cent in the company Chausson-Carrrosserie in order to permit construction of a new factory at Maubeuge which would produce their low-volume models. Most significantly, they created two subsidiaries, 'Française de Mécanique', to make engine parts, and 'Société des Transmissions Automatiques' to make gearbox parts. This partnership was joined by Volvo in 1971. The three carmakers jointly designed a V6 engine, first produced in 1975 (Freyssenet 1979).

Renault was able to increase its production volumes by assembling CKD kits abroad, and to a lesser extent by sending 'small sets' of components to countries where a high level of local content was required. By 1973 there were a total of 25 factories abroad or local assembly agreements. The operations in Spain and Belgium were the key poles, and in

1973 they produced 173,000 and 114,000 Renault vehicles respectively, nearly two-thirds of the 450,000 vehicles assembled or produced abroad that year. Renault abandoned Brazil in 1968, but the same year signed an agreement with Rumania to produce the R12 model in exchange for mechanical components, and started operations in Yugoslavia in 1969, Colombia in 1970, and Turkey in 1971. The company was obliged to substantially increase its participation in the capital of the companies that produced its vehicles abroad, sometimes having to assume control of them when other partners could not afford new investments. Renault's share of FASA in Spain reached 50 per cent in 1967 when the body and engine factories at Valladolid were opened (Charron 1984).

Renault diversified not only its range of vehicles but also its other activities. When invited by the government, Renault purchased companies, often those in difficulty. This was only done, however, when these companies supported Renault's own activities and capabilities. On the other hand, these acquisitions weighed heavily on the company's short-term investments. Between 1965 and 1973 the number of industrial subsidiaries in France in which Renault controlled the majority of the capital rose from four to sixteen, and employment at such subsidiaries rose from 14,931 to 32,532. Some new subsidiaries were related to automobile production, including Renault-Gordini, Alpine-Renault and STA (gearboxes), while others were involved in industrial products, including CPIO (rubber and plastic products), SBFM (cast-iron parts) and SMI (screw cutting). Renault was now involved in transportation equipment with SMV and SNAV, engines with Renault Marine Couach and Bernard Motors, and machine tools with SMC and Acma-Cribier.

However, the increase in average volumes per platform and mechanical components, a strategy pursued in order to compensate for the higher costs entailed by a wider product range, were not accompanied by a reduction in the breakeven point. On the contrary, this rose from 48.8 per cent in 1967 to 18.0 per cent below added value in 1973. The rise was due to a 116.6 per cent increase in the overall wage bill in constant francs and a 26.7 per cent increase in the average wage (including benefits) as well as a 3.4-fold increase in loan repayments. These increases in turn resulted from both a crisis in the social compromise and difficulties in coordinating and retaining flexibility that were linked to the diversification of the product range and of Renault's activities as a whole.

14.2.2 The crisis of the wage compromise

The workforce in France rose from 62,902 employees in 1965 to 101,415 in 1973, a 61.2 per cent increase. Renault had to expand its factories. It was decided to create a fourth body and assembly factory at Douai in France, in two stages. The body factory was opened in 1971, and the assembly plant in 1974. The company was nonetheless surprised by a sudden increase in demand in 1969, and therefore had to set up two-shift work in the older factories, especially at Billancourt and Flins, at short notice. For this, Renault recruited large numbers of immigrant workers for the Billancourt and Flins factories and large numbers of rural and young people for the factories in the regions. Immigrant workers made up 21.5 per cent of the total Renault workforce in 1972, compared to 13.2 per cent in 1965. They accounted for 40 per cent of recruitment between 1968 to 1970, a proportion that rose to 60 per cent at Billancourt and Flins. Young employees, under 25 years old,

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made up 16.9 per cent of the workforce in 1973. These new workers, whose prospects for career advancement towards skilled jobs were less favourable than those of the previous generation, threatened the wage compromise that had been introduced during the 1950s. More frequent changes of assignment to posts that were remunerated differently introduced monthly variations of salary that employees found increasingly hard to accept.

This refusal to accept the prevalent form of work organization in a context of full employment was reflected in the difficulty of recruiting French workers and by a rise in the number of workers leaving the company through resignation or dismissal: a number which increased from 5,500 in 1965 to 8,000 in 1970. On the other hand, absenteeism (absences of less than one month) amongst production workers remained relatively stable, between 5 and 6 per cent. Above all, however, the questioning of work organization and of the wage compromise manifested itself in an explosion of social conflict. From 1968 to the first oil crisis, there was not one year without a major conflict in one of the factories, conflict that was generally initiated by the unskilled workers.

These conflicts usually ended in an agreement that focused on a wage settlement, without any real solution being found to the problems related to work organization and the content of work. At the same time, certain changes were made to the system of remunerating work posts, which paved the way for future developments. The number of classes of post was reduced from 12 to 5 between 1968 and 1973, and the number of pay rates within each class was reduced from 5 to 3, including a starting rate, defined according to precise criteria, that was the same across the company (Labbé 1990). From 1971, the class of production posts with the highest remuneration was called 'skilled production worker', which corresponded to posts that required somewhat more experience. The workers, under the principle of 'equal work, equal pay' which was inscribed in the labour code, used new conflicts to ensure that most workers now fell under this category. From 1972 to 1975, 15,000 'unskilled workers', or 25 per cent of the total production workforce at Renault, obtained 'skilled production worker' posts (Figure 14.4). This was the first major slippage of jobs in the classification schema that did not correspond to a change in work content. Formally, remuneration remained linked to work post. Yet in introducing the idea of complexity into the definition of production work posts, Renault opened the door to a system of classifying jobs according to experience, a system for which unions and workers continued to press. Moreover, monthly pay was spread step by step to the whole workforce between 1968 and 1974, and was a root cause of the sudden increase of absenteeism among production workers, which rose from 6.3 per cent to 8.1 per cent from 1972 to 1973.

The second response to the crisis of work was to reduce working time and develop skills training. Between 1968 and 1977 the length of the working week was gradually reduced from 47 hours and 30 minutes to 39 hours and 10 minutes for employees doing shift work, and from 48 hours to 40 hours for all others. The government's 1971 law on skills training proved controversial as management sought to utilize it to prepare for the introduction of automation whereas the unions sought programmes based on general culture, literacy for immigrant workers and skills training for unskilled workers through acquisition of the official diploma awarded by the National Education Ministry, the Certificate of Professional Aptitude.

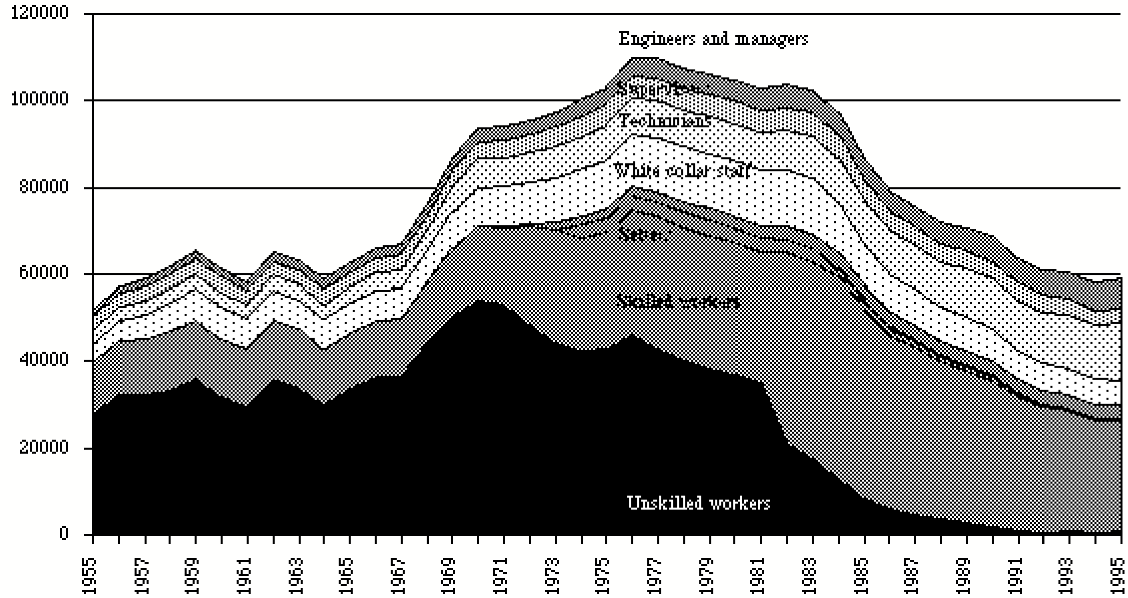

Figure 14.4: *Renault employees by category*
Source: Renault annual statistics, social reports

It was some of the company's managers, rather than the unions, who became preoccupied with changing the content and organization of work. Experiments with lengthening the cycle of work and enriching tasks took place from 1971 onwards. In 1972, a central working group, including the Personnel Department and the Production Engineering Department, was given the objective of 'not only humanizing technology, not also investigating new ways of organizing production areas and designing equipment and buildings, from the perspective of the degree of freedom and initiative permitted of the personnel, the utilization of its competencies, and opportunities to work in teams, [and] measuring the economic value of each operation' (Renault 1973).

Several new production operations resulted: notably the assembly of an entire engine by a single worker at a fixed post, the adoption of four short assembly lines in place of a single long line at Douai, and the widespread adoption at the Le Mans factory of modular assembly of front and rear axle assemblies by self-organizing groups of 3 to 5 workers. In this last case, the groups not only undertook the entire assembly of the unit but also took on all the controls and maintenance of the equipment used for control, accepting responsibility for quality, undertaking any rework, and accepting responsibility for the cleanliness of their machines and work areas. Yet these new operations proved controversial at the highest levels within the company. In 1974 Pierre Dreyfus publicly declared that 'none of this would resolve the problems of production work', the sole solution being the progressive reduction of working time: it would be 'utopian to recreate a sort of craft work in the factory' (Dreyfus 1977).

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14.2.3. The difficulties of flexibilization and coordination caused by the variety of production and diversification of activities

The diversity of a firm's products and activities poses two types of problem: the first concerns its apparatus for design, production, and its labour force, while the second concerns its overall organization and investments. The demand for different products evolves at different rates. The risk is that some factories or lines will run under capacity, with others over capacity, and that design departments will become fragmented. Moreover, the diversification of activities runs the risk of dispersing and partially duplicating investments.

During this period, Renault took no particular measures to make its production apparatus more flexible, with the exception of certain modular work experiments, the principal aim of which was in fact to modify work. However, the company did possess a relatively polyvalent labour force, since the wage system based upon classification of posts permitted operators to be moved about as necessary. In terms of product planning, an office for economic planning and research was set up in the company's headquarters, under the management of Bernard Hanon. In 1970, this office became a full department, the Department of Information and Planning, which would eventually supervise the whole set of activities involved in the automobile industry from product definition to after-sales (Freyssenet 1979). Until the mid-1960s, the design department moved successively from one project to the next. The managing director decided to start the design of a new model, making decisions more or less intuitively. At the lower rungs of the process, the designers and technicians from different departments and services coordinated their work informally. Their senior managements only intervened when they were unable to agree upon a technical solution, or at the major stages in the process when the dossiers were passed on. The profusion of models now required teams to work in parallel on different projects. The number of employees in Design and Research department rose from 752 in 1956 to 1,488 in 1967 and then to 2,876 in 1973 (Poitou 1988). The system then began to fragment. While the managerial hierarchy became more and more absorbed with administrative tasks, it grew increasingly incapable of making the necessary decisions. In 1972, a project leader was chosen for each new vehicle, but this leadership from above was still not accompanied by coordination at the lower echelons (Midler 1993).

Renault pursued the decentralisation of its organization while at the same time creating points of coordination. A new autonomous division was created in 1968, Renault Machine Tools, to supervise the manufacture of machines. In 1967 a secretariat for the Renault Group had been created with the goal of coordinating the profit and investment budgets and improving the use made of each Group company's potential for design, production and sales. Yet the fourfold increase in the number of subsidiaries was too fast for the secretariat to be able to assess the merits of all the investments made. In 1971, an International Affairs Department was established to manage and coordinate both export sales and the overseas factories. Renault added to its international financial apparatus by establishing Renault Finance at Lausanne, Switzerland, in 1973, to manage the Group's international financial affairs and to minimize exchange rate risks, which had increased since President Nixon had decided to end fixed exchange rates, and by setting up Renault Crédit International in Paris in 1974, which oversaw consumer credit subsidiaries that were established abroad. The financial subsidiaries were expected to supply additional income, especially during the difficult phases the company was soon to experience.

On the eve of the first oil crisis, then, neither the employment crisis nor the difficulties of coordination and flexibilization had been resolved. However, there were no doubts that the pursuit of growth would permit solutions to be found within the context of the industrial model that the company had adopted, which seemed at the time to be the only one possible. Nobody foresaw that the reduction in incomes for the raw-materials exporting countries brought about by the depreciation of the dollar would cause severe reactions in the oil-producing countries to political events in the form of an agreement among them to raise the price of crude oil. The first oil crisis stopped growth in its tracks.

14.3. THREE ATTEMPTS TO REESTABLISH PROFITABILITY, STILL BY INCREASING VOLUMES AND DIVERSIFYING ACTIVITIES, 1974-84

The domestic French market declined by 12.8 per cent with the first oil crisis, and reached a plateau of 2 million for the next ten years. Yet, in contrast to other European producers, Renault pursued growth through volume, at the global as well as national level, except for two years: 1975, when two strikes led to the loss of more than 90,000 vehicles, and 1981, when the European market declined. Renault's worldwide production rose from 1.41 million in 1973 to 2 million in 1980, and maintained this level in 1982 and 1983. The company's share of the domestic market for passenger cars increased from 30.1 per cent to 40.5per cent. While, overall, exports stagnated during this period, the number of vehicles assembled or manufactured abroad rose by 79.8 per cent between 1973 and 1980. The Spanish subsidiary FASA-Renault saw its production grow by more than 50 per cent between 1977 and 1980 with the opening of a third assembly plant in Palencia.

Renault owed this growth to the fact that it possessed mass market vehicles to which its clientele turned during the latter half of the 1970s. The R4 model was attractive again, and the recently introduced R5 became the 'vehicle of the crisis'. On the other hand, the models launched between 1974 and 1984 all experienced difficulties. At the upper end of the market, the R30, launched in 1975, failed, and was not replaced by the R25 until 1984. In the upper-middle range, sales of the R20 were eaten into by the R18, launched two years later, which then went into decline before its replacement, the R21 was ready. In the lower middle segment, the R14 was added in 1976 to the R12, then in mid-life, but had to be replaced prematurely by the R9/R11 in 1981 and 1983. Lastly, the premature announcement of the launch of the 'Supercinq' provoked a severe drop in sales of the R5. Elsewhere, Renault pursued its policy of 'niche' vehicles with the Alpine, a sports car, and the Fuego, a coupe. The Renault Espace was first marketed in 1984, after having been offered to Renault by Matra, and was a new type of vehicle which became Europe's first minivan. In commercial vehicles, the Estafette was replaced by two more powerful models, the Trafic and the Master, which were made by a new subsidiary and new factory at Batilly, in Lorraine, in the context of the 'Steel Plan' for the restructuring of this declining region.

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The ratio of models per platform remained about 2:1. The average volume per platform continued to rise, oscillating between 250,000 and 400,000. Never before had Renault achieved such economies of scale. Despite this performance and the recency and diversity of its model range, Renault's gross profits were structurally negative for more than ten years (see Statistical Appendix). The company was only able to break even thanks to other income, largely financial. Renault made three successive attempts to make its car manufacturing activities more profitable while pursuing its strategy of increasing both the volume and the breadth of its model range and overall activities, each attempt made in a different way.

14.3.1. The search for markets in countries producing raw materials, the pursuit of diversification, and the deterioration of relations with the CGT, 1974-7

Managers at Renault believed that in the future, demand for automobiles in the industrialised countries would decline substantially. With competition becoming more intense, it would be necessary to identify client expectations and make the production system flexible. Conversely, countries producing raw materials were likely to become areas of strong market growth for automobiles, and diversification of activities might permit short-term losses in the automobile markets to be compensated. Renault therefore attempted to invest or grow in the oil producing countries. It was unsuccessful in the cases of Algeria and Venezuela. In 1975 the company negotiated a contract with Iran for a factory producing 100,000 vehicles per year, but the Islamic revolution thwarted its completion. It soon became clear that the new markets were very uncertain, and had already been entered by the Japanese. Industrial diversification meant an increase in the number of subsidiaries (from 16 to 22 between 1974 and 1978) and their employees (from 32,532 to 57,242). However, this did not always occur in the sectors that might have been anticipated. In 1974, Renault was driven to assume control of the heavy commercial vehicle maker Berliet, which was merged with its own subsidiary, SAVIEM, in 1977, under the name of Renault Vehicules Industriels (RVI). The oil crisis had dealt fatal blows to Citroën and Berliet. At a time that was hardly opportune, Renault and Peugeot found themselves competing to purchase these companies, in the knowledge that one of them would then succeed in becoming France's principal car producer. In the end, Citroën was taken over by Peugeot and Berliet by Renault, following discussions with the State. The Peugeot-Renault partnership could not withstand the battle between the companies, and became limited to the production of shared mechanical parts. The expansion of Renault's activities led Bernard Vernier-Palliez (successor to Pierre Dreyfus in 1975) to create the Renault Group, which was comprised of three sectors: automobiles, commercial vehicles, and industrial firms. This reorganisation, however, was accompanied by duplication at group level of the core functions that were also shared by the sectors, and so failed to resolve problems of coordination, which were in fact amplified (Fridenson 1993).

Neither one of the two strategies produced the desired results, and nor had the crisis of work and the rigidities of the design and production apparatus been surmounted. Indeed these caused a fall in the quality of Renault vehicles compared to those of competitors. In the short term it was not believed necessary to reduce the labour force, and by 1977 there

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were 110, 485 employed at the *Régie* itself, the most in the company's history, and 243, 456 employed at Group level (see statistical appendix). Policies on wages, however, became more restrictive and social conflicts ensued. The strikers demanded uniform salary increases and for all workers to accede to the 'skilled worker' category. While management conceded a new reduction in the number of classes of work posts and wage rates (to 4 and 2, of which one was a rate for the newly hired), it refused to question the principle underlying the classification system, namely payment according to the class of work post held. The sequestration of Bernard Vernier Palliez by strikers from Department 38 in Billancourt in November 1977, and the subsequent firing of the CGT secretary at the factory, revealed the deterioration of relationships between the management and the principal union. Short-term absenteeism among workers rose to 9.9 per cent in 1976 and remained above 9.5 per cent until 1978. Yet the rapid rise of unemployment had already reversed power relationships between employees and employers in France, as revealed in the case of Renault by a significant fall in the voluntary turnover rate in 1974 and 1975, and its steady decline in years following. Some production managers, who found it increasingly difficult to manage the diversity and the increasing variation in production, saw in autonomous groupwork the possibility of modifying the volume and variety of the production programme more easily and at lower cost. However, the production engineering department openly opposed this. Their solution to the malaise of the unskilled worker was rapid automation, which was supposed to eliminate arduous and repetitive tasks and to create more attractive and skilled operation-supervision-maintenance functions, while simultaneously making the production apparatus more flexible and raising product quality. This is the path that would be pursued.

The poor results obtained by Renault in its automobile activities, despite greater volumes, were ultimately due to the price strategy and the failure of three of the company's models. The increase in production costs due to the increase in raw materials prices could only partially be carried over to the price of the product, given market conditions and the consumer price controls that had been established by the state. The R30 was launched despite having twelve major defects, in order to avoid delays. Renault had to pay high warranty costs as well as see the image of its cars deteriorate. In 1977 a new Quality department was created, which attempted to focus on quality at each stage of product development (Fridenson 1995). However, the company's primary preoccupation remained production volumes. The R20 suffered from being too closely related to the R18. The R14's failure was even greater since its objective was to repeat, in the middle of the range, the success achieved by the R5 in mass market vehicles, and thus to increase Renault's European market share from 11 to 13 per cent. The model had been designed by a team from DIP to be very 'livable' while remaining very compact, thus opening Renault's path towards the concept of designing 'living cars', during the latter half of the 1980s. The same DIP team suggested thinking about the replacement for the R4 as a whole, in order to achieve significant savings and reach the difficult target of making a mass market car profitable. This was different from the conventional approach in which each department involved in design would make marginal improvements to the parts for which it was responsible. Both the resulting conflict, and the failure of the R14, led to the return to a form of industrial classicism and realism, in terms of product strategy and an abandonment of project-based design (Midler 1993).

14.3.2. A new direction: the end of the 1950s wage compromise and attempts to invest in the United States, 1978-81

The period of stagnation in 1978, combined with the increased uncertainty over exchange rates, oil prices, international trade, and host country policies towards foreign investment, convinced Renault's management that the crisis did not prefigure a displacement of the world's poles of economic growth, but instead a crisis in the global economic system. Only one thing was certain, wrote Bernard Vernier-Palliez in early 1979, and that was increasingly intense competition, 'since each company only gains at the expense of others'. For the first time Renault was concerned about the growing strength and competitive pressures exerted by Japanese producers. In Europe the *Régie* profited from the difficulties experienced by its direct competitors, notably PSA and Fiat. However, Renault watched not without some disquiet as Ford, then GM, took advantage of changes in European regulations to open factories in Spain, a market where Renault's subsidiary FASA had become the main producer. Moreover, Renault had no presence in the world's largest automobile market: the United States. It was decided to reinforce the Iberian investments by constructing assembly and engine plants in Portugal. The moment was seized to acquire a 15 per cent share in Volvo Car. Above all, in 1979 Renault signed an agreement with the American Motors Company (AMC), which found itself unable to renew its models, in order to manufacture Americanised versions of the R9, R11 and the R21 (Alliance, Encore and Medallion) in AMC's Kenosha factory. In addition, an engine plant was built in northern Mexico. In the same year, Renault's heavy commercial vehicle subsidiary, RVI, acquired shares in the American company Mack trucks, later acquiring a majority holding. Unfortunately, the deterioration of the American market between 1980 and 1982 weakened AMC and obliged Renault to increase its capital share from 22 per cent to 46 per cent. 'Even before the launch of the Alliance, AMC's operating costs had exceeded previously forecast levels by more than 50 per cent' (Charron 1985).

This attempt to acquire market share required better control over costs and improved productivity and quality. The workforce at Renault fell steadily by 1,500-2,000 workers per year between 1978 and 1983, with only partial replacement of leavers. Lower demand led immediately to layoffs. The government's advice to companies to abandon index-linking of salaries to prices was followed by Renault. The very foundations of the earlier wage compromise were now under assault. A new system linking remuneration and promotion to attendance at work was instituted in 1978. Complemented by various controls, this encouraged lower rates of short-term absenteeism, which fell from 9.5 per cent in 1978 to 8.2 per cent in 1979 and then to 7.1 per cent in 1983. Management no longer hesitated to crush local strikes, requesting police intervention and firing dozens of workers. But it was difficult for the company to maintain the fiction of a system of classifying personnel according to the post occupied. The fall in turnover and the reduction of the workforce restricted opportunities for promotion, while the aging of the workforce only intensified demands for the creation of career paths for workers. The election of a Socialist government in 1981 and the conflicts that took place later that year led management to sign an agreement with the unions which for the first time instituted a system of classification

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and promotion linked to an individual's skill and not the classification of the work post itself. This system anticipated progression to the higher class after five years, the period needed for the worker to acquire the capability to hold various posts (at the same level) and meet relevant quantity, quality and safety standards. It reconciled the worker's demands for careers and the management's objective of making polyvalency official. More immediately, many workers already fulfilled the conditions established for advancement into the higher category. Hence in 1982 57,763 and in 1983 12,747 of the workers changed categories. With the highest level, that of skilled worker, attainable after fifteen years seniority, the system led to the quasi-disappearance of the unskilled production worker ten years later (Figure 14.4). Automation was management's second agenda item. Major programmes were launched to robotize welding operations and automate machining, with the goal of, it was hoped, improving productivity and quality simultaneously. Those who still supported group work, tiring of the opposition of production engineers to reorganising manual work, saw in the automation of the factories opportunities for new ways of working (Freyssenet 1984).

Both increased capacity and the modernisation of the factories entailed a substantial rise in physical investments, the annual level of which doubled between 1976 to 1980 (constant francs). Renault's excellent financial management, its international reputation, and the de facto State guarantees made it easier for the company to obtain credit when its ability to finance itself declined (Fridenson 1993). Despite the success, 1981 confirmed Renault's growing fragility. In contrast to the first oil crisis, the second shock had a particular impact on Renault, and the company's worldwide output shrank by 235,000 vehicles, or 11.8 per cent. Renault's results at the end of the year were negative. And now, soaring interest rates led the company heavily into debt.

14.3.3. Further changes of direction: plans to increase capacity and reduce the break-even point, but they come too late, 1982-4

Bernard Vernier-Palliez was replaced by Bernard Hanon at the end of 1981. The new managing director set ambitious targets in terms of volume, range and internationalisation, summarized thus: 'one model, one factory, one new country per year', with the intention of attaining an output level of 2.5 million vehicles in 1985. At the same time he demanded a reduction in the break-even level to 20-30 per cent below added value. The problem, he believed, was not so much capacity increases and productivity investments, but lack of control over costs.

By 1982 Renault had regained its record outputs of 1980, benefiting from the stimulus to consumption given by the first leftist government and the difficulties being experienced by PSA (Peugeot) following its purchase of Chrysler-Europe (Loubet 1995). And yet by the end of the year the company had announced a deficit of FF2.56bn. Bernard Hanon attempted to mobilise the whole company through a wide-ranging debate on 'industrial change and economic and social dynamics' (the 'MIDES' debate), in which all unions accepted to participate. In light of the new more favourable political context, the CGT sought to reopen dialogue with company management. Discussions revealed a range of wealth of experience (notably in terms of group work) in parts of the company that was often unknown by other factories, or indeed other departments. Changes were in fact started

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throughout the company. The difficulties and opposition encountered in trying to implement project based organisation of design from the top down did not lead to a rejection in principle of this mode of organisation. Between 1980 and 1985, several study tours were organised to visit foreign producers, notably the Japanese, with the aim of comparing experiences and seeking possible solutions. During the early 1980s, relationships with suppliers also began to evolve. Renault became more demanding in terms of the quality of the components it purchased and increased the number of visits to suppliers, pressing them to renew their stocks of machinery and improve their methods of quality control (Gorgeu and Mathieu 1996). The *kanban* system of organizing components supply was adopted in 1983. Automation had permitted a number of organizational innovations and a modification of relations between the factories and the central production engineering department, given the problems of personnel management and machine reliability automation had caused within the factories. A wide set of ways to organize work emerged, ranging from the old system, to the formation of groups of production workers who through job rotation looked after not only parts supply, running of machines, quality control, and tool changes, but also primary maintenance and repair, to mixed groups composed of production workers and maintenance workers who together were responsible for all work, maintenance and improvements to reliability, as at the new robotized welding area for the Supercinq at Flins (Freyssenet 1984).

Despite encouraging results in the United States, where production of Renault vehicles reached 200,000 units in 1983 and 1984, the measures to reduce costs came too late, or were inappropriate to reverse the slide. The reduction of the workforce by 4,375 employees in 1984 had no effect, for the market in France contracted by 12.5 per cent that year. By the end of 1984, the company's accumulated losses had reached FF17.6BN. The financial crisis was accelerated by soaring interest rates and upheavals in currency markets. Renault's indebtedness became substantial, reaching 46.1 per cent of turnover in 1984. Bernard Hanon was forced to announce to the board that 15,000 jobs would be eliminated in six months, even as the government had just reminded Renault that it was expected to play a leading role in the French economy. Bernard Hanon was therefore obliged to resign in 1985. He had nevertheless been able to implant his concept of the automobile in the company, popularized through the slogan 'living cars'. He had established the plans for the R19, which in 1988 would become the model that relaunched Renault. He had also been given the opportunity, and had had the intuition to bet on the Espace, the minivan that Matra had designed and proposed to Renault to market.

14.4. FINANCIAL RECOVERY AND THE RAPID TRANSITION TO AN INDUSTRIAL MODEL FOCUSING ON QUALITY, INNOVATION AND FLEXIBILITY INSTEAD OF VOLUME AND DIVERSITY, 1985-94

14.4.1. The ten years that changed Renault

The year 1985 was again very difficult. Although the decline of the domestic market came to a halt, registrations of Renault cars in France fell by 6.8 per cent, and market share dropped to 28.7 per cent, a fall of 11.8 points in only five years. Accumulated debt was equal to 55.6 per cent of turnover by 1985. Georges Besse was appointed to head the company. His decisions radically changed Renault's trajectory: the abandonment of a volume-oriented strategy in favour of a substantial reduction of the break-even point to 1.2 million vehicles per year, the decision not to negotiate the reduction in the workforce with the unions and to confront the CGT in order to reduce its influence, a refocusing of Renault on the automobile industry and on Europe, reestablishing unity of command by eliminating the overlap of functions between the Group management and that of the sectors, and lastly calling for the State to fulfil its role as shareholder by contributing to reducing the company's debt. Just as the initial results of his actions were emerging, Besse was assassinated by members of a small extreme leftwing group with no employee or union connection to Renault. At the start of 1987, he was replaced by Raymond Lévy. On the basis of the recovery that had been initiated, Lévy's tasks became to make Renault a company just like any other, to endow it with a coherent, viable and durable strategy and to prepare it for the future.

From 1986, gross profits became positive once more. Net profits the following year reached FF2.3bn, and approximately FF7bn in the following two years. The net debt of the Group declined from 55.6 per cent of turnover in 1985 to 10.1 per cent in 1989, with the State contributing a quarter of the debt reduction. By 1989 Renault regained its 1983 sales level of 2 million private and small commercial vehicles. However this time the company made a profit of FF6.9bn, whereas six years previously it had lost FF1.8bn. The difference had to be ascribed to factors other than market recovery. Pushed up by the late 1980s financial bubble, the domestic market expanded from 2.1 million private and light commercial vehicles in 1985 to 2.7 million in 1990. Moreover, both the government's deregulation of prices in 1986 and the lowering of Value Added Tax enabled the automobile producers to improve their margins. Yet Renault owed its recovery predominantly to a complete change in its profit strategy. the Renault Group experienced mine consecutive years in profit between 1987 and 1995, with world-wide production (passenger cars and commercial vehicles) varying between 1.7 and 2 million annually (Figure 14.1). Renault's recovery, shifts in the political context, pressures exerted by the European Community, Raymond Lévy's own wishes, along with the prospect of a partnership with Volvo, led the French National Assembly to pass a law that would transform the *Régie Nationale des Usines Renault* into a limited company - Renault SA - thus opening up ownership of its capital. By 1995, the State's share had been reduced to 52.97 per cent.

In 1986, the R21 replaced the R18 in the upper middle segment, the last of the old generation of Renault cars. That same year a small commercial vehicle, the Express, which shared the Supercinq platform, was launched in place of the R4 commercial van. The R19, which in 1988 replaced the R9-R11 in the lower middle segment, symbolised the new range in its design and in its high quality at the time of launch. In the mass market range, in 1990 the Clio substituted for the Supercinq, which had not lasted as long as the R5. At the upper end of the market the Safrane replaced the R25 in 1992. The success of the Espace led Renault to conceive of a range of minivans with the Twingo in 1993 at the lower end of the range and the Mégane-Scenic in 1996 for the middle segment. In 1994, the R21 was replaced by the Laguna. The following year, a fourth replacement of the entire range began,

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with the introduction of the Mégane family of models to replace the R19 by six versions: five-door saloon, coupé, cabriolet, four-door saloon, minivan and estate.

14.4.2. Recovery through debt reduction and lowering the break-even point, 1985-7

Renault not only refocused its efforts on the automobile industry per se, but also focused on what it considered to be the essential competencies of the car maker: the design of models, the production of the principal mechanical parts and car bodies, final assembly, and distribution. The company was obliged to sell off its subsidiaries or to withdraw from financial participation even when this was profitable and strategic, since it no longer had the means to invest in them, and withdrawal could raise significant sums of capital. Hence the number of subsidiaries in France was reduced to 11 by 1995. As early as 1985, Renault had resold to Volvo the 15 per cent of shares it had held in that company since 1980. The most significant withdrawal was, of course, from AMC. Although the American subsidiary made its first profits in 1984, the switch of the American market towards more powerful cars, combined with the slowness of the design departments to adapt the R21, led sales to plummet in 1985. When it proved impossible to find a partner with whom management and financial costs could be shared, Renault sold AMC to Chrysler in 1987 and refocused its efforts on Europe (Charron 1985).

The rapid reduction of the break-even point was obtained primarily through drastic job cuts, which the Socialist government no longer prevented. The move away from the 'job for life' was not a matter for negotiation, for Georges Besse, who believed it impossible to expect unions to bargain over redundancies. When the announcements of job cuts led to occupations of factories by workers, the occupiers were immediately suppressed by police intervention. Ten CGT representatives, accused of participation in attacks on managers and of damaging property, were fired. For the new management, Renault's recovery required the restoration of management authority, which in turn meant breaking ties with the CGT and restricting this union's power in the company. The workforce at the *Régie* fell from 98,153 in 1984 to 71,898 in 1988, a reduction of 26.7 per cent. Most of the departures took place within the framework of agreements with the State (Fonds National de l'Emploi), which allowed workers over 55 years of age to take early retirement.

The reduction of stocks in the sales network was obtained by obliging dealers to pay immediately for vehicles they ordered, and by linking dealers to a single computer centre that centralized orders. The network itself was reduced in size and reorganized. The different versions of each car model were regrouped by 'family' in order to simplify the programming of orders and create less disruption in production. Between 1984 and 1987, stock rotation in the factories was halved, from 20.3 to 10.4 days, improving the company's finances by FF2.6bn. Moreover, draconian conditions were imposed on all suppliers, including advertising agencies, requiring them to lower their prices. The ratio of purchases to total turnover fell significantly, from 83.4 per cent in 1984 to 75.2 per cent in 1988. Investments were restricted to the absolute minimum - what was needed to replace models - thus falling from FF3.94bn in 1983 to FF1.79bn in 1986, although this figure would climb back to FF4bn by 1988.

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14.4.3. A new profit strategy, the search for an industrial model to support it, and preparing for the future through partnership with Volvo, 1988-92

Since the early 1980s the various departments at Renault had been undertaking activities which improved performance in their fields of expertise, but which implied visions of the company and modes of recovery which were not necessarily mutually coherent. Now Raymond Lévy pursued the elimination of non-productive costs. But he also arrived with two key concepts, quality and project-based organisation, which were soon integrated into a 'total quality' programme which sought to improve quality while reducing costs and lead times.

The purpose of improving the quality of Renault vehicles was to position each model at the top of its market segment. Instead of seeking profits through volume, the aim was to make higher profits on each car by using quality to attract clients who would pay somewhat higher prices. Accordingly, the marketing strategy was reoriented towards northern European markets, more sensitive to quality and better able to pay for it. This strategy became married to the 'living car' concept which favoured livability and conviviality over aggression and speed (Pointet forthcoming). This concept, which was supported by the success of the Espace, led to overall performance, equipment, comfort levels, internal and external design, colours, materials and even sounds and odours being designed together, so as to respond coherently to client expectations. Renault therefore set out to make not only high quality vehicles but different vehicles. Innovation came through the range of minivans and in introducing a range of six versions of the Mégane with different bodywork, responding to the desires of clients previously limited to saloon cars and estate cars. On the other hand, giving each model its own personality led each to be given its own platform, which reduced substantially the commonization of components. Although the number of models per platform remained between 1.8 and 2 after 1962, even reaching a high of 2.3 in 1983, it rapidly tumbled to 1.3 in 1986, then declining gently to 1.1 in 1992. The average volume per platform fell from 408,518 to 209,000 units.

Although not without risk, this profit strategy would be viable under certain conditions. The company had to be capable of regularly generating its own innovative teams so as not to lose the commercially significant creativity of the original team. It also had to have sales personnel sensitive to client demands and able to transmit these to the designers. Flexibility would be essential from design to production, permitting a rapid response to new expectations in the market and to variations in demand which were potentially greater for the targeted segments. The company would also need a low break-even point, a low level of vertical integration, and the financial independence to be capable of withstanding the inevitable setbacks the strategy would entail. Lastly, the company would need to create employment relationship supportive of the required employee creativity and flexibility. These conditions sketched out an industrial model which might be called 'Innovation and Flexibility', a model heretofore best represented by Honda (Boyer and Freyssenet forthcoming). This model was quite different, both theoretically and in practice, from the Toyotaist system with which it was falsely conflatedup by the authors of the book, 'The Machine that Changed the World', under the label 'lean production' (Mair 1998). Did Renault succeed in creating the internal preconditions for its new profit strategy?

As far as innovation in product design was concerned, an industrial design department was created in 1988, and more preparatory studies were undertaken. Yet Renault did not appear to have established a system capable of ensuring the continuation of current levels of creativity. In contrast, quality immediately became a leitmotif at company headquarters. In 1987, Raymond Lévy appointed a quality director, who came from the sales side rather than manufacturing, to coordinate and control activities aimed at improving quality at each stage of production. He was given the authority to refuse to sanction launch of a model of inadequate quality. The same year he invoked this power to delay the launch of the R19, creating a seismic shock in the company. Also in 1987, suppliers began to be selected and evaluated according to a process called 'Supplier Quality Assurance', used by both PSA and Renault. In the factories, quality initially implied mastering the consequences of product diversity, which lay at the origin of numerous mistakes and disruptions. To this end, continuous assembly lines were gradually replaced, as the models themselves were replaced, by shorter central assembly line supplied by feeder sub-assembly lines (known in France as a 'fish bone' process). This system permitted diversity to be shifted upstream, and it simplified, even standardised, final assembly. Self-supervision of quality by operators, which consisted of drawing attention to defects they had been unable to avoid, had diffused throughout the company by the end of the 1980s. Statistical Process Control (SPC) to improve process quality, and Total Productive Maintenance (TPM) to increase the reliability of machines, were both introduced in 1991. Finally, quality was viewed in terms of service provided. A quick repair service was soon established and payment facilities were both extended and personalised (Monnet forthcoming). In demanding markets such as those of Germany and Sweden, the quality of Renault cars, in relation to that of competitors which themselves continued to improve, rose perceptibly.

The flexibilization of the design and production processes improved step by step. In principle, operators became polyvalent in 1981, with the new wage and classification system based on an operator's capacity to undertake all work posts at his level. Both the factories, and gradually the support services, were organised into Basic Work Units (BWU), with the aim of increasing the skills, involvement and responsibility of the personnel. The BWUs in production areas were defined as teams averaging twenty employees, delimited by the product they made, which controlled and analyzed the realisation of the objectives they were given, maintained client-supplier relationships with other teams upon which they depended both upstream and downstream of the production process, and with a front-line hierarchical employee as their moderator. The hierarchical line was reduced from eight to five levels, namely the production operator, the BWU chief, the shopfloor manager, the departmental manager, and the factory manager (Decoster forthcoming). The reform of the suggestion systems led to an increase in the average number of suggestions per person per year from 0.4 in 1991 to 2.4 in 1995, and to savings of FF480mn that year. Development of personnel competencies was the goal of a programme aimed at providing less skilled employees with the ability to participate in team work and enable some of them to develop towards 'skilled' positions as a function of the company's needs. Agreements to make working time flexible were signed in several factories. When demand rose, Renault systematically called on 2,000-5,000 contract workers (depending on the year). Permanent workers were immediately laid off (and compensated) if orders declined. From 1987, the European factories located in Belgium, France, Spain, Portugal and Slovenia were integrated into a single industrial systems, with each model assembled in at least two different sites, with the exception of the larger cars and 'niche' vehicles (made by subsidiaries Alpine and Chausson). A system of dividing up production and sharing markets permitted subtle modifications to production and distribution plans depending on the loading of each factory and the evolution of demand. Deliveries on a daily or several-times-per-day basis replaced the weekly deliveries which in 1986 had accounted for 90 per cent of deliveries made to a factory such as Sandouville. The number of direct suppliers had been almost halved between 1987 and 1995: from 960 to 527. The project-based organisation of design based on a matrix, which had been sketched out during the first half of the 1980s and generalized under Raymond Lévy, had its geographical and architectural reflection in the Technocentre, at Guyancourt in the western suburbs of Paris, which gathered on one site the product and process designers as well as factory and supplier representatives. The processes involved in future vehicles would now be tested properly, so that they could be rapidly perfected in the factories. Project leaders were directly responsible to Renault's managing director in terms of meeting cost, leadtime and quality objectives. Yet difficulties keeping to these objectives persisted, and investments remained high. While productivity increases enabled the workforce at Renault SA to fall to 60,608 in 1992, a reduction of 40.9 per cent compared to 1983, and the total wage bill to fall from FF17.1bn to FF15.7bn (in 1994 francs) between 1987 and 1992, conversely the annual charges for paying off investments rose from FF1.2bn to FF4.2bn over the same period. Hence the break-even point rose noticeably again, from 49.6 per cent of value added in 1987 to 22.9 per cent in 1992, even with domestic output higher by 160,000 vehicles.

This change in Renault's industrial model was made possible by the 1989 signature of a 'living agreement' with all the unions except for the CGT. This agreement created the basis for a new wage compromise, in which flexibilization of work and involvement in achieving the company's objectives for improving performance were exchanged for an enriched work content, career prospects, and a sharing of the financial results. While Renault's workforce accepted the demands made of them, in 1991 they vigorously reacted against what they then considered to be an inadequate sharing of the financial benefits and against the continued reduction of employment. A strike and occupation of the Cléon mechanical parts factory served as a reminder that the new social compromise was not yet stable. Following this conflict, the wage system was finalized. A bonus, rising by level of skill, was now to be awarded by the supervisor as a function of criteria related to sound execution of work, application of acquired competencies, and know-how developed.

Even as it sought an organisational form and employment relationship coherent with its strategy, Renault had endeavoured to prepare for the future in 1991 by forming a partnership with Volvo, with the intention of a later merger. Negotiations were conducted by Louis Schweitzer, who had succeeded Raymond Lévy in 1992. Renault purchased 25 per cent of Volvo Car and 45 per cent of Volvo Truck; in return Volvo purchased 20 per cent of Renault and 45 per cent of Renault Véhicules Industriels (RVI). For Renault this partnership had several facets. The first related to large commercial vehicles. RVI's principal market was in France, and was subject to wide fluctuations which regularly

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plunged the subsidiary into the red. The partnership comprising RIV and Volvo Truck ranked second in the world after Daimler-Benz. In terms of passenger cars, the partnership permitted the companies to plan to combine a generalist product range with a specialist range, much as Volkswagen and Audi had done (Jürgens 1997). It gave the two producers, each small and with a single marque, greater size and greater diversity in the market. It also enabled Renault, which was too focused on markets that were temporarily protected, to penetrate northern European markets better, and to prepare for a return to the North American market. The two companies began to create a stock of shared components, to design a platform together, and to share their suppliers. Lastly, cross-share ownership was a means for Renault to move gradually towards privatisation (Lévy 1994). Having consolidated its position in western Europe, Renault made an offer to purchase Skoda, but then refused to engage in a bidding war with Volkswagen.

14.4.4. Future prospects: Renault's profit strategy is tested by recession and by the failure of the Volvo merger

The French market for passenger cars and commercial vehicles fell by 450,000 registrations in 1993 compared with 1992 and by 730,000 compared with 1990. The European market (seventeen countries) had ridden the crest of a 15 million vehicles per year wave until 1992, before falling abruptly in 1993 by 2.5 million. The recovery in 1994 and 1995 was not enough to avert a price war among the car producers. Renault's gross profits dipped into the red once more. When the merger with Volvo failed, moreover, Renault was deprived of its plans for the future. On the other hand, the difficulties that were now being encountered differed in nature from those which had driven the company to brink of bankruptcy in 1984. The net financial debt of the Group was only 1.8 per cent of turnover, with its capacity to finance its own investments rising to 6.3 per cent in 1995. The net financial results remained in the black. In contrast to Renault's venture with AMC, the relationship with Volvo did not incur financial losses. In the belief that the company had attained a stable position in Europe (10-11 per cent of the domestic European market), after having acquired majority control of its Turkish subsidiary in 1992, and having disengaged from its subsidiaries in Argentina, Columbia, Venezuela and Chile, Renault invested in Brazil, constructing a body and assembly plant with a capacity of 120,000 vehicles per year, in partnership with the State of Parana.

It was the structural change in the European market which accompanied the fall that was perhaps the more troubling for Renault. The pattern of demand split in two after 1991, with on the one hand the maintenance of the upper end of the market, and on the other hand growth in the lower-middle and mass market segments, with the upper-middle segments declining by 6.7 points between 1990 and 1995. Was Renault's profit strategy, based on offering innovative models targeted in terms of quality and price at the top of each segment, still viable? Renault embarked on a cost reduction programme in the order of FF3,000 per vehicle before the end of 1997 'without impacting on the quality the client perceives and notices', for both existing models and new models. While guaranteeing suppliers their profits, in 1996 Renault asked them to make overall savings of FF500mn. Industrial complexity was now being reduced by decreasing the number of parts and adopting

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identical modes of assembly for different versions and models. This programme nonetheless seemed to be bringing about a significant change in orientation, since it was now decided to design only two platforms for the whole future product range, one for models in the small and small to medium market segments, and the other for the upper and upper-middle market segments. Was this decision consistent with the constantly expressed desire to offer different vehicles with their own personalities? Lastly, if the privatisation of Renault was no longer a political problem, the wage compromise established at the end of the 1980s still had to demonstrate its capacity to withstand the new efforts being demanded, in a context of stagnating employee purchasing power and the continued pursuit of labour force reduction.

Translated by Sybil Hyacinth Mair

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STATISTICAL APPENDIX 14: RENAULT

Year	Production (passenger car and commercial vehicle)				Workforce (31st December)			Turnover			Net income		Gross income
	worldwide	domestic	of which exports	production abroad	group, worldwide	automobile sector	Régie Renault SA	group	automobile sector	Régie Renault SA	Group	Régie Renault SA	Régie Renaul SA
1945	12,036	12,036					23,250			36			
1946	28,842	28,842	12,614				29,050			77			
1947	44,484	44,484	26,059				36,471			123			
1948	65,317	65,317	26,375				39,770			305			
1949	106,079	106,079	37,658				44,233			474			
1950	131,903	131,903	46,590				48,519			570			
1951	163,944	163,944	48,316				52,470			959			
1952	169,543	169,543	36,437				52,138			1,178			
1953	160,102	160,102	39,830				50,337			1,151			
1954	198,932	198,932	52,078				50,400			1,338			
1955	219,622	219,622	64,887				52,235			1,424			227
1956	264,044	259,825	68,868	4,219			57,467			1,696			269
1957	317,443	313,425	112,744	4,018			58,981			2,162			486
1958	409,185	405,436	165,947	3,749			62,010			2,532			376
1959	494,160	487,044	297,287	7,116			65,657			3,131			480
1960	542,927	521,969	276,563	20,958			61432			3,227			112
1961	393,163	353,218	183,970	39,945			58,313			2,962			379
1962	565,555	536,955	229,949	28,600			65,036			3,703			317
1963	668,867	639,797	219,514	29,070			63,575			4,438			419
1964	551,755	497,555	164,058	54,200			58,899			4,268			598
1965	590,431	551,904	226,305	38,527			62,902			4,536			529
1966	737,979	648,354	243,566	89,625			66,171			5,534			596
1967	777,468	695,148	295,586	82,050			66,882			5,886		22	821
1968	807,407	714,314	339,635	93,093			76,060			6,468		20	593
1969	1,009,372	898,486	415,211	110,886			86,348			8,539		151	737
1970	1,159,745	1,040,112	561,006	119,633			97,261			10,674		5	350
1971	1,174,314	1,040,321	527,181	133,993			98,091			10,078		-197	-474
1972	1,318,327	1,155,507	549,777	162,820			100,001			12,087		74	720
1973	1,414,563	1,209,342	604,034	205,221	175,000		101,415	20,659		13,777		57	870
1974	1,487,528	1,291,196	649,044	196,332	185,436		100,478	25,674		16,173		36	-1069
1975	1,391,948	1,128,972	562,707	262,976	222,436	156,846	103,614	33,539		18,264		-551	-956
1976	1,659,973	1,365,442	640,905	294,531	241,259	163,663	110,406	44,351	31,286	25,778	579	610	-382
1977	1,737,707	1,398,550	624,106	339,157	243,456	170,632	110,485	48,589	34,321	28,696	-111	12	-1,196
1978	1,718,398	1,372,084	613,927	346,314	239,447	167,229	108,586	56,215	39,770	34,011	-102	158	27
1979	1,899,470	1,544,995	730,771	354475	233,408	169,794	106,740	68,535	49,850	42,185	1,016	470	699
1980	1,999,591	1,659,099	760,879	340492	223,450	164,461	105,319	80,118	58,006	49,864	638	303	-1,102
1981	1,764,702	1,479,691	640,156	285011	215,844	157,402	103,613	87,971	63,669	53,620	-690	-875	-1,773
1982	1,921,307	1,674,416	757,954	246,891	217,269	152,202	103,759	104,145	76,272	65,752	-1,281	-2,563	-1,577
1983	2,035,133	1,842,801	979,425	192,332	219,805	161,643	102,528	110,274	82,271	73,560	-1,576	-1,875	-2,579
1984	1,740,737	1,607,441	887,177	138,264	213,725	157,696	98,153	117,584	85,379	72,105	-12,555	-11,324	-7,246
1985	1,637,634	1,499,979	881,149	137,636	196,414	144,961	86,122	122,138	89,634	72,644	-10,897	-11,241	-4,242
1986	1,754,332	1,537,123	779,867	217,209	196,731	139,313	79,191	131,060	101,824	82,992	-5,847	-7,355	1,635
1987	1,831,390	1,612,146	809,589	219,244	188,936	136,646	75,911	147,510	114,375	93,333	3,254	2,314	7,580
1988	1,850,667	1,630,786	807,739	219,876	178,665	135,010	71,898	161,438	123,495	99,802	8,834	7,316	9,222
1989	1,966,724	1,717,279	837,608	249,445	174,573	129,699	70,720	174,477	135,717	113,731	9,289	6,932	7,268
1990	1,776,717	1,571,264	784,112	205,184	157,378	114,516	68,713	163,620	129,230	110,694	1,210	1,223	3,282
1991	1,790,709	1,587,787	829,298	202,922	147,185	106,232	63,644	171,502	133,206	112,297	3,078	2,467	2,530

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1992	2,041,829	1,777,401	987,932	264,428	146,604	106,912	61,075	184,252	143,387	129,972	5,680	3,251	4,361
1993	1,713,633	1,459,188	817,788	254,445	139,932	103,148	60,608	169,789	130,179	116,776	1,071	-5,225	-438
1994	1,850,267	1,618,831	923,485	231,436	138,279	102358	59,346	178,537	135,506	130,875	3,636	1,463	-1452
1995	1,761,643	1,610,216	900,077	151,427	139,950	102,213	59,264	184,065	136,444	132,050	2,139	944	-3,657
1996	1,741,161	1,602,632	961,940	138,529	140,905	111,523	58,528	184,078	145,962	135,658	-5,266	-190	-3,794
													-

Sources: Renault Annual Reports. Turnover is pre-tax from 1971. The workforce is at 31st December, permanent and short-contract employees

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