

# **The embedded firm**

On the socioeconomics  
of industrial networks

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# 11 Power and the redefinition of industrial districts

## The case of Baden-Württemberg<sup>1</sup>

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This is an argument about power and the redefinition of industrial order within the southwest German province of Baden-Württemberg. Like most recent writing on the character of German industrial practice, and on the character of industrial districts more generally, the focus here is on the changing relation between small and medium-sized firms and large multinational corporations (see, for example, Katzenstein 1989; Pyke, Becattini, and Sengenberger 1990). Unlike most other views of industrial power in the literature in economics and sociology, however, this argument will not focus on the capacity of individual units to control and/or distribute resources within a given system of production and its administration.<sup>2</sup> Instead, industrial power will be defined here as the capacity to participate in the (re)definition and (re)composition of the organizational and institutional structure of the industrial system itself. The nature and importance of control and the definition of strategic resources vary depending upon the kind of industrial system that is in place. My argument is that in Baden-Württemberg industry today, the struggle for power is about the choice of industrial systems – or, more precisely, the choice of industrial order. As such, power in this essay is more a matter of identity and collective understanding than one of resources and control.

This argument will be made by examining the power struggles that emerge within large firms as parts of these firms begin to interpenetrate with the dynamic and flexible system of small and medium-sized firms in Baden-Württemberg. Large firms on the one hand and small and medium-sized firms on the other are conceived as being constituted within distinct forms of industrial order. Each form of order has identifiable organizational and institutional characteristics and is governed and reproduced through specific structures of power. The main argument is that the currently observable efforts by factions within large firms to interpenetrate with the small and medium-sized firm

system has been initiated by a crisis in the large-firm industrial order. Indeed, large firms are now engaged in significant internal power struggles not only over future strategy, but over the future definition of the corporation and large-firm order itself. Much of this collective struggle over self-definition revolves around the question of the viability and appropriateness of organizational structures, institutional practices, and conceptions of order typical of the small- and medium-sized-firm form of industrial order for large-firm organization and practice.

The argument will proceed in the following way. In the next section I will describe the decentralized industrial order among small and medium-sized firms and other related organizations in Baden-Württemberg as it exists today. The emphasis in this section will be on describing the small-firm system as a form of order. The character and structure of power in this form of order will receive particular emphasis. The section after that describes how large firms in the past constructed an industrial order that was virtually distinct from the decentralized industrial order. This section will also consider the way in which power and its structure were constituted in the large-firm order during the period of high Fordism. The final section of the case study then looks at the way in which crisis in the large-firm form of industrial order has given rise to conflicts over the way in which order in their system can be reconstituted.

### **DECENTRALIZED INDUSTRIAL ORDER IN BADEN-WÜRTTEMBERG**

This section describes the system of order within which small and medium-sized firms operate in Baden-Württemberg. Industrial order is defined as any particular constellation of structured power relations and institutionalized practices constituting a field of organizations concerned with industrial production and its administration. An industrial order is not a governance mechanism, such as a market or a hierarchy; it is the social world within which these and other governance mechanisms are utilized. Industrial orders involve not only the definition of relations among producers, their competitors, and their customers. They also define the boundaries between industry, society, and politics. Industrial orders are always created in society, and, indeed, are themselves part of larger constructions of social and political order. For the purposes of this analysis, there are three important dimensions of an industrial order: organizational field,<sup>3</sup> the structure of power, and institutionalized practice.<sup>4</sup>

## **Organizational field of an industrial district**

### *Firms*

The core organizations within the organizational field in the Baden-Württemberg industrial district are small and medium-sized firms. Virtually all (99.4 per cent) of the manufacturing establishments<sup>5</sup> and 57.9 per cent of manufacturing employment<sup>6</sup> in Baden-Württemberg are accounted for by firms employing between 50 and 1,000 employees. The largest industries in the region are special machinery building, automobiles and parts supply, electromechanical and electronics, fine mechanical and optical products, and textile and apparel production. The firms are by all accounts tremendously prosperous. The key to their success is that they have been able rapidly to produce high-quality, specialized products with very short product cycles while simultaneously reducing the cost gap between a standard product and a specialized, custom-tailored one.

Many of Baden-Württemberg's small and medium-sized firms are family owned; most employ high percentages of skilled labour; close, often personal relations generally exist between management and labour (Seltz and Hildebrandt 1985). Even in the many cases where they engage in longer production runs and hence do not engage in craft production as traditionally conceived, small and medium-sized Baden-Württemberg producers still strive to maximize their shopfloor flexibility and their capacity to shift extremely rapidly from one generation of products to another.<sup>7</sup> Thus, in the face of general pressures to engage in more or less continuous change, the various small and medium-sized industrial producers in Baden-Württemberg – in a wide variety of manufacturing pursuits – all share a kind of high-tech, craft-production orientation to both their markets and production.

By now there seems to be consensus in the literature on Baden-Württemberg as an industrial district that the success of the firms in the region cannot be attributed to the firms alone; that is, the organizational field of the small- and medium-sized-firm industrial order extends beyond the firms themselves and forms a system that socializes risk across a broad array of public and private organizations (see Cooke and Morgan 1990; Maier 1987; Sabel, Herrigel, Deeg, and Kazis 1989). Four additional organizations are especially important: educational organizations, business associations, banks, and regional government.

*Educational organizations*

Baden-Württemberg has the largest and thickest network of universities and training centres in Germany. World-renowned research universities in Mannheim, Karlsruhe, Heidelberg, Stuttgart, Tübingen, and Freiburg are far outnumbered by a host of smaller applied research and training institutes (known as *Fach-* and *Berufsschulen*) in smaller towns – often with specialities that mirror those of the producers in the surrounding community. Each of these organizations relates to the firms in the region in a slightly different way: technical universities tend to be more removed from the day-to-day activities of smaller firms than the applied research or training institutes. But all of the educational institutions engage in some form of exchange with local producers: exchange of personnel, information, know-how, and services (i.e. education and training). Linkages are both formal and informal. The dual system of vocational training, for example, formally requires young apprentices to supplement their classroom training with shopfloor experience. Qualifying projects (*Diplomarbeiten*) at *Fachhochschulen*, on the other hand, are typically conducted on specific problems in a local company and are designed through informal exchanges between the firm, the student, and a professor. The point is that formal ties are extensive and informal exchanges occur systematically in the region.<sup>8</sup>

*Trade associations and Industrie- und Handelskammern (IHK)*

Trade associations play a very important role in the decentralized industrial order in Baden-Württemberg. Groups such as the *Verein Deutscher Maschinen- und Anlagenbau (VDMA)* for machinery producers, or the *Zentralverband der Elektrotechischen Industrie (ZVEI)* for the electrical and electronics producers, represent particular sectors of industry, while the *IHKs* (Chambers of Commerce) represent all enterprises in the economy at a local and regional level.<sup>9</sup> Like trade associations elsewhere, these associations provide different varieties of market information and statistics to their members. They also appraise firms of the different varieties of local, regional, and federal-level public and private technological development programmes that are available. Most importantly, however (and unlike associations elsewhere, particularly in the Anglo-American world), associations in Baden-Württemberg, especially sectoral associations such as the *VDMA* or the *ZVEI*, coordinate relations among firms in particular industries. The most striking case of this is the *VDMA's* role in setting standards in the machinery industry where the association's *Normen-Ausschuß* (Stan-

The Steinbeiss Foundation's role, like that of the other organizations in the state, partially duplicates services that are already performed by other organizations in the industrial district, such as the *IHKs*, the sectoral trade associations, and the *Landesgewerbeamt*. It is an important role, nevertheless, in the sense that most resilient systems of political economic organization benefit from redundancy. The organizations are concerned with spreading the risk with which firms are confronted. The more that risk can be dispersed across organizations, the greater flexibility the individual actors will have. Indeed, one can say that this phenomenon is the key summary characteristic of the organizational infrastructure in which the decentralized system of production in Baden-Württemberg is embedded. The fragmented, overlapping, and seemingly redundant character of the public and private organizational network in Baden-Württemberg is, paradoxically, the most efficient way to provide services to decentralized production.

### The structure of power and institutions

Power is located within this decentralized industrial order in the capacity to shape the public discussion, and hence practical behaviour, concerning the health and reform of the above field of firms and public and private organizations. The capacity to influence the evolution of technology and technology transfer, of resource flows among firms and between firms and supporting organizations, presupposes an organizational position within the field. Thus, the main holders of power within the industrial district in Baden-Württemberg are the firms themselves, the educational organizations, the trade associations, the banks, and the various government agencies. None of the organizations dominates: that is, final decision-making authority or responsibility for the reproduction of the system is not located in any single organization within the system. Rather, power is negotiated and control is diffused; the way that it is exercised is always the outcome of open (as distinct from public) discussion among the main organizations in the system. Reform in the system is achieved in this way, literally through a collective effort of self-redefinition. Such reform in this case is, moreover, routine: i.e. it is continuous, incremental, and localized.

The collective process of negotiation over system reform is organized through formal and informal networks. Industrialists, bankers, trade association officials, and government people hold official positions on the governing boards and advisory councils (*Beiräte*) of the *Fachhochschulen*, banks, small and medium-sized firms, and industry associations. Industry associations regularly communicate informally with the

government and monitor the progress of firms and service programmes offered by public agencies. Local industrialists sit on the boards of the local cooperative banks. These overlapping network ties basically organize a permanent conversation between important organizational actors over the evolution of the system that they constitute.

Those with less power in the system are those without direct organizational access to it, such as workers, women, environmentalists and their organizations, the trade unions, and community organizations. These groups have mediate relations to the system: they are shut out of official positions on boards and advisory councils and have unequal and arbitrary access to informal networks. For example, the government decides when (or if) it will bring the trade unions into discussions over the making of a new policy or the creation of a new agency. The consequence, of course, is that such groups participate in the system without participating directly in the process of collective self-definition.

The structure of power of the decentralized form of industrial order in Baden-Württemberg is not caused by the structure of the organizational field. On the contrary, it is precisely out of this structure of power that the organizations within the order emerge and get (re)defined. The field of organizations just described is the outcome of a structured collective dialogue among power-holding actors within Baden-Württemberg over the character of the environment and the challenges and stimulation to their way of life that it poses and, given that, the way in which production and its administration should be understood and regulated. Institutionalized forms of understanding and practice, generated out of the historical evolution of this dialogue, have created the organizations that constitute the organizational field. The three most important institutions in this industrial order are: cooperation; openness/trust; and self-policing through fear (prudence). They emerge, directly or indirectly, from the efforts on the part of contestants for power to maintain (or enhance) their position in the system, which their efforts themselves define.

Self-policing through fear is easiest to understand in the following way. Actors come up with prudent ideas concerning the future health of the system because they believe that if they do not, another organization within the system will. Most threatening to any given organization that actually holds power within the system is the prospect that a competing organization within the field will succeed in shaping the way in which the collectivity understands the character of change in the environment; moreover, that it will shape it in a way that involves the functional exclusion of their own organization. Thus, in order to maintain their

power, all organizations within the system of order continuously seek to come up with ideas and strategies to improve the system, and by implication their position in it.

Though less obviously, the two other institutionalized forms of practice are also continually reproduced out of similar power dynamics. Cooperation and openness, as practices, emerge out of the basic fact that none of the organizations in the system (small firms, trade associations, educational organizations, banks) actually dominates it, nor can single-handedly ensure its reproduction. Hence all organizations in the system, even though they compete with one another, depend upon the contributions of the other organizations within the system for the system's, and their own, reproduction. Consequently, they value openness and cooperation as mechanisms that facilitate the transference of information needed for the reproduction of the system of production that they are in. Thus, for example, small specialist firms in mechanical engineering resort to cooperation to acquire the special technological expertise of suppliers and hence maintain their position in rapidly changing markets, even though they know that the same supplier also deals with competitors. Trade associations and educational institutions openly and broadly disseminate information about markets, rules, programmes, standards, and technologies to individuals and firms, and to one another, even though they know that the more broadly known the information they disseminate is, the less distinctive their own possession of it becomes. Cooperation and competition, openness and power are thickly interwoven in practical understandings that agents have of the 'reality' of their regional industrial environment.

The institutionalization of these values is by no means expressed in such a straightforwardly instrumental way. Rather, the valuation of cooperation and openness is communicated, reproduced, and ultimately institutionalized throughout the industrial order through the utilization of an entire repertoire of traditional values and symbols local to Baden-Württemberg.<sup>10</sup> Traditions (often secularized remnants) of pietistic Protestantism in the region, for example, infuse the language actors use to understand their behaviour. Industrialists and associational officials, for example, often extol the importance of openness in their organization through a disarmingly sincere and matter-of-fact belief both in the profound autonomy of the individual and in the absolute limits of an individual's capacity successfully to achieve goals it sets for itself. For many, such attitudes still undergird their faith in a Christian God; for all, they make into a virtue taking heed of the thoughts and judgements of others.

In other cases, the institutionalizing language draws on indigenous

secular political traditions of cooperation between state and society. The Kingdom of Württemberg had one of the first modern constitutions. A sharing of political power between state and society has a long tradition in the region: the social estates retained power in the region throughout the period of absolutism and their power essentially ensured that anything that occurred, politically, in the realm did so through negotiation between the state and the organized representatives of society.<sup>11</sup> Paradoxically, southwest-German liberalism also embraced this orientation: local self-government by citizens, organized secondary association representation, and active cooperation with the state to solve problems in society have always been cornerstones of that political tradition.<sup>12</sup>

Thus, in a profound way, cooperation in the carrying out of policy, and just as importantly a rhetoric of cooperation between state and society, carries considerable political legitimacy in the region. It is a way of legitimizing a set of power relations and at the same time a way to reproduce them. Many of the policies of the regional government and of the trade associations, for example, explicitly attempt to organize and induce cooperation among producers, and between competing service organizations. The organization of technology policy in Baden-Württemberg, where policies are often carried out jointly by government ministries and associations, is a good example of this. The precompetitive research projects that the *VDMA* regularly organizes among its members, located at local research institutes and partially financed by government moneys, is another.

It is not possible to argue that these artefacts of indigenous political and religious tradition in Baden-Württemberg determine the institutionalization of the cooperation or openness as practices in the region. As the next section will show, those beliefs were in no way a deterrent to the emergence of large firms that instituted a system of order in which openness and cooperation were largely absent as institutions. Moreover, the prevalence of similar Protestant beliefs in Scotland, for example, has done nothing to increase the incidence of industrial cooperation in that region. Nor were American ideas of secondary-association representation and cooperation with the state able to stave off the emergence of an industrial system largely uninterested in cooperation and hostile to state interference in the economy.<sup>13</sup> The argument advanced here is rather something else: i.e., the structure of power in the decentralized industrial order in Baden-Württemberg generates a collective value for cooperation. Actors within the system of order utilize already existent traditional forms of discourse about the individual, society, and politics to articulate the value of cooperation in their system.

## **LARGE-FIRM INDUSTRIAL ORDER IN THE AGE OF FORDISM**

The regions now contained within the state of Baden-Württemberg have always been populated by large numbers of specialized, small and medium-sized firms. The extrafirm organizations outlined in the last section all emerged in the nineteenth century. Indeed, during the period of industrialization, there was a great political effort to shape the emergence of industry in a way that preserved its small and medium-sized, decentralized character.<sup>14</sup> It was really only when Fordism came to Europe that large firms began to emerge in Baden-Württemberg. Large firms first appeared in Baden-Württemberg with the approach of the First World War – when the central government in Berlin fostered the growth of large firms for its defence needs – and then dramatically after the Second World War – when the Common Market created a set of market conditions that permitted firms to mass-produce.<sup>15</sup> The emergence of these firms introduced a new form of industrial order in the region, with its own organizational field, structure of power, and institutions.<sup>16</sup> The word is introduced, not created, because the large-firm industrial order was not specific to Baden-Württemberg: large firms in the region oriented themselves to the national, European, and international order of emerging Fordism.

### **Organizational field**

#### *Firms into industrial corporations*

The distinctive feature of the emergence of a large-firm industrial order in mid-twentieth-century Baden-Württemberg was that the large firms began to make important changes in the role that firms, as organizers of production, played in the regional political economy. Two fundamental changes occurred: producers extracted themselves from the decentralized system and radically centralized production and its administration inside the boundaries of the corporation; second, they shifted the flow of their exchanges from the regional to the national and international level.

The key organizational change in firms was the adoption of methods of centralized control over the development, production, and use of technology. This internalization was associated with a shift towards high-volume, 'mass' production. The high fixed costs associated with mass-production techniques at the time encouraged firms to protect the proprietary character of their products by internalizing most production

and development functions, and by controlling sources of supply. Industrial firms in this way transformed themselves into industrial corporations. In the process, they abandoned many of the organizational ties and practices previously associated with the decentralized industrial order. The new companies shifted their financial dealings from local cooperative banks to the large universal banks that dominated the German national economy. The national government became an important source of contracts, but also of regulation and influence. Moreover, points of reference for the large firms began to extend well beyond the boundaries of the region: firms such as Robert Bosch or Daimler-Benz competed against and imitated other larger producers in Germany or even in Europe and North America. In extracting themselves from local relations and establishing national ties, the large firms in Baden-Württemberg inserted themselves into a new field of organizations. Three other organizations, in particular, were important: banks; trade unions; and the central, national level, government.

#### *Banks*

Large German corporate ties to universal banks are well known. Bankers sit directly on the supervisory boards of corporations and play an important role in the management and development of long-term company strategy.<sup>17</sup> This tie not only removed the corporation from the local cooperative banks in the industrial district, it also played an important role in the organizational strategy of large firms. Horizontal corporate ties to banks enhanced the centralized character of control within German corporations. Unlike US producers who were forced to decentralize corporate control (create so-called M-Form structures) in order to be able to police their internal operations, German corporations used ties to universal banks to do the policing. Decentralized corporate governance came about because of the capital market's weakness in policing opportunism inside corporations. In Germany, because the capital market was part of the management structure of the corporation itself, such forms of decentralized management never proved necessary (see Cable and Dirrheimer 1983).

#### *Trade unions*

As with the banks, the large firms were the overwhelming focus of attention for the West German trade union movement. Through their extensive organization and central role in collective bargaining, trade unions played an important role in stabilizing the labour market and the



growth of wages for large-scale producers. Already by the 1920s, trade unions had virtually abandoned efforts to engage in areas of decentralized production in favour of protecting the interests of the growing numbers of workers in large-scale factory production.<sup>18</sup> The development of trade union organization in the postwar Federal Republic both reflected and imitated the growth of the centralized corporate industrial organization. First, through their infiltration of the system of codetermination in Germany – a system of representation, based upon a hierarchy of works councils which gives workers a formal voice in corporate decision-making all the way up to the level of the supervisory board of the enterprise – unions embraced a structure that reflected the centralization of command and authority within the corporation. Second, the collective bargaining process also encouraged centralization and hierarchy. The dominance of large, centralized producers in the bargaining process led the trade unions to develop large, centralized structures of internal authority and control to deal with them. Without the ability to control the heteronomous demands of their members, the peak-level union negotiators would not have been able to win legitimacy as responsible bargaining partners in the eyes of their adversaries.

#### *The central (national level) government*

The final significant organization within the large-firm organizational field was the central (national level) government in West Germany. German corporations had an ambivalent relation to the central German state. On the one hand, they tolerated the engagement of the state in the sphere of social welfare, mostly for the effects that this had on the moderation of class tensions and on the stabilization of effective demand. On the other hand, German corporations consistently opposed, and succeeded in blocking, any state interference in the corporation's own project of organizing the immediate problems of production and its administration. Corporations wanted a social state, but they also wanted an economically liberal one.<sup>19</sup> And, on the whole, that is exactly what they received in the *Soziale Marktwirtschaft* in postwar West Germany. Throughout the postwar period, regardless of the party coalition in power, the West German state paid attention to the framework conditions (*Rahmenbedingungen*) for market exchange and systematically ceded all organizational activity in the sphere of production and exchange to large-scale, industrial corporations, just as they (and the large banks and trade unions, their partners in the field) wanted (see Allen 1989; Scharpf 1984).

#### **The structure of power and institutions**

As in the small- and medium-sized-producer industrial order, power in the large-firm order in the postwar era of Fordism consisted in the capacity to participate in negotiations over the reform of the organizational and institutional structure of the order. Unlike the former system, power within this order was highly centralized, and powerful actors were concentrated at the highest levels of the dominant, large-scale organizations.

Those without power in this system were the people at the bottom of hierarchies or those outside them. This not only included workers and bureaucrats as individuals and families, it also included small and medium-sized producers, regional governments, trade associations, educational institutions, and those groups that either did not fit into or who were especially exploited by the specialist categories of the large organizations: women, minorities, and migrant workers.<sup>20</sup>

Elite power-holders in postwar German Fordism, much as elites elsewhere in the West during the Cold War, defined the world in a way that made large-scale organization, bureaucracy, and mass production look like natural and inevitable outcomes of economic progress. Firms were understood as the exclusive organizers of production; technological leadership in the world was located in the United States, as were the cutting-edge principles of manufacturing practice; mass production, in that it presupposed and fostered the development of a large middle class, was a prerequisite for stable democracy – and hence, the protection of private property and the defence of freedom against communism. Against this background, elites believed that the industrial development was governed by discernible laws, making it possible for them rationally to guide the evolution of their system.<sup>21</sup>

Institutional practice and understanding grew out of this understanding of the industrial world. Two practices in particular should be pointed out: an orientation towards nonreciprocal relations and mistrusting behaviour. Both fostered the reproduction of mass production as a strategy in the industrial environment and helped to protect and enhance the power of those who defined the world in that way.

#### *Nonreciprocal ties*

The desire on the part of those with power to control information flows in their efforts to pursue mass-production strategies generated the institutionalization of nonreciprocal relations among actors and the creation of organizational hierarchy. Open information flows, such as

those in the small- and medium-sized-firm system, were highly conducive to initiative, spontaneity, innovation, and the dissemination of technological information. Hence, they were tremendously threatening to the elite vision of the world. Open access to information about the environment, because it encouraged local action and initiative, disrupted and threatened elite conceptions of rational planning. Moreover, the high fixed investment costs involved in the construction of mass-production systems meant that firms did not wish to constantly change their product or to rearrange their production processes to suit the particular needs of individual customers in their product market. Those in power wanted the old to pay for itself in volume before the new came on line. Consequently, they tried to discourage open information flows which encouraged competition and change and they rewarded those in their own ranks who kept things to themselves.

The organization of this orientation, of course, is a bureaucratic hierarchy. This fragments information by forcing it to flow through concatenated, specialized offices from the top and the centre of the organization downwards and outwards. Moreover, it institutionalizes the interests of power by shaping incentives: obedience and specialist knowledge are systematically rewarded while openness to the outside and generalist knowledge are disparaged. Within such an organization, actors seek to become experts at applying fragmented information to specific tasks. The principle of nonreciprocal ties, by stressing obedience and specialization, shaped actors' understandings of their work environment in ways that ensured the continued reproduction of nonreciprocity – and ultimately, then, of the structure of power that benefited from it.

### *Mistrust*

A mistrusting attitude was part and parcel of this habitus. On the one hand, the vulnerable position of the rigid mass-producing corporation was incorporated into the self-understanding of all actors within it. Because all depended for their livelihood on their continued capacity to perform highly specialized tasks with only fragmented information about the entire product, none were interested in blurring the boundaries of their own expertise with those of others. If they shared information with another specialist up or down the information chain in the hierarchy, the security of their place within the organization was undermined: legitimacy in the organization was attached to specialist knowledge, and the dilution of that knowledge was a threat to that. On the other hand, due to the very fact that legitimacy in the organization

was attached to specialized skill, everyone in the organization continually had an incentive to enhance their legitimacy by acquiring more skill. This meant, naturally, attempting to usurp the competence of others either above or below. Thus, in the Fordist large-firm industrial order, all had an incentive to protect their place and to attempt to usurp that of another. No one, in other words, could trust anyone else.

### **CRISIS AND CHANGE IN INDUSTRIAL ORDER**

The argument in this section looks at the way that the large-firm industrial order just described has begun to respond to changes in the international manufacturing environment. Indeed, the claim is that changes in the current world manufacturing environment have given rise to a crisis in the structure of power in the large-firm industrial order. There is tremendous debate at the moment concerning what actually has changed in the world environment to contribute to the crisis in the large-firm industrial order. The most persuasive accounts, it seems to me, point to the internal exhaustion, on a world scale, of the strategy of mass production. In these accounts, the rise of significant, highly industrialized regions in Northern Asia, North America, and Western Europe has led to the emergence of tremendous global competition and dramatically rapid rates of technological change. This has undermined the capacity of large producers to control their own technological and market environments – the crucial precondition for the success of the mass-production strategy.<sup>22</sup>

Out of the crisis have emerged different factions within the large-firm order, each with different conceptions of what the challenges to the old order are and how these can and should be addressed. One group, which I call the transformers, has become convinced that the systemic basis and institutional logic of power in the old system can no longer reproduce itself in the current environment. They believe that the only way to preserve their power is to transform the resources that they have into power in a different industrial system. In so doing, I claim, this faction explicitly mimics, and interpenetrates with, the organizations, institutions, and power structures of the local decentralized industrial order. For the transformers, the example of the success of the decentralized industrial order in the current environment (as described in the first section) has provided them with a model of viable alternative principles of practice and power that can be appropriated into a transformed corporation. Opposing the transformers is the traditionalist faction, which is attempting to utilize the resources it possesses to stave off a fundamental self-transformation. They have more faith in the

capacity of the old structure of power to reproduce itself. The conflict between transformers and traditionalists, ultimately, is a power struggle that constitutes the redefinition of industrial order.

Ironically, as different as they are from each another, and as complicated as the picture of the denouement of the old, large-firm Fordist order is, neither of the strategies to recompose the resources that existed in the old large-firm order looks as if it will provoke fundamental changes in the structure of power or the character of institutions in the decentralized industrial order.

### **Reproducing power by transforming it**

Transformers in Baden-Württemberg have a characteristic understanding of the current industrial environment. They believe that the increased international competition that has given rise to ever-shorter product cycles, rapid technological change, and high development costs, has made it impossible to control their environment in the ways that were feasible in the past. This new reality, they believe, places the same kinds of centrifugal pressures on their own production as it has on small producers in the surrounding industrial district. Many plants, and often entire firms in the automobile, electronics, machinery, automobile components, optics, and fine-mechanical products sectors in Baden-Württemberg are experimenting with subcontracting and collaborative product development arrangements in an attempt to reduce the time and cost of development and to spread the risks associated with it.<sup>23</sup>

Where this has occurred, the upshot has been that the large firms are increasingly entering into highly iterated collaborative interactions with producers from the decentralized industrial order. In the most dramatic cases in Baden-Württemberg, such as the Robert Bosch company, plants from the large firm (with the support of the central office) are self-consciously attempting to tie their very existence to a dense network of subcontractors. On the one hand, the firm transfers its own know-how in certain technologies on to outside firms in order to be able to devote its resources to product development in its own area of strength: the integration of micromechanical and microelectronic technologies. On the other hand, the firm then simultaneously relies on continued contact with these subcontractors to help Bosch keep abreast of technological developments in these areas. The point in cultivating relations with subcontractors for Bosch is to have knowledge and expertise available to it if the market and the development of technology make this necessary. Logically enough, this guides the firm's thinking not only in relations with specialized suppliers in Baden-

Württemberg, but also with those throughout Germany, Europe, and the world (Sabel, Herrigel, Deeg, and Kazis 1989).<sup>24</sup>

Interpenetration of the two systems organizationally in this way has been paralleled by an interpenetration institutionally. This stems from the fact that pressures on large producers to disintegrate, to spread their risks, and cast their informational nets wide in search of know-how from outsiders has caused them to place a high value on appropriating the practices of 'daily life' typical of the smaller specialist producers with whom they engage. Rather than trying to create nonreciprocal ties and hierarchical, mistrusting relations within their operating systems and between their production units and their suppliers, firms are trying to create relations and foster behaviour within and outside the company that engender reciprocity, openness/trust, and cooperation. Their efforts to do this occur simultaneously at both organizational and ideological levels.

At the level of organizational redesign, transformers at firms such as Bosch, SEL, IBM, and even to some extent Daimler-Benz have succeeded, haltingly and not without internal opposition, in getting the corporation to decouple their vertical operations and provide the new operating units or 'profit centres' with greater decision-making autonomy – even in some cases spinning them off into independent (wholly-owned) companies. Such organizational changes enhance the autonomy of actors who were previously at a lower level of bureaucracy. At the same time, importantly, it also introduces risk (through unmediated exposure to the competitive market) that had not previously been associated with the position.<sup>25</sup>

Transformers within the mother organizations also employ the signifiers of roles and organizations from the alternative, decentralized order to describe the way in which their own position within their production system is changing. For example, the above movements towards organizational decoupling are invariably couched in a discourse that encourages actors in the new units to experiment with collaboration; engage in outside contacts; 'to become like small companies in the *Mittelstand*'. Here the traditional authority of the mother organization, ironically, is deployed to encourage untraditional, autonomous behaviour in subordinate units through the evocation of institutional frames of understanding from the alternative, decentralized, industrial order. Representatives of the central purchasing department at Robert Bosch, to take another example, readily assented to the analogy that their strategy of cooperating with their suppliers and the way they provided them with know-how resembled in some aspects the kind of relations that such smaller firms already had with local

*Fachhochschulen*. They understood the embedded values of openness and collaboration in the other system and forthrightly desired the insinuation that their own behaviour embodied them as well.<sup>26</sup>

There are correlative organizational and ideological changes occurring in the way that large firms are altering their internal labour markets for managerial staff to make them more open, flexible, and information-absorbing. Many large firms talk of reforming the career patterns of their managers so that they avoid the narrow job hierarchies with their concomitant nonreciprocal, mistrusting relations. Narrow specialities with thin vertical lines of advancement should give way to careers that accumulate broad horizontal experience as one progresses upwards in the organization. Managers who know the organization more broadly, the logic goes, are more easily shifted around according to the changing strategic priorities of the company. Such workers are not tied to specific operations or specific skills, and they can more easily engage in collaborative horizontal ties and exchanges within the company because of their greater familiarity with what it does. Furthermore, since subcontracting and collaboration with outsiders is occurring throughout the organization, these new manager types accumulate considerable contact with a broad spectrum of outside specialists and markets.<sup>27</sup>

At the regional level, the disintegration of the large firm involves attempts by the various component parts to introduce themselves into the regional structure of power at various levels of the decentralized industrial order: representatives from operating units engage with local municipal authorities, community colleges, and bankers on the general health and preparedness of the infrastructure for the demands of the current market environment. At the same time, representatives of the companies' central, supraoperating unit participate at the whole-region level with regional governmental officials, trade associations, bankers, and other players regarding the same problems. Operating units also engage in cooperative relations with regional players. These consist of formal and informal exchanges of personnel, joint ventures, and collaborative precompetitive research. Where those with power interested in transforming it have been successful in disintegrating large firms, those firms are now becoming an additional organizational voice in the structure of power within the decentralized industrial order.

### **Staving off transformation: traditionalist strategies**

Traditionalist elements within the large producers in Baden-Württemberg (and elsewhere) are extremely hostile to the description

of the international market environment taken by those opting to defend their power by inserting it into a new system. For the traditionalists, turbulent markets are ephemeral; rapid product change and high development costs are balanced by traditional products and markets that continue to earn money. Moreover, much of the new, flexible, automation technologies can be used to integrate variety into large-series production. For these holders of power in the large corporation, it is still possible to reproduce their own power through the traditional strategies of hierarchical fragmentation and the institutionalization of nonreciprocity and mistrust. Efforts by other parts of the large firm – or by other firms – to abandon this strategy are held to be brash and dangerous. Valuable know-how can be given away to subcontractors without any guarantee that the resources spared will not be squandered on a new, risky, and unproven technology.

But it is not only those in the corporation who can easily envisage their reproduction within the old rules who inhabit the traditionalist group. There are also those who cannot seriously entertain the possibility of survival within the new rules proposed by the transformers. Confronted with the same problems of reproduction observed by the transformers, those in this group have concluded that there are no alternative organizational and institutional strategies of collective self-transformation that they can follow that would not result in an unacceptable loss of power. Research and development departments, production managers, and works councils within large concerns, for example, often can be opponents of increasing collaborative development or subcontracting because these things threaten to make their place in the firm completely superfluous. Cooke and Morgan (1990: 23–44) point out that both SEL and Bosch experience serious conflicts of this nature. For these elements within the large-firm industrial order, transformation means not only loss of power but also loss of identity. As a result, such actors seek at every turn to retain, reimpose, and defend as much of the old strategies of organizational and institutional reproduction from the old, large-firm order as possible.

The traditionalist faction within the old, large-firm industrial order relates to the structure of power, institutions, and organizations in the other decentralized industrial order in Baden-Württemberg as if it were part of a foreign, probably weaker, system to be exploited. Smaller firms are used as spot subcontractors to gain price advantages and flexibility during unpredictable moments in the business cycle or in the evolution of technology.<sup>28</sup> The openness of outside smaller firms is portrayed as a sign of their untrustworthy character. Traditionalists hence continue to establish relations between their firm and its

contractors that are strictly hierarchical, nonreciprocal, and full of mistrust. In such cases, relations with the decentralized order in no way attempt to mimic its practices or institutions, although they may be characterized that way by the traditionalists for intracorporate political reasons. Regardless of tactical framing considerations, the reproduction of traditional hierarchy and control is the aim. For these factions within the large corporation, the firm is the central unit of control and authority. Firms organize production. They should manipulate decentralization rather than dissolve into it.

### CONCLUSION: POWER AND CHANGE IN INDUSTRIAL ORDER

The above analysis of power struggles in the redefinition of the old large-firm industrial order contributes two important points to the current debate about the character of manufacturing decentralization and its impact on small and medium-sized firms.

First, this analysis shows that the reorganization of the large-firm industrial order in Baden-Württemberg is so fraught by fractionalization and is so complex that it is impossible to claim, at least as it stands now, that there are two clearly identifiable, unitary, 'mutually converging' processes at work in the region, as has been prominently argued (Sabel 1989). Transformers and traditionalists are fighting it out in all modern corporations (not just in Baden-Württemberg). At the moment the international environment is so turbulent that it appears to allow both to reproduce themselves with success. One wonders how long that will last and whose vision of future order will be victorious.

Second, contrary to the vision of Bennett Harrison, Ash Amin, and others, the argument here is that, at least in Baden-Württemberg, the decentralized industrial order is not being located in a new and transformed hierarchical relation to the large corporation (Amin 1989; Amin and Robins 1990; Harrison 1989). On the contrary, in the traditionalist case where there is hierarchy and a clear imbalance of power between large and small producers, the relation is not new nor transformed at all. It is self-consciously following the old Fordist model and conceives of power in what are quite classic, institutional, and organizational terms.

In the case of the transformer element within the large corporation, cases where they have been able to recast the strategy of production indicate that they are self-consciously seeking to integrate themselves into the decentralized industrial order's structure of power. Large firms, in the form of their component parts regionally and globally, have

inserted themselves into the ongoing, self-defining discussion within the structure of power in the decentralized system. Far from being in a position of subordination, producers in the decentralized order benefit from the infusion of tremendous know-how resources into their networks. Indeed, if one accepts my characterization of the transformers, they are not interested in control at all, they are interested in retaining power. For them, control of the environment is no longer possible. But it is still possible, and consistent with their conception of the world and the purposes of their organizations, to participate in crucial and lucrative debates about the (re)definition of the decentralized industrial order.

### NOTES

- 1 I would like to thank Gernot Grabher, Roger Gould, Carol Horton, Horst Kern, Charles Sabel, the Fachbereich Ökonomie at the Vienna University of Economics, and the Organizations and State-Building Workshop at the University of Chicago for comments on earlier versions of this chapter.
- 2 For traditional resource and control-based conceptions of power in industrial organizations, see Perrow (1986); Pfeffer and Salancik (1978). Earlier, more narrowly economic arguments about power also took place at the unit level and focused on the capacity to shape resource transfer and exchange (see Perroux 1971: 56-74; Pen 1971: 97-116).
- 3 For an overview discussion of organizational fields, see DiMaggio and Powell (1983); see also DiMaggio and Powell (1991), Fligstein (1990).
- 4 On institutionalized practices, see Bourdieu (1977: 72-87, 159-71). Also, for the growing, North American, 'new institutionalist' discussion in organization theory, see Zucker 1977, 1986; Meyer and Rowan 1978; Thomas, Meyer, Ramirez, and Boli 1987.
- 5 In 1987 there were 102,965 firms with a workforce of over five employees.
- 6 Employed in firms with more than five people. In 1987 there were 1,793,271 people working in manufacturing establishments that each had a workforce of over five employees (Gölz 1990: 167).
- 7 Some of the workplace problems that volume manufacturers face in attempting to bring flexibility into their lines have been thoroughly sketched out in the SOFI institute 'Trend Report' on the West German automobile, machine tool, and chemical industry sectors (see, for example, Schumann, Baethge-Kinsky, Neumann, and Springer 1989).
- 8 For a more extensive discussion of the relation between educational institutions and small firms in Baden-Württemberg, see Herrigel (forthcoming).
- 9 There are other important nonsector-specific associations which are important to small and medium-sized firms such as the VDI (the association of German engineers) and the RKW (a national organization concerned with problems of rationalization). For a complete list of such associations, see Cooke and Morgan (1990).
- 10 The metaphor of repertoire comes from discussions with my colleague David Laitin. For an example of the way he uses the concept in his own analysis, see Laitin (1986).

- 11 See the fascinating discussion in Hettling (1990).
- 12 See Hettling (1990). An excellent example of this kind of liberalism is the career of Theodor Heuss: see the writings of Heuss in Dahrendorf and Vogt (1984).
- 13 On relations between US business and the state, see Vogel (1978).
- 14 For a detailed discussion of the industrialization process in Baden-Württemberg and other industrial districts in Germany, see Herrigel (1990, chapter 2).
- 15 On the coming of Fordism to Germany and Europe, see the excellent overview article by Jessop (1990); see also Herrigel (1990, chapters 3–6).
- 16 However, the introduction of a large-firm industrial order never supplanted or eliminated the decentralized one. For the relations between these two forms of industrial order during the period of Fordism, see Herrigel (1990, chapter 5).
- 17 The classic discussion in English is in the section on Germany in Schonfield (1966).
- 18 A good case study of this kind of shift on the part of trade unions is Boch (1985).
- 19 On the liberalism of postwar German big business, see Berghahn (1985).
- 20 On the problems and forms of resistance in the 1960s and 1970s that this system gave rise to, see the two works by Offe (1985, 1986).
- 21 For a discussion of the interconnection between these ideas in postwar Germany, see Herrigel (1990, chapters 4, 5, and 6).
- 22 Literature on the crisis in Fordism is enormous. The initial pathbreaking analyses were Aglietta (1979), Lipietz (1984), and Piore and Sabel (1984). For excellent overviews of the literature, see Zeitlin and Hirst (1991) and Jessop (1990).
- 23 For a case study of this phenomenon in the automobile industry, see Sabel, Kern, and Herrigel (1991). For a discussion of developments in mechanical engineering, see Herrigel (1989); for electronics, see Voskamp, Wittemann, and Wittke (1989).
- 24 The benefits for Bosch of these kinds of collaborative transfers are clear, but the benefits to the region of its linkage through Bosch to a worldwide network of technological information is often underappreciated. See, for example, the rather sceptical assessment of nonlocal sourcing by Baden-Württemberg large firms in the paper by Cooke and Morgan (1990).
- 25 On this phenomenon among large firms in Germany, see Herrigel (1989); and the interesting press account in *Manager Magazin* (1990a).
- 26 Interviews at Robert Bosch GmbH, Schillerhöhe, summer 1986 and winter 1989.
- 27 'The lonesome inventive specialist is out. "In" are technically versatile generalists who are as knowledgeable about developments on the world markets as they are about developments inside their own companies, who can lead a team of different technical specialists as easily as they can a discussion among technical laypeople' (*Manager Magazin* 1990b: 335).
- 28 Harrison and Kelly have done extensive quantitative research on this phenomenon in the United States. See, for example, Harrison and Kelly (1990).

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