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**Societal Effects and the Transfer of Business
Practices to Britain and France**

by
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Abstract

This paper seeks to reconcile the notion of a 'societal effect' in business organisation with the considerable evidence that competitive pressures continuously lead national producers to emulate the business practices of other nations, which are perceived as providing a basis for superior economic performance. The paper identifies three sources of national specificity in the process of emulation giving rise to 'hybrid' models. First, the fact that a nation's manufacturers have a distinctive knowledge base means that adopting another nation's methods will depend on local learning involving trial and error. The more 'distant' the emulated technology is from the local one, the less likely it is that this learning process will result in an exact replica of the parent model. Second, when there are strong interdependencies between a nation's production methods and its systems of vocational training, there will be strong pressure to adopt new methods in ways that are compatible with existing career structures. Third, the fact each nation has a particular industrial relations legacy involving varying levels of trust between labour and management, means that new practices will be introduced through a distinctive process of negotiation and compromise giving rise to national specific effects.

Keywords

knowledge, learning processes, national specificity

JEL classification

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Preface

One of the three themes in the DRUID research program is the competitiveness of systems of innovation. One important dimension of national systems of innovation is the institutional set up in the labour market including the national training system and the predominating pattern of industrial relations. These condition human resource development and the mode of learning and innovation. Indirectly, they influence the specialisation pattern and the performance of the innovation system. Therefore it is highly interesting to understand what is happening with national specificities regarding the organisation and management of work.

In this paper Edward Lorenz poses pertinent questions related to this issue. Is there a tendency toward convergence? What happens when certain management practises are transferred from one national context to another?

Lorenz draws upon his own historical work on the organisation of work in British manufacturing as well as upon recent work on the transfer of business practices from the US and from Japan to different European countries. His analysis shows that the 'proximity' between national practices will affect the ease of transfer and that there are few examples of simple copying from one country to another. Even when a specific organisational practise bears the same name in two different countries it will often be different in its content. Another interesting observation is that the externalities coupled to the training system have great impact on how far an national system will introduce new practices that imply that labour markets become internalised.

The hypothesis that what remained a weakness in UK work organisation during a period where more scale-intensive production models have been most successful has turned into a strength is thought-provoking.

This paper demonstrates the need for economists and management experts to take into account systemic differences in work organisation between national economies when considering what is 'best practise'. Bench-marking across countries is useful only if the social setting is taken into account.

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Societal Effects and the Transfer of Business Practices to Britain and France¹

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I. Introduction

Maurice, Sellier and Silvestre's (1982) study of enterprise organisation in France and Germany is undoubtedly one of the most original and penetrating works in comparative industrial sociology to have been published during the last 20 years. Their careful comparison of matched firms in France and Germany, complimented by more aggregate data, uncovered systematic differences in the way work is administered in these two countries, and linked these difference in a convincing manner to each nation's system of vocational training. Further they showed how societal differences in work organisation and training both produced and were reinforced by nationally specific forms of collective action and dispute resolution.

At the time Maurice and his colleagues at LEST published a first synthesis of their results in 1979, I was deeply engrossed in the archive work for a Ph.D. thesis comparing the 20th century development of work organisation and industrial relations in the British and French shipbuilding industries. I recall being stuck at the time by the pertinence of their characterisation of the contemporary French national model for conditions in the French shipbuilding at the turn of the century. The evidence I had uncovered showed that French shipbuilders, as early as 1900-10, organised production differently from their British counterparts. They tended to have a higher proportion of supervisory and administrative staff, and they organised production according to firm-specific criteria, bureaucratically fixing the details of jobs and task allocations for workers who lacked formal qualifications and were trained on-the-job. British producers, by contrast, organised production in a manner similar in many respects to that documented by the LEST study for the case of German manufacturers some seventy years later. British builders tended to organise production in a way that took into account the acquired skills of craft workers, who maintained a considerable autonomy in

¹ Chapter prepared for the forthcoming book , 'Societal Effects' edited by A. Sorge and M. Maurice.

determining the details of work organisation on the shop floor. Further, British craft workers had developed a strong sense of their professional identity through the creation of regional and national craft unions, and they sought to use collective organisation to control the content of their members' jobs and to restrict access to them by administering mandatory apprenticeships (Lorenz, 1984, 1987).

The relevance of this description of craft work organisation to British manufacturing extends considerably beyond conditions in the shipbuilding industry during the late 19th and early 20th century . It provides an apt description of work administration in this industry and in other craft sectors such as engineering, printing and construction well into the post-World War II period.² It was of historical importance in the iron and steel and cotton industries (Lazonick, 1986; Turner, 1962), and remains relevant today as a characterisation of the administration of maintenance work in these sectors and in other industries such as autos (Marsden et. al. 1985; Zeitlin, 1985) and even food processing, apparel and chemicals (Gallie, 1978; Dubois and Monjardet (1979). As subsequent efforts to extend the LEST approach to the case of Britain suggest,³ this all provides support for the view that work administration in Britain, much as in France and Germany, is marked by a distinctive 'societal effect'.

The central question I would like to explore in this essay is : How can the notion of societal differences in work administration be reconciled with another body of literature documenting how competitive pressures have led national producers to emulate the organising principles of other nations which are perceived as providing a basis for superior economic performance? During the interwar period and the two to three decades immediately following the Second World War, the dominant model was defined by American business practice in the form of Taylorism and the assembly-line techniques associated with Henry Ford's auto plants. The attraction of these methods among European producers was sufficiently strong to make plausible the recent claim of Kogut and Parkinson (1993, p. 179) that the dynamic of international competition during this period can be understood in terms of the development and exploitation of these methods in the US and their progressive diffusion abroad. For the

² See Clegg et. al. (1964, pp. 134-59) for the craft sectors. For the engineering industries see Zeitlin (1985) for the printing industry see Child (1967, pp. 217-18) and Zeitlin (1985), and for the construction industry see Price (1980, pp. 167-81).

³ See notably Eyraud et. al (1988), Maurice et. al. (1980), Sorge (1991) and Sorge et. al. (1983).

1980s and 1990s, there is considerable evidence to show that US and European producers are questioning the value of the traditional 'American principles' of production. Inspired largely by Japanese practice, industrialists in these countries are seeking to introduce more flexible methods of production and to decentralise operational decision-making to lower levels of the organisational hierarchy.⁴

The argument I want to develop in this chapter is in keeping with the spirit of more recent work by the LEST group, who responding to criticisms concerning the overly static quality of their original model have sought to develop a more dynamic approach, especially in their analysis of the process of innovation.⁵ In my view, the notion of a societal effect in enterprise organisation can be reconciled with the considerable evidence of emulation and change under the following two conditions. First, as the LEST researchers have stressed, one needs to bring the actors and their choices centrally into the problematic. The vast literature on the diffusion of Taylorism and mass production methods clearly refutes the idea of a wholesale transfer of US organising principles to Europe. It indicates that industrials selectively adopted elements of the US system, thus giving rise to 'hybrid' or mixed form of work administration that varied from country to country.⁶ This implies that the emphasis should be on accounting for the nationally distinctive nature of the responses of industrialists to the perceived advantages of adopting alternative organising principles.

Second, one needs to qualify the idea that societal effects are necessarily manifested in a 'coherence' among the three basic elements that make up the LEST model : the methods of production, the organisation of vocational training and careers, and the associated forms of collective action and dispute resolution.⁷ As Tolliday and Zeitlin (1991, pp. 276-77) have observed in a discussion of the literature on national models of labour management, one should allow for the possibility that the ways in which the actors respond to unanticipated events will lead to inconsistencies rather than reinforcing the coherence among the elements

⁴ The literature on this subject is vast. See, for example, Abo (19); Cole (1994); Florida, (19); Oliver and Wilkinson (1992); Sako (1994); and Womack et.al (1990)

⁵ See notably Lanciano et. al. (1993); and Maurice (1996).

⁶ Fujimoto and Tidd (1994) argue that the Japanese organising principles that are now finding favour among US and European producers were developed by Japanese industrialists with a concern to selectively introduce Taylorism and mass production technology in a way that preserved organisational flexibility. A similar point has been made by Zeitlin (1996) as regards British industrialists' selective introduction of mass production technology during the interwar period and the immediate post-war years.

⁷ For the purposes of this discussion I take the notion of 'system coherence' to mean that nature of choice and behaviour in one sphere of the system (e.g. the production sphere) acts to reinforce choice and behaviour in another sphere (e.g. the vocational training sphere), rather than creating pressures for its modification or reform.

of the system. In so far their responses serve to reinforce the existing properties of the system, this is something that should be explained rather than taken for granted.

Assuming that a national system will necessarily evolve in a way that maintains a coherence among its industrial relations, enterprise organisation and vocational training sub-systems implies that one of two unsatisfactory theoretical positions is being adopted.⁸ One possibility is to adopt a version of structural holism and then to give the argument a strong teleological cast. In this approach, the system is seen as progressing inevitably from more primitive to more advanced stages, while the actors, in accordance with their socialisation, fulfil their assigned roles in the system, thus maintaining its 'nice' properties. This approach has the unsatisfactory feature of eliminating any element of choice from the explanation for change.

Another possibility is to adopt a functional form of explanation, where the behavioural patterns which underlie systemic coherence are explained not in terms of the actors' intentions, but rather in terms of the beneficial consequences of this coherence for the actors who make up the national system. As critics of the use of functional explanation in the social sciences have argued, for the explanation to be valid one must identify a feedback mechanism running from the positive effects back to the underlying behaviour patterns which serves to sustain them independently of the actors intentions.⁹ In my view, no such plausible feedback mechanism exists for the problem addressed here. It might be tempting to argue that firms emulating production methods that are incompatible in some sense with the national training system or national system of industrial relations will see their fortunes decline and will be progressively eliminated from the market place. This ignores the obvious point that for the problem of the international transfer of business practices competitive selection pressures operate on an international scale, and that it is precisely such international competitive pressure that is pushing national producers to introduce innovations that may prove to be incompatible with the national vocational or industrial relations system.

In the following section I propose to develop a few concepts that are useful for analysing the nationally specific nature of employers' response to pressures to emulate other nation's production principles. The ideas I develop draw their inspiration from recent work in

⁸ I am not suggesting that the LEST team adheres to either of these theoretical positions. Their recent methodological work (see notably Luciano et. al., 1993) shows an appreciation of the theoretical issues I am raising.

⁹ See, notably, Elster (1979, 1983).

evolutionary and institutional economics. They are consistent with the notion that employers' responses may contribute to generating a certain incoherence among the elements of the national system. While choice is central to the argument, it does allow for the impact of institutional constraint and it does not preclude that the consequences of choice may in an unintended manner impact negatively on performance. In the third and fourth sections I demonstrate the empirical relevance of the argument by reference to the 20th century development of such British and French industries as shipbuilding, mechanical and electrical engineering and autos. My objective is not to give a detailed account of developments in these industries. This goes considerably beyond the scope of this essay. Rather, by drawing selectively on my own and others' more detailed empirical investigations, I propose to present some evidence that supports my view.

II. An Evolutionary Approach to the Transfer of Business Practices

The first idea guiding the discussion that follows is that employers' responses display a 'path dependent' quality in the sense that their current choices are not independent of the past evolution of the system. Critical to this hypothesis is the idea that it is comparatively difficult for firms to emulate techniques that are in some sense 'distant' from their existing methods. This can be partially explained by human cognitive limitations which restrict the range of techniques in which the members of an organisation can become proficient.¹⁰ It can also be accounted for by the fact that any technique of production combines knowledge which is easily codified with tacit knowledge that is difficult, or even impossible, to fully codify. The transfer of tacit knowledge will depend on such methods as direct observation of the practices of the originating firms and on-the-job training supervised by personnel from the originating firms.

These considerations imply that when industrialists are confronted with pressures to adopt organising principles that originated in another nation, the more distant the knowledge base upon which the new principles rest from those underlying existing principles, the more time-consuming will be the learning processes needed to establish proficiency in their use. Local learning is unlikely to result in an exact replica of the parent template. Rather, as industrialists

¹⁰ This idea is developed in Nelson and Winter (1982, pp.). The idea is also present in the notion that enterprise have 'core' competencies and that it is relatively difficult for them to build up capability in technologies distant from this core. See Dosi, Teece and Winter (1993).

seek to come to grips with the meaning of the new technique, they will interpret its codified representation in ways that reflect nationally specific conditions, including the existing distribution of decision-making power within the firm. As they develop proficiency in the new technique, they will subtly modify it, giving rise to a unique hybrid incorporating a locally specific body of tacit knowledge. Nothing precludes, of course, that as conditions evolve the hybrid solution proves equal or superior to the original template.

A second concept illustrated in the historical discussion below is that producers using common standards of training and qualification tend to become 'locked-in' to a particular way of organising vocational training. The use of common standards of training allows producers operating on the same labour market to benefit from network externalities in the form of sharing the costs of investing in skills, thus creating positive incentives to conform to prevailing methods. Any effort to break away from the industry standard shifts the full burden of training costs onto the individual firm and limits to the firm's ability to use periodic layoffs to reduce costs for fear of a permanent loss of workers with firm-specific skills.

When employers are embedded in such systems that are rich in positive network externalities, there will be a strong tendency to introduce new techniques and methods of work organisation in a manner that respects established standards. This provides a second explanation for the emergence of hybrid models in countries faced with the pressure to adopt another nation's organising principles.

The third idea developed below is that innovation in methods of work organisation poses a problem of trust, since embedded within any system of work administration is a set of established claims on the firm's net earning. These claims amount to a set of property rights grounded in jobs, in the sense that a job title establishes a more or less explicit right to a share of returns from joint productive activity. As a rule, any change in the administration of work will alter property rights, so defined, and so the distribution of organisational quasi rents. One basic reason for this is that a change in the administration of work affects the promotion and career opportunities of different members of the organisation in different ways. More generally, change in work administration shift around decision-making authority, and the right to make a decision may determine who receives profits (Stinchcombe, 1986, pp. 221-30).

For these reasons, the introduction of novel methods of work organisation may well provoke conflict among the members of the enterprise. In the absence of mutual trust, even changes which promise mutual advantage are likely to arouse suspicions and provoke resistance, due to

the fear that one side is trying opportunistically to shift the longer term distribution of returns to their favour. In such a context, administrative innovation tends to involve processes of discussion and negotiation among the members, who seek various formal or informal contractual guarantees concerning their share of organisational quasi rents. The compromises which emerge from such a negotiated process of administrative innovation constitute a third factor leading to the emergence of hybrid models of enterprise organisation specific to a nation.

III. The Diffusion of American Manufacturing Principles to the UK and France

To illustrate the way in which a nation's distinctive path of industrial development can impact on employers' responses to the challenge of adopting new method of work administration I shall briefly refer to some of the literature on the introduction of scientific management methods in Britain and France. Although the literature on this subject makes clear the limited extent to which such techniques as job evaluation and time and motion studies were applied in either Britain or France prior to the 1950s and 1960s, it also makes clear that industrialists in France were considerably more receptive to Taylor's methods during the first half of the 20th century than were industrialists in Britain (Boyer, 1983, Friedenson, 1978; Heron, 1975; Kogut, 1993; Levine, 1967; Littler, 1979; Moutet, 1975).

Detailed historical work on the British auto industry uncovered one attempt by an enterprise to experiment with scientific management methods prior to the First World War, and describes the dominant system of labour management during the interwar period as craft in conception with control of production on the shop floor depending on the expertise and judgement of the work force (Lewchuck, 1987; Tolliday, 1986). Similar observations about work methods apply to much of the British engineering industry (Zeitlin, 1985, 1991) and to the cotton industry (Lazonick, 1979, 1986). The case of the British shipbuilding shows that craft administration of production continued to have a hold on British industrialists well into the post-World War II period (Lorenz 1983, 1987). As late as 1973, the influential Department of Trade and Industry Report (1973, pp. 143-44) on shipbuilding observed :

Except in yards building warships, control of quality and dimensional accuracy is provided by the workforce ... informal scheduling and planning, depending on the skills and experience at foreman

level, is often the only detailed planning available once original plans have been bypassed and due dates have been missed.

The limited interest expressed by British industrialists in adopting scientific management methods contrasts sharply with the case of France, where Taylor's works were widely read with the 1907 translation on *Shop Management* and the 1911 translation of *The Principle of Scientific Management* sponsored by Le Chatelier. Attempts to apply Taylor's methods prior to 1914 were mainly confined to the auto industry (Abaut, 1913; De Ram, 1909; Laux, 1972, Friedenson, 1978). The war years then saw a considerable increase in the number of applications, especially in the state controlled munitions sectors.¹¹ In the case of the shipbuilding sector, Charles de Freminville, former director of the Penhard and Levassor works, was commissioned in 1916 to introduce scientific management methods to the yards of Nantes and St. Nazaire (Barbance, 1948, pp. 539-41; Devinat, 1927, pp. 235-36; Levalée, 1991).

In my comparative historical research focusing mainly on the development of the shipbuilding industry, I argued that the greater receptivity of French industrialists to scientific management methods can be explained in part by the fact that they had begun the process of organising production so as to separate the work of conception from that of execution prior to the diffusion of Taylor's ideas. This, in turn, I linked to the difficulties French industrialists experienced in building-up the stable regional pools of skilled labour needed for the successful use of craft methods as in Britain. These labour supply differences between the two countries derived from quite different patterns of industrialisation, with slower growth of the domestic market in France and its greater geographical segmentation encouraging a later transition to the mechanised factory system of production. The persistence of small-scale skill intensive methods in France, as well as the viability of small scale agricultural production, provided viable employment alternatives and made it difficult for French industrialist to recruit and retain a large number of skilled workers (Lorenz, 1987).

The French iron and steel shipbuilding industry provides a good illustration of the argument. During the early phase of the industry's development, producers operating in the region of Nantes and St. Nazaire were obliged to recruit manual workers who retained a partial

¹¹ See the series of reports on war-time application in the *Bulletin de la Société d'Encouragement pour l'Industrie Nationale* by Nusbaumer (1919), Campagnon (1919) Lavalée (1919) Lecler (1919) and Charpy (1919).

attachment to the land.¹² L.E. Bertin, a French naval engineer who undertook an investigatory mission to Britain in 1884, remarked on the relatively poor development of labour market for skilled labour in France:

Our general installation, our different manner of working ... and our equipment are relatively rich; what we do not possess to the same degree perhaps is workforce raised at the doors of the workshops, seeing work in iron since their youth, instructed by tradition, trained by competition. (Bertin, 1884, [my translation]).

Lacking comparable concentrations of skilled labour, French shipbuilders were encouraged to economise on their use of skilled labour. Roux-Freissineng (1929, p. 34), for example, has described how employers in the Marseilles region during the interwar years maintained shipyard factories (*usines navales*) in other but related branches of industry such as locomotive and boiler production. Skilled workers were transferred to these sties during periodic recessions. Another solution was to adopt more bureaucratic methods of work administration which separated out the more technical and skilled work and allowed the producers to concentrate these tasks in the hands of a small cadre of technicians and supervisors who enjoyed relatively permanent employment.¹³

The apparent unwillingness of the British to abandon craft organisation of production in such sectors as shipbuilding, engineering, and autos should not be attributed to some irrational conservatism, born of their industrial leadership. Prior to the Second World War, Britain retained strong or even dominant competitive positions in these industries on the basis of craft methods.¹⁴ An explanation for the competitive viability of the craft system during this period can be derived from an argument developed by A.L. Stinchcombe (1959-60) on the use of the

¹² See the testimony of John Scott to the 1886 Royal Commission on Depression of Trade. Scott, a Scottish engineer, played an important role in the transfer of iron and steel shipbuilding capabilities to France by overseeing the creation of the Chantier Penhoët in St. Nazaire in the early 1860s. In his testimony, he recalled that the yard drew on peasant workers, who would absent themselves from the yard three times a year; in the sowing and reaping periods and in the summer to cut peat. (*Royal Commission on Depression of Trade*, 1886, 3rd report, qn. 12,013).

¹³ This tendency was perhaps most evident in the early French adoption of the pattern templating system which conferred the responsibility for such technical tasks as determining the dimensions of components or the positioning of rivet holes on draughtsmen, working in the design offices. In Britain, where the transferring template system was in use, skilled manual workers assumed the responsibility for these tasks on the shopfloor (Lorenz, 1983, pp.).

¹⁴ See Lorenz (1994, pp.) for the evidence.

craft system in the US consecution industry in the 1950s. Stinchcombe argues that the success of bureaucratisation of work administration depends on the long-term stability of work flows. Only under this condition will the overheads associated with irreversibly investing in firm specific information processing channels need to operate bureaucratic systems be sufficiently productive to be profitable. The implication of Stinchcombe's argument is that while craft administration is not inherently superior to bureaucratic administration, it may prove more economical in unstable economic environments due to some combination of fluctuating levels of demand and continuous change in product design. Consistent with this hypothesis, it is quite easy to find examples of bureaucratically organised firms finding the rigidities and overheads associated with such methods to be an obstacle to their performance during the turbulent interwar period.¹⁵

This was not to be the case during the three decades of relatively stable growth following World War II. The rapid expansion of mass markets during this period created favourable conditions for the introduction of increasingly capital intensive and bureaucratically organised methods of production. Progressive loss of domestic and export market shares after 1960 in such sectors as autos, shipbuilding and many branches of mechanical engineering encouraged many British producers belatedly to undertake serious-minded reform of their methods of work administration in search of productivity gains. However, the changes that were introduced tended to modify the craft system rather than fundamentally alter it in the direction of greater bureaucratisation. While this tendency may be explained in part by British employers lack of expertise to apply systematic production planning,¹⁶ it is also consistent with the idea that producers who are embedded in coordinated systems of vocational training that are rich in positive externalities will be reluctant to break away from the established standards. British producers tended to adapt to changes in technology by widening the range of tasks undertaken by craft workers, thus allowing them to continue to benefit from the transferability of skills on local labour markets. This tendency was observed by David

¹⁵ Perhaps the most striking example of this is Ford's (UK) dramatic loss of British market share between 1913 and 1929, from 24 to 4%. Ford (UK) adopted the mass production method of its American parent and stuck to a policy of only producing the Model T while market demand turned toward small and lighter vehicles (Tolliday, 1991, p. 82). Boyer (1983, p. 22) has interpreted the dramatic failure of Citroën in 1934 in the same terms and more generally argues that the slow growth of mass demand during the 1930s made the extension of Taylorism difficult to achieve.

¹⁶ See, notably, the Patten Report (1962, p. 75) and the 1972 Department of Trade and Industry Report (1973, pp. 143-44).

Marsden and his colleagues in their study of post-1970 labour relation in the auto industry (Marsden et. al., 1985, pp. 78-9):¹⁷

A number of tests indicate that British companies have not been reinforcing their internal labour markets, but maintaining their links with local skilled labour markets ... One of the chief reasons for the high degree of transferability [of skills] is that existing skills have been extended to cater for new technology so that many craft skills, and the craft/semi-skilled divide, far from being displaced are in fact being enhanced ... A second indication that they have not reinforced their internal labour markets to the extent of other countries lies in the limited changes in the organisation of skilled work in British industry.

While the advantages of adopting common vocational training standards help account for British producers' concern to modify, rather than fundamentally transform, the organisation of skilled work in the 1960s and 1970s, the slow pace of reform can only be explained by taking into account the resistance skilled workers and their unions offered to employers' proposed changes. My own historical work on the auto, shipbuilding and cotton industries indicates that the concerns of workers and unions over the impact of change were heightened by the nature of employers' response to initial loss of export market share during the 1930s.¹⁸ The widespread use of strategies of wage cutting, work intensification and layoffs to lower costs engendered numerous industrial disputes and promoted the view on the side of labour that management was more concerned to shift the distribution of profits in its favour rather than to undertake serious organisational reform. The legacy of distrust engendered by such zero-sum conflicts proved inimical to the performance of these industries when their continued success depended on organisational reform. Change only came about, however, following more protracted decline, which persuaded workers and their organisations of the need to negotiate modifications in existing methods.

My discussion of the British response to competitive pressures based on the diffusion of US principles of production demonstrates how that response is conditioned by country specific factors associated with a distinctive pattern of industrial development. There is an element of historical irony in the story I have told. French industrialists sought from as early as World War I to emulate American industrial practice in order to compensate for their underdeveloped

¹⁷ For similar tendencies in the shipbuilding industry in the 1960s and 1970s, see Lorenz (1991, pp.)

¹⁸ See Lorenz (1991, chap. ;1994, pp.) for a variety of evidence in support of this interpretation.

market for skilled labour. What constituted 'best practice' in the US, however, proved unworkable in the European inter-war context of slow growth in domestic market demand. British producers using 'traditional' craft methods continued to outperform the French. In the post-World War II context of expanding mass demand for relatively standard products, however, bureaucratic administration of production provided a competitive edge. In a manner that was far from anticipated in the 1930s, the French benefited from their prior experience with scientific management while the British saw their fortunes decline. In what follows, I shall suggest that a parallel story can be told about the transfer of Japanese principles of production in the 1980s and 1990s.

2. The Diffusion of Japanese manufacturing principles to the UK and France

The transfer of Japanese manufacturing principles to Europe and the US is a story that is currently unfolding. Not only is the balance sheet far from settled, but there is considerable debate over the sources of Japanese competitive advantage in such sectors as autos and electronics. The ideas developed in the discussion below amount to tentative hypotheses based on a reading of the secondary literature as well as interviews undertaken at three Japanese affiliates located in France.¹⁹

The literature on the organisation and performance of Japanese manufacturing affiliates located in Britain is more extensive than that on the affiliates located in France. A probable explanation for this is that, within the EC, Britain has been the location for the largest proportion of Japanese foreign direct investment. Between 1951 and 1988 Britain accounted for \$10.7 billion or approximately one third of total Japanese direct investment within the EC (Oliver and Wilkinson, 1992, pp. 242). Another likely reason for the voluminous literature on the British-based transplants is the perception that significant numbers of British companies have been striving since the early 1980s, to imitate Japanese manufacturing practice. This imitative process has been sufficiently visible to have generated a debate over the supposed 'Japanisation' of the British economy. There is nothing comparable to this sort of debate in France, where the business practices of approximately 100 manufacturing transplants have attracted relatively little attention and remain largely undocumented.

¹⁹ These visits were undertaken in the context of a collective project I have initiated with N. Lazaric, M. Sako and H. Tordjman comparing organisational learning in Japanese transplants located in France and Britain. Two of the affiliates visited were in the electronics sector and the other was in the automotive sector. For a

Most of the literature on Japanese companies producing in Britain has focused on the extent to which they use a core set of business practices which are believed to account for the competitive strength of Japanese manufacturers in general. A key concern of this literature is to assess the extent to which local context conditions, and in particular British industrial relations practices, have led Japanese multinationals to modify their practices compared to those used in their plants located in Japan. Most of this literature is based on case studies of a small number of transplants, with questionnaires or semi-structured interviews having been conducted on-site by the researcher.²⁰ A notable exception is provided by the postal questionnaire surveys conducted by Oliver and Wilkinson (1992) in 1987 and in 1991. As their work is most closely associated with the thesis of a progressive 'Japanisation' of the British economy, it is worthwhile to briefly summarise their results.

Oliver and Wilkinson aim to demonstrate that Japanese multinationals are contributing to the diffusion of innovative work and manufacturing practices in Britain, either by providing a model for local firms to imitate, or through the direct transfer of innovative methods to their local suppliers. Their research methodology consisted in posting questionnaires in both 1987 and 1991 to the entire known population of Japanese manufacturing companies producing in the UK. Comparable questionnaires were sent to a sample of large British companies. The author's explicitly identify those manufacturing and work practices which they see as accounting for superior Japanese performance. These include self-directed teams, job rotation, quality circles, shop-level responsibility for quality control and just-in-time materials supplies. The successful use of these practices is seen as requiring the use of a set of human resource and personnel policies which reduce 'goal heterogeneity' and increase management's and labour's sense of mutual dependence. The key personnel practices include single status facilities, long-term employment guarantees, a reduced number of job classifications, regular performance assessments and company councils to represent employee interests (Oliver and Wilkinson, 1992, Chs. 2 and 3).

The results of Oliver and Wilkinson not only indicate a high capacity of Japanese multinationals to transfer their methods and philosophy to their affiliates located in Britain,

description of the project, see Lorenz, Lazaric and Tordjman (1996). Research assistance from Robby Judes and Christophe Le Guéhenec is gratefully acknowledged.

²⁰ The principal case studies are : Crowther and Garaham (1988); Munday (1990); Pegge (1986); Trevor (1988); White and Trevor (1983); and Wickens (1987).

but also provide evidence of a remarkable capacity on the part of British manufactures to transform their working practices in the pursuit of superior performance.²¹ The results are suspect, however, not only because of low response rates for the sample of British companies,²² but also because while the authors ask whether the firm in question used a particular practice, they neglected to enquire what proportion of the firm's employees were implicated in the practice. One cannot preclude that a firm had introduced a particular practice on an experimental basis only, and had only implicated a small proportion of its personnel.²³ An arguably more fundamental problem is that the use of a common business semantics to describe practices across nations does not necessarily mean that the content of those practices is the same in every country. Quality circles or semi-autonomous groups, for example, may display country specific features, and the use of a common language may disguise a significant degree of national specificity. That such national effects are likely to be present is supported by the case study work of M. Sako (1994), which examines the links between work organisation and the training provided by Japanese companies located in Britain and Germany to their non-Japanese employees.

After identifying some of the key features of the national training systems in Britain and Germany, Sako offers a number of hypotheses concerning the ways in which these different national institutional arrangements can be anticipated to impact on the training policies of the Japanese affiliates. She suggests that one can anticipate the training policies of Japanese companies to conform more to the German mode when located in Germany than to the British mode when located in Britain because of the greater degree of regulation and co-ordination among the 'social partners' in Germany (p. 93). In particular, she argues that Germany's 'Dual Apprenticeship System', which is linked to a qualification centred job grading system at the firm level with clear career tracking determined by-entry-level qualification, is likely to limit

²¹The results for both 1987 and 1990 show not only a high rate of implementation (over 50 %) of many of the production and work practices among the Japanese transplants, but also show comparable or higher rates of utilisation among large British firms. They show a somewhat lower rate of utilisation among the UK companies of the Japanese style personnel policies. The historical data indicates that significant numbers of UK companies began introducing the various production practices between 1978 and 1980.

²² For both the 1987 and 1991 surveys only 66 UK companies completed the questionnaire giving response rates of 18 and 14 percent respectively.

²³ This may well be a serious limitation. The results of a comparable 1993 survey undertaken in the US by Lawler (1995) of Fortune 1000 firms indicate that the majority of larger US firms that use innovative practices, such as quality circles or semi-autonomous teams, involve less than 20% of their work force in them.

the upward mobility of operators lacking apprenticeship qualifications, and is an obstacle to the use of seniority-linked pay.

Sako (pp. 92-3) suggests, however, that conforming to the German system may not prove especially difficult for Japanese companies, since the training principles of the German system are not so different from those of the Japanese system. In particular, jobs in German firms as in Japanese are defined around qualifications and competencies which allows for a flexible deployment of labour. This contrasts with the traditional set-up in Britain, at any rate, where jobs have tended to be defined around particular tasks or the use of particular equipment.

The results of Sako's field research comparing eight British-based with six German-based Japanese plants largely confirm her hypotheses. A number of the plants are owned by the same multinational companies which allows her to control in some measure for variations due to different company strategies or management philosophies. Sako (1994, pp. 96-7) gives a description of typical Japanese job-grading around three criteria :

First, because opportunities for internal promotion are used as a means to motivate workers, many finely graded ranks are created for workers to climb up from the shop-floor to lower and middle management. Second, opportunities for horizontal job transfers are also abundant, facilitated partly by a relative absence of occupational consciousness guarding task demarcations. Third, a combination of vertical and horizontal movements facilitates good communication among workers, engineers, and management on the shop-floor. Here a pivotal role is played by the supervisor, who takes on a dual role : on the one hand a human relations manager who motivates, oversees and trains subordinates; on the other a technical trouble-shooter...

The organisation of jobs and careers more nearly approximated these criteria in Britain than in Germany, in the sense that the British-based affiliates generally had systems of internal promotion up to higher levels of technical competence than did the German based affiliates. In Germany initial semi-skilled entry status of many of the operators precluded their rising up to the level of assembly-line leader. This position was generally reserved for employees with a *Meister* qualification, which requires prior technical and dual apprenticeship qualification. In one interesting respect, however, the German set-up more nearly approximated Japanese practice than the British.. In the British based plants employees with formal technical qualifications were reluctant to fill supervisory posts involving direct interaction with manual operators on the shop floor, while in the German-based plants employees with technical skills, mainly *Meisters* but also technicians, did become shop-level supervisors. This, as Sako

observes is what makes technical qualified people more directly involved in shop-floor production in Germany as compared to Britain (Sako, 1994, pp. 97-100 and 104-5).

The research which has been conducted to date on French-based Japanese manufacturing affiliates is less informative than that on the British-based ones.²⁴ The most substantial study, that of da Costa and Garanto (1993), is primarily concerned with the industrial relations practices of Japanese companies, and draws partially on a postal survey administered by the Japanese External Trade Organisation (JETRO) to form conclusions concerning the way work is organised. The results of da Costa and Garanto emphasise the limited degree to which the affiliates have introduced such typically Japanese production principles as quality circles or 'just-in-time' materials supply. The authors observed a considerable investment by Japanese affiliates in the provision of on-the-job training and the promotion of rich communication among personnel in different sections of the plant and across levels of the hierarchy levels of the firm.

These conclusions need to be confirmed on the basis of a more representative sample of Japanese companies.²⁵ What my colleagues and I have learned on the basis of our initial visits to three Japanese-owned manufacturing plants located in France, however, tends to confirm the judgement that work organisation in French-based Japanese affiliates retains many of the features associated with traditional French business practice. In the case of one of the electronics plants we visited, for example, while the firm had introduced semi-autonomous team organisation for assembly work, this was not linked to any effort to involve operators in the process of product and process innovation. The managing director, a French trained engineer, had over the 7 years of the plant's operation eliminated the quality circles that had been initially been set-up at the request of the parent firm in Japan, while simultaneously building-up an autonomous R&D capacity. One year prior to our visit, he had relocated the R&D facility to an urban setting, some 30 kilometres distant from the production facility. There was little regular interaction between the design and engineering personnel and the production services. When asked about the origins of a number of innovations in working methods that had been introduced, he responded that these had been proposed by technicians

²⁴ See Lazaric (1997) for a survey of the literature.

²⁵ It is worth noting that Bourguignon (1993, p. 100), who undertook case studies of three Japanese plant in France, observed one case where employees were organised in semi-autonomous groups that exercised considerable discretion in the organisation of their work.

from the planning services (*service de méthodes*) without any contribution from manual operators. In this plant, at any rate, the traditional separation between technical work and manual work has been reproduced.

While the lack of detailed comparisons of matched Japanese plants in Britain and France precludes drawing firm conclusions, the literature clearly suggests that Britain has proven a more receptive environment than France for the transfer of Japanese business practices. One permissive factor in this, as Sako suggests, is that the deregulation of the labour market in Britain during the 1980s has eliminated a possible obstacle to the introduction of Japanese-style job-grading and internal promotion. The abolition of the Industrial Training Boards has contributed to a rapid decline in the number of apprenticeships,²⁶ while the development of Youth Training (YT) and the Youth Training Scheme (YTS) have not provided viable alternatives. As a result, the majority of school leavers going into employment received no training or training lasting less than a year (Sako, 1994, p. 90). Declining apprenticeships combined with the inadequacies of the new regulatory framework have reduced the benefits firms can expect to reap by attempting to conform to industry-wide standards on training. One consequence of this is the evolution of the British labour market towards more internal forms that are arguably compatible with Japanese practice.²⁷

Despite the rapid growth in the number of external providers of further training in France (Méhaut, 1995), much of vocational training is provided internally according to firm-specific criteria. It would be difficult to argue that French manufacturers are at a disadvantage compared to the British in terms of their compatibility with Japanese training practices. In concluding this section, I would like to suggest that the critical difference between Britain and France may be the greater "proximity" of British methods of work administration to typical Japanese practice. My own research, as well as the literature cited in the historical section above, demonstrates that British manufacturers never made a full transition to the bureaucratic methods of work administration associated with Taylorism. Despite significant changes in technology including the introduction of mass assembly methods auto and other branches of

²⁶ The number of apprenticeships provided in Britain declined from 150,000 in 1979 to 55,000 in 1988 (Sako, 1994, p. 90).

²⁷ Marsden and Ryan (1990) have developed the view that there has been a progressive evolution towards internal forms of training as a response to the inadequacies of apprenticeship training in Britain.

mechanical engineering from the mid-1960s,²⁸ supervisors and skilled production workers continued to exercise considerable autonomy over the details of shop organisation. A critical change brought about by the numerous conflicts and negotiations of the late 1960s and the 1970s over changes in working practice, would appear to have been the partial break-down of traditional demarcations among the skilled occupations, and in general the acceptance on the part of labour of the need for greater flexibility in the allocation of effort. This arguably removed an obstacle to the introduction of Japanese manufacturing principles while the tradition of shop-level autonomy in production-related decision-making may be providing a basis in employee competency for the current development of Japanese-style employee involvement practices. Ironically, then, what appeared to be a source of competitive disadvantage in the 1960s and the 1970s in Britain, may well have turned out to be a source of competitive strength in the 1980s and 1990s.

Conclusion

In view of the considerable evidence of a continuous process of emulation on the part of national producers, one might well pose the question: What remains of the notion of nationally specific production models? If we look closely at the evidence, though, we can see that while producers in all industrialised nations seek to adopt other nation's organising principle which are perceived as providing a basis for superior performance, the ways in which they do this are nationally specific. In this chapter I have pointed to three sources of this 'societal effect' in the international transfer of business practices.

Firstly, I have argued that the distinctive knowledge base of a nation's manufacturing principles means that adopting another nations methods will require a local learning process. Starting points matter. The more 'distant' the borrowed technology is from the local one, the more time-consuming will be the learning process. At the local level the transfer process will tend to have a trial and error quality as certain procedures are introduced and then modified in accordance with observed results. The result will be the development of distinctive national 'hybrids' which may differ in significant respects from the parent template. The account I gave

²⁸See the very interesting work by Zeitlin (1996) on the engineering and auto industries, which demonstrates that British manufacturers in the 1950s adapted US mass production technology in a manner designed to preserve flexibility that has much in common with contemporary Japanese practice. Zeitlin argues that from the mid-1960s there was an effort to move away from this distinctive flexible solution to the adoption of more rigid mass production methods.

of the development the French electronics producer which experimented with quality circles and other forms of institutionalised employee involvement only to abandon them while retaining increased employee responsibility for quality provides a good example of this process.

Second, while the idea that strong interdependencies among the elements of an internally coherent system preclude incremental modifications of business practices is clearly not correct, this does not mean that national arrangements in the vocational training or industrial relations spheres are divorced from the process of change in the production sphere. In particular, when a nation's training system is rich in positive network externalities there will be a strong tendency to adopt new business practices in a way that is compatible with the established qualification and training standards. M. Sako's (1994) discussion of the introduction of Japanese production methods in German electronics plants illustrates this general point admirably. Japanese producers found it advantageous to graft their system of flexible work allocation onto an careers and internal promotion structure consistent with the constraints of Germany's dual apprenticeship system. This allowed them to benefit from the ample supplies of skilled labour available on the local market.

Thirdly, national systems have distinctive industrial relations legacies and distinctive procedural arrangements for negotiating and resolving industrial conflict. The level of trust between labour and management and the nature of the procedures in place for resolving conflict will have a significant impact on how new practices are introduced and modified. The history of the introduction of Taylorism in UK manufacturing that was discussed briefly above provides ample evidence of the way conflict and negotiation can contribute to the production of distinctive hybrid arrangements.

The conclusion to draw from this chapter is not that we should stop talking about nationally specific models. Rather, the inference to draw is that we should be spending more time examining the dynamic process of creative imitation that are continuously making and remaking them.

References

- Aoki, R. (1988) *Information, Incentives and Bargaining in the Japanese Economy*, Cambridge University Press, Cambridge.
- Bourguignon, A. (1993) *Le modèle japonais de gestion*, Repères, la découverte, Paris.
- Booz-Allen and Hamilton Report (1973) *British Shipbuilding 1972*, A Report to the Department of Trade and Industry, London.
- Boyer, R. (1983) "L'Introduction du Taylorisme en France a la Lumiere de Recherche Recentes," *Travail et Emploi*, No. 18.
- Clegg, H., A. Fox and E.F. Thompson (1964) *A History of British Trade Unions since 1889*, vol. 1, 1889-1910, Clarendon Press, Oxford.
- Coriat, B. (1990) *Penser à l'envers*, Christian Bourgois, Paris.
- Crowther, S. and P. Garaham (1988), "Invitation to Sunderland :Corporate Power and the Local Economy", *Industrial Relations Journal*, Vol. 19, No. 1, pp. 51-9.
- da Costa, I and A. Garanto (1993) "Entreprises japonases et syndicalisme en Europe," *Le Mouvement Social*, n° 162, Jan-Mars.
- Dore, R. (1987) *Taking Japan Seriously*, Stanford University Press.
- Dosi, G. and D. Teece and S. Winter (1993) 'Toward a Theory of Corporate Coherence' in G. Dosi, R. Giannetti P.A. Toninelli (eds.) *Technology and Enterprise in a Historical Perspective*, Oxford University Press, Oxford.
- Dunnett, J.S. (1980) *The Decline of the British Motor Industry*, Croom Helm, London.
- Dunning, J.H. (1986) *Japanese Participation in British Industry*, Croom Helm, London.
- Durcan, J.W.; W.E.J. Mccarthy and G.P. Redman (1983) *Strikes in Post-war Britain*, George Allen and Unwin, London.
- Elster J. (1979) *Ulysses and the Sirens*, Cambridge University Press, Cambridge.
- Elster, J. (1983) *Explaining Technical Change*, Cambridge Universsity Pres, Cambridge.
- Eyraud, F., A. d'Iribarne and M. Maurice (1988) 'Des entreprise face aux technologie flexibles ; une analyse de la dynamique du changement,' *Sociologie du Travail*, 1, pp. 55-77.
- Kogut, B. and Parkinson (1993) 'The Diffusion of American Organizing Principles to Europe,' in B. Kogut (ed.) *Country Competitiveness: Technology and the Organization of Work*, Oxford University Press, Oxford.

- Lazaric, N. (1997) 'Les Transplants japonais en France', paper presented at the CREI seminar on Organisational Innovation and Competitiveness in Europe, June.
- Lazonick, W. (1979) 'Industrial Relations and Technical Change: The Case of the Self-Acting Mule,' *Cambridge Journal of Economics*, 3 (3), September.
- Lazonick, W. (1986) 'The Cotton Industry,' in Elbaum, B. and W. Lazonick. *The Decline of the British Economy*, Oxford University Press, Oxford.
- Lewchuk, W. (1987) *American technology and the British Vehicle Industry*, Cambridge University Press, Cambridge.
- Littler, C. (1982) *The Development of the Labour Process in Capitalist Societies*, London.
- Lorenz, E. (1983) *The Labour Process and Industrial Relations in the British and French Shipbuilding Industries*, Cambridge University Ph.D. Thesis.
- Lorenz, E. (1987) 'L'offre de travail et les stratégies d'emploi dans la construction navale en France en Grande-Bretagne (1890-1970)', *Le Mouvement Social*, No. 138, pp. 21-44
- Lorenz, E. (1991) *Economic Decline in Britain: The Shipbuilding Industry, 1890-1970*, Oxford University Press, Oxford.
- Lorenz, E. (1994) 'Economic Decline in Twentieth Century Britain : The Cotton, Shipbuilding and Car Industries,' *Industrial and Corporate Change*, vol. 3, no. 2, pp. 379-403.
- Lorenz, E. (1997) 'The Replication of Competencies in Japanese Transplants', Paper presented to the Université de Technologie de Compiègne Seminar, 'Transfert de Compétences et la Dynamique Collective de la Mémoire', January.
- Lorenz, E., N. Lazaric and H. Tordjman (1997) 'Economic Performance and the Transfer of Organisational Competencies: Japanese Manufacturing Affiliates in France and Britain,' Report prepared for the European Project (DG3) on Organisational Innovation, Paris.
- Lanciano, C., M. Maurice, H. Nohara, et J.J. Silvestre, 'L'analyse sociétal de l'innovation ; genèse et développement,' Document LEST.
- Marsden, D., T. Morris, P. Willman and S. Wood. (1985) *The Car Industry: Labour Relations and Industrial Adjustment*, Tavistock Publications, London.
- Maurice, M. (1996) 'The Social Bases of Industrial Innovation and Product Development,' in T. Nishiguchi (ed.) *Managing Product Development*, Oxford University Press, Oxford.
- Maurice, M., F. Sellier and J.J. Silvestre (1979) 'La production de la hiérarchie dans l'entreprise: recherche d'un effet sociétal,' *Revue Française de Sociologie*, XX, pp. 331-365.

- Maurice, M., F. Sellier and J.J. Silvestre (1982) *Politique d'éducation et organisation industrielle en France et en Allemagne*, PUF, Paris.
- Maurice, M., A. Sorge et M. Warner (1980) 'Societal Differences in Organising Manufacturing Units: A Comparison of France, West Germany and Great Britain,' *Organisation Studies*, 1, pp. 59-86.
- Miles, C. (1968) *Lancashire textiles: A Case Study in Industrial Change*, Cambridge University Press, Cambridge
- Miles, C. (1976) 'Protection of the British Textile Industry,' in W.M. Corden and G. Fels (eds.) *Public Assistance to Industry*, MacMillan Press, London.
- Munday, M. (1990) : *Japanese Manufacturing Investment in Wales*, University of Wales press, Cardiff.
- Nelson, R. and S. Winter (1982) *An Evolutionary Theory of Economic Change*, Harvard University Press.
- Oliver, N. and B. Wilkinson (1992) *The Japanisation of the British Economy*, Blackwell, London.
- Pegge, T. (1986) "Hitachi Two Years On," *Personnel Management*, October, pp. 42-47.
- Pinczon, M. (1930) 'Mission en Angleterre et en Ecosse avec la delegation du Conseil National Economique,' *Enquete du Conseil national Economique, 1929-30, Situation de l'industrie de la construction navale*, Chambre Syndicale des Constructeurs de Navires, Paris.
- Robson, R. (1957) *The Cotton Industry in Britain*, MacMillan Press, London.
- Sachwald (1993) *Les entreprise japonaises en Europe*, Paris, Masson.
- Sako, M. (1994) 'Training, Productivity and Quality Control in Japanese Multinational Companies,' in M. Aoki and R. Dore (eds.) *The Japanese Firm : Sources of Competitive Strength*, Oxford University Press.
- Singleton (1991) *Lancashire on the Scrapheap: The Cotton Industry 1945-1970*, Oxford University Press, Oxford.
- Sorge, A. (1991) 'Strategic Fit and Societal Effect: Interpreting Cross-National Comparisons of Technology, Organisation and Human Resources', *Organisational Studies*, 12(2), pp. 161-90.
- Sorge, A. et. al. (1983) *Microelectronics and manpower in Manufacturing Applications of Computer Numerical Control in Great Britain and West Germany*, Aldershot, Gower.

- Stinchcombe, A. L. (1959-60) 'Bureaucratic and Craft Administration of Production: A comparative study,' *Administrative Science Quarterly*, Vol. 4.
- Stinchcombe, A.L. (1986) *Stratification and Organization*, Cambridge University Press, Cambridge.
- Trevor (1983) *Toshiba's New British Company*
- Tolliday, S. (1986) 'Management and Labour in Britain, 1896-1936,' in Tolliday and J. Zeitlin (eds.) *The Automobile Industry and its Workers: Between Fordism and Flexibility*, St. Martins Press, New York.
- Tolliday, S. and J. Zeitlin (eds.) *The Power to Manage? Employers and Industrial Relations in Comparative Perspective*, Routledge, London.
- Turner, H.A. (1962) *Trade Union Growth, Structure and Policy: A Comparative Study of the Cotton Unions*, George Allen and Unwin, London.
- Turner, G. Clark, and G. Roberts, *Labor Relations in the Auto Industry*, George Allen and Unwin, 1967, pp. 66-67.
- White, M. and M. Trevor (1983) *Under Japanese Management*, Heinemann, London.
- Wickens, P. (1987) *The Road to Nissan*, Macmillan Press.
- Zeitlin, J. (1985) 'Engineers and Compositors: A Comparison' in R. Harrison and J. Zeitlin (eds.) *Divisions of Labour: Skilled Workers and Technological Change in Nineteenth Century Britain*, University of Illinois Press, Urbana-Champaign, IL.
- Zeitlin, J. (1991) 'The Internal Politics of Employers Organisations: The Engineering Employers Federation, 1896-1936,' in S. Tolliday and J. Zeitlin (eds.) *The Power to Manage? Employers and Industrial Relations in Comparative Perspective*, Routledge, London.
- Zeitlin, J. (1996) 'Reconciling Automation and Flexibility? Technology and Production Organization in the Postwar British Motor Vehicle Industry,' Paper presented for the SHOT meeting, London.
- Zeitlin, J. (1997) 'Americanization and Its Limits: Theory and Practice in the Reconstruction of Britain's Engineering Industries, 1945-60,' Paper prepared for the conference on Americanization and Its limits, Univeristy of Wisconsin-Madison.

Danish **R**esearch **U**nit for **I**ndustrial **D**ynamics

The Research Programme

The DRUID-research programme is organised in 3 different research themes:

- *The firm as a learning organisation*
- *Competence building and inter-firm dynamics*
- *The learning economy and the competitiveness of systems of innovation*

In each of the three areas there is one strategic theoretical and one central empirical and policy oriented orientation.

Theme A: The firm as a learning organisation

The theoretical perspective confronts and combines the resource-based view (Penrose, 1959) with recent approaches where the focus is on learning and the dynamic capabilities of the firm (Dosi, Teece and Winter, 1992). The aim of this theoretical work is to develop an analytical understanding of the firm as a learning organisation.

The empirical and policy issues relate to the nexus technology, productivity, organisational change and human resources. More insight in the dynamic interplay between these factors at the level of the firm is crucial to understand international differences in performance at the macro level in terms of economic growth and employment.

Theme B: Competence building and inter-firm dynamics

The theoretical perspective relates to the dynamics of the inter-firm division of labour and the formation of network relationships between firms. An attempt will be made to develop evolutionary models with Schumpeterian innovations as the motor driving a Marshallian evolution of the division of labour.

The empirical and policy issues relate the formation of knowledge-intensive regional and sectoral networks of firms to competitiveness and structural change. Data on the structure of production will be combined with indicators of knowledge and learning. IO-matrixes which include flows of knowledge and new technologies will be developed and supplemented by data from case-studies and questionnaires.

Theme C: The learning economy and the competitiveness of systems of innovation.

The third theme aims at a stronger conceptual and theoretical base for new concepts such as 'systems of innovation' and 'the learning economy' and to link these concepts to the ecological dimension. The focus is on the interaction between institutional and technical change in a

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