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**Large Firms and Industrial Districts in Europe:  
De-Regionalization, Re-Regionalization and the Transformation  
of Manufacturing Flexibility\***

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## **1. Introduction**

Despite a common interest in regional competitiveness, the literature on industrial districts that emerged in the late 1980s and early 1990s differs in significant particulars from the contemporary discussions of the relationship between regional clusters, globalization and competitiveness—including those that animate this volume. While the latter, regional cluster literature is very concerned with identifying the factors contributing to regionally concentrated increasing economies, however constituted, and specifying the broader conditions for regional competitiveness in general (see Enright 1993, 1996, Scott 1998, Porter 1990, and Dunning's introduction to this volume), the industrial district literature is concerned with the relative competitiveness in world markets of a very particular form of regional industrial order: I.e., decentralized and cooperative industrial practices among small, medium and quite often large firms (Zeitlin 1992, Sabel 1989). To the extent that the decentralized regional structures of production that interest those who study industrial districts are competitive in world markets and attractive to multinational investment, they are also of interest to the students of regional clusters. But as Enright (1993, 1996) and others have extensively demonstrated, there are many regions in which there is competitiveness, but little decentralization. And, as this paper will attempt to elaborate, it is also possible for there to be considerable regional industrial decentralization, but in which the competitiveness of the decentralized practices is suspect. This latter possibility is likely to fall through the cracks in the Regional Cluster literature because it does not make the organization of the firm and production the focus

of its concern. Such problems are, however, at the center of analysis of those studying industrial districts.

To be sure, the literature on industrial districts has until now focused primarily on successful cases of adaptation. This is in large part a result of the fact that the literature first emerged in the context of critiques of large scale mass production and the vertically integrated, so called Fordist enterprise (Piore & Sabel, 1984). At a time when the latter organizational forms were experiencing serious crisis throughout the industrial world, the smaller scale, flexible, specialized, decentralized, inter and extra firm forms of collaboration and strategy that governed entire regions of producers in southwest Germany, the third Italy, Jutland in Denmark and elsewhere were constructed in debate as attractive alternatives out of the crisis. They were successful on world markets while the large vertically integrated mass producers were not, and their success seemed to stem from their flexibility in production and their capacity to engage in seemingly permanent innovation. Both of these capacities were traced back to the non-traditional organization of markets and production in the districts. The attractiveness of industrial districts as a flexible alternative was reinforced at the time by the contemporaneous success of Japanese producers who also, by most accounts, rejected the hierarchical rigidity of fordist governance and organized production in more decentralized, collaborative and flexible ways. The crisis of Fordism was a crisis both of mass production and of the vertically integrated firm. Flexibility and inter and extra-firm mechanisms of governance seemed to be in the ascendant (Pyke, Becattini & Sengenberger, 1990, Pyke &

Sengenberger, 1992, Sabel, 1989, Saxenian, 1992, Friedman, 1987, Cooke & Morgan 1998).

That was the argument at the time and after a decade it is plain that there was much that was true in it: Indeed, viewed with today's sensibility the early articles on industrial districts are almost quaint in the excitement and self-conscious boldness that couches their suggestion that hierarchy and the vertically integrated firm could not compete with the more collaborative and specialized systems. People take the possibility for the success of this form of competitive organization in the world economy for granted today. Far from being an endorsement of the contemporary and continuing relevance of the industrial district example, however, I want to argue that the passage of time and the diffusion and evolution of flexible organization in the world economy has actually revealed both the peculiarity of the forms of flexibility that characterize industrial practice in industrial districts and, more importantly, the weakness and vulnerability of at least some of those forms of practice relative to alternative forms of flexible industrial production (particularly those currently being developed by large manufacturing multinationals).

What the old debate overlooked in its attention to the superiority of flexibility and decentralization over rigidity and vertical integration, was that not all ways of combining flexibility and collaboration were alike and that some ways were better than others.

Ironically, today it is large, very often multinational firms, vastly reconstituted from their earlier vertically integrated incarnations that pose the largest potential challenge to the

industrial districts. These MNC's are increasingly learning how to organize flexibility in ways that utilize collaboration and collective self-monitoring to foster continuous learning, innovation and, crucially, permanent organizational redefinition. These new forms (better: principles) of flexible organization are far more flexible and competitive than the essentially craft based forms of flexibility that formed the foundation for the organization of production in industrial districts. Moreover, in contrast to many of the forms of flexible practice in industrial districts which emerged over long periods of time and which have a distinctly embedded and taken for granted quality among the actors, the new principles seem to be portable and can be introduced into contexts in which previously there had been little cooperation or flexibility in industry (Dorf and Sabel 1998, Kaplinsky 1994).

My claim below will be that this process of transfer, initiated by MNC's, involves both de-regionalization and re-regionalization of production relations. By this I mean that in the process of implementing the new flexible production principles with suppliers in a region, large producers insist that producers play by new rules and refuse to tolerate producers who will not or cannot do so. In this way the production of a good is figuratively but systematically shifted or removed from one mode of regional industrial organization and inserted in a different, but equally as regionally concentrated one. In the terms of this volume, Large firm or MNC productive investment in industrial districts is currently undergoing a shift from asset exploiting investments to asset augmenting

investments. My point is that in so doing, they must utterly redefine forms of practice in the region: de-regionalization and re-regionalization are two sides of the same strategy.

At the moment, not all European industrial districts are confronted by this kind of challenge because many hold very strong monopoly or niche positions in world markets for high quality products that have been ignored by multinational players. Moreover, there is no immanent reason in the contemporary global competitive environment for this insulation to give way or break down. I do not want to claim that there is a general crisis of the industrial district model of decentralized craft production. I do want to claim that important districts are very vulnerable in the current environment-- especially those with a large regional presence of multinational manufacturers such as Baden Württemberg in southwest Germany. Many producers there have become much less insulated from global competition than they used to be, and as a result have been experiencing significant adjustment pressure from the alternative form of flexible production. Indeed, so serious is the challenge in Baden Württemberg in particular that it actually threatens to throw traditional craft based decentralized production into decline and undermine the high wage character of the regional economy. This paper will attempt to outline the nature of this threat and present a range of possible scenarios for how that particular industrial district can (or cannot) cope with it.

## **2. Varieties of Industrial Flexibility**

All systems of flexible production differ from the old fordist mass production system by attempting to integrate conception and execution in production. Fordism was based on the systematic separation of conception and execution throughout all parts of production and management. The canonical fordist firm was hierarchical and rigid because it divided labor and production in the extreme: Unskilled workers or workers with extremely specialized skills populated the factory floor and did not have the capacity and certainly lacked the authority to alter their activity relative to changes in the quality and quantity of demand. Plant managers and foremen were the ones with overviews of the production process and who had the authority to change the organization of production. But in most cases they did not even participate in the design or development of the product--this activity was allocated to yet another part of the firm--so they were themselves constrained in the degree to which they could intervene in the organization of production. The same separation of design and production applied to large firm relations with subcontractors: Firms tried to control all aspects of design in house and utilized outsiders only as producers and even then most often on an arms length, lowest bid basis.

Hierarchy, vertical integration and the rigid fragmentation of knowledge worked for large firms when there was little competition in markets and when the rate of product and technological change was relatively slow. When markets became competitive and product and technological change more rapid, as they did beginning in the 1970s, this form of

organization proved to be very uncompetitive. Change was a giant bureaucratic procedure that took a long time.

The flexible forms of organization that captured attention as alternatives to Fordism in the 1980s, including the industrial districts, gained their advantage by integrating conception and execution in production and management. Firms employed skilled workers with knowledge about products and production that exceeded the specific manufacturing arrangements and product designs that existed at any given time. Indeed, most reports on all varieties of flexible production systems indicate that skilled workers often are systematically included in discussions with management about the organization of work and production and in how to transform product designs into the practical details of manufacturing. The organizational structures that produced such workers and such discussions with management made change in product or in the organization of production comparatively easy to accomplish. Not a bureaucratic procedure, it was simply the natural outcome of the interaction of habitual interlocutors about what was working and not working in production and on the market.

In most systems, this same kind of continuous discussion about conception and execution applied to relations between firms and their suppliers as well. In truly horizontal systems such as the Italian industrial districts, the difference between a supplier and an end user (OEM) was a temporal artifact of who was able to get a contract first: The winner subcontracted the loser, but winners and losers continually traded places.



Producers collaborated on the development of the product and the organization of production. The boundaries of the firm approached disintegration (Pyke, Becattini, Sengenberger, 1990, Cooke & Morgan, 1998). In less completely horizontal systems such as those which existed in the German district of Baden Württemberg, the identity of OEM's tended to remain constant, but they also tended to cultivate long term relations with important suppliers. Informal collaboration on the development of the subcontracted parts and on the continued development of the OEM's product was constitutive of these relations. The tendency toward collaboration was intensified through common associational affiliations, common utilization of local educational institutions for consulting and applied research and through the circulation of skilled workers in local labor markets. In both the extreme horizontal cases and in the more hierarchical German ones, product change (if only in the form of accommodation of particular customer wishes in a standard type) was a taken for granted aspect of the system that all parties continually negotiated. (Cooke & Morgan, 1998; Heidenreich & Krauss, 1998, Herrigel 1996)

Flexible systems differ amongst themselves in the degree to which they integrate conception and execution in their organizations. As it turns out, the industrial district model integrates conception and execution less well than others do because it continues to rely on the permanent fragmentation and division of knowledge and capacity in production. By this I mean that craft production based firms tend to be reliant on skilled workers with very particular self understandings of the boundaries of their skill: They are

trained as tool makers or milling machine operators and have the expectation that their role in production will always be to make tools or operate milling machines. Likewise, individual firms specialize on specific aspects of a production chain and make their reputations on their capability in that specific area. This kind of fragmentation of knowledge in production, following an observation that Adam Smith made many years ago, produces hierarchy in that managers (or OEM's) are forced to step in and coordinate the activities of specialized actors to ensure the stable and optimal flow of production. Thus, the existence of fixed identity positions in the division of labor creates a logic of fragmentation and hierarchy that systematically blocks the integration of conception and execution--or reproduces their organizational separation, however you prefer.

The extent to which this is a problem varies within industrial districts. In the hierarchical German systems, in which all shop-floor groupings of worker skill identity are created within the pillarized vocational training system, and in which the relations between OEM and sub-contractor remain stable over time, the problem of fragmentation as described above is considerable. In the horizontal Italian systems, in which the boundaries of skill categories are not defined by a public educational system and in which the identity of OEM and supplier are interchangeable over time, the problem is less severe—though even here, Italian commitment to the independence of producers can inhibit tactical integration (Varaldo & Ferrucci, 1996). In both cases, institutionalized identities or fixed role positions tend to endure and perpetuate specialization that ultimately helps reproduce hierarchy and separation between conception and execution.

Many of the other non-industrial district forms of flexible organization out there in the global economy these days explicitly attempt to break from the notion of fixed role positions and break down all forms of organizational separation between conception and execution. These alternative flexible arrangements have their inspiration--or at least their initial coherently articulated historical origins-- in Japanese industry, though the principles have long since been transformed, extended and made better by others. Essential to this alternative form of flexibility is the group or work team into which managerial, developmental and production capabilities and responsibilities are allocated, but in which no fixed roles or identities are allowed. Teams are created with the understanding that all members can be expected to undertake a broad array of possible tasks and fulfill a variety of different functions. There are no fixed specialties; there are only contextually specific tasks to perform and problems to solve by the group. Because problems are solved and new ones emerge, tasks continually change and are reallocated. No one is expected or expects to do the same general thing all the time. In fact, the more experience group members have at performing different roles, the more flexible and capable of problem solving the group is likely to be. Group self-coordination and recoordination is a collective learning process. The expertise of groups does not involve specific functions or skills; rather it involves the ability to collectively solve problems in production under conditions of rapid technological and product change (Sabel, 1994).

This same logic extends itself into relations between groups within a firm and to sub-contracting relations between producers as well. Problems solving oriented groups communicate with one another about their common tasks and coordinate their interactions in ways that allow for rapid absorption of new technology and production arrangements as well as continuous monitoring of the quality of common process throughput. Similarly, as suppliers follow (or are pushed by) OEM's to increasingly constitute themselves in cross functional groups, those groups then engage in collaborative development and implementation work with counterpart groups in the OEM as well as with other collaborating suppliers. (Helper, MacDuffie, Sabel, 1998).

This is a very flexible form of organization in the division of labor: It utilizes the principle of specialization, but detaches it from specific persons, roles or even firms, while constructing the Smithian coordinator through cooperative self-monitoring rather than bureaucratic hierarchy. In this way, conception and execution at work are completely unified over time and never have fixed or permanent locations in the organization (and at the limit, across organizations)—indeed, crucially, the whole idea of a permanent organizational form is inconsistent with the new principles of flexibility. Modern flexible production arrangements are increasingly congeries of these self-coordinating groups, where cooperation across group boundaries in solving common problems complements cooperation within groups. The firm is increasingly becoming an abstraction, a moving target of permanently shifting boundaries: Groups within it cooperate with groups

outside it, both of whom in time invariably turn to others when new problems arise (Helper, MacDuffie, Sabel, 1998).

This is not to say, however, that the firm is irrelevant or without power: On the contrary, increasingly in modern flexible production complexes, firms-- as units of strategic interest and capital-- are the creators of clusters of groups. They make flexible agglomerations. In the terms of this volume, firms, primarily large MNC firms, create flexible congeries of productive groups as a way of creating asset-augmenting dynamics in a region. We will see presently, that this can involve a fundamental change in the character of a region.

But before we go there, it is important to see that the alternative principles of flexible organization—what Sabel (1994) has called “Learning by Monitoring” -- are superior to the craft based industrial district form of industrial flexibility, on a number of counts. First, the great liability of the industrial district model, especially in its more Teutonic hierarchical incarnations, is that it incorporates an extra conversation into problem solving deliberations that is not necessary in the Learning by Monitoring group based model of flexibility: Not only do managers and workers have to figure out how to solve the problems in production and in the product that they confront, they also have to figure out how to come up with a solution that will preserve (reproduce) all of the roles and fixed functions of the participants in the conversation. Elegance of design and optimality in solutions are sacrificed for the internal politics of the craft production world. Quality and

rapid product change give way to plodding overengineering. The alternative group based flexible production principles present no such constraints (Herrigel, 1997).

A further decisive difference between the two forms of flexibility is in the relative transferability of the two models. Transferability in the case of industrial districts is relatively low: As most of the literature on these systems shows, the accumulation of skill, collaborative practices, institutional supports and trust among actors that makes the flexible system work as it does seems to be the result of a very long historical and regionally specific process of conflict and struggle for survival during the process of industrialization. It is difficult to imitate the craft based flexibility of industrial districts because the systems seem to depend for their survival so significantly on the intangible shared forms of knowledge that makes for a common socio-economic culture (Storper, 1998, Storper & Salais, 1998). Introducing a German style dual training system into a region, for example, without also creating an array of supporting institutions for workers and firms as well as a specific set of competition policy rules and associational governance practices is not likely to create manufacturing flexibility in the region.

Transferring the whole complex system is not only unrealistic, but it is also not likely to work unless those working within the system understand the tacit ways that action in the system is self-limited-- as most Germans somehow actually do.

The alternative form of flexibility apparently does not have this kind of embedded limit on its transferability--at least if one judges by the degree to which the alternative form of

flexibility has spread across the industrial economies of the world in the last ten years. Flexible systems of group based collaboration and self-monitoring learning processes have been created in a broad array of cultural and regional contexts: the American midwest, Mexico, Taiwan, Hungary, Poland, Spain, the Czech Republic, Ireland, Scotland--the list is very long (Kaplinsky, 1994, Humphrey, 1995, Boyer et al 1998, Tony Elger and Chris Smith 1994, Thomas A. Kochan, Russell D. Lansbury, and John Paul Macduffie 1997, Jeffrey Liker, Mark Fruin, and Paul Adler, 1999, Haipeter, 1999). This system seems to be more transferable than the industrial district craft system because it does not rely on trust or common culture or other forms of intangibles or tacit knowledge's for its operation. Indeed, according to Charles Sabel, a central feature of the learning by monitoring system is that by constantly bringing people and groups together into monitoring discussions, they are forced to make explicit the tacit dimensions of their more local interactions. When something works in a team, the members have to be able to explain why to others outside the team. Goals for groups of teams are formulated through common monitoring discussions regarding how and why previous decisions and strategies succeeded or not and how collective endeavors can be made even better (Sabel, 1994, Dorf & Sabel, 1998).

This form of interaction does not presuppose a common heritage and history or even extensive sets of extra firm supporting institutions. Rather it requires a conger of non-hierarchically organized multifunctional groups staffed by human beings with a capacity to learn and an openness to change. There is no specific, delimited range of skill or

technical know-how that is required for this alternative system of learning by monitoring to work. What are required is that people have the capacity to participate in collaborative team environments and that those teams develop the capacity to solve problems. This turns out to be a pretty plentiful raw material and is compatible with a very broad array of substantially disparate institutional, cultural and market arrangements and practices (Enright, 1998). The diffusion of these practices does not involve and should not be confused with organizational or institutional or cultural or any other kind of convergence: Producers and regions are not embracing particular organizational forms; they are adopting common sets of principles that by their nature involve organizational variety and which are compatible with a broad array of local circumstances. Those who embrace new principles never do so from within unitary, un-reformable systems. They selectively adapt the new principles to the possibilities of their own situation (Zeitlin 1999).

### **3. De-Regionalization and Re-Regionalization of Production Led by Large Firms.**

The irony in this observation about the relative transferability of alternative forms of flexibility is that in many cases, world wide, where the group based learning by monitoring system has flourished, it has been created by large, frequently multinational firms. Over the last decade, large firms in major manufacturing sectors such as automobiles, electronics, machinery, along with their major suppliers, *as sectoral communities*, decided to restructure their internal organizations and their mutual interactions along group based learning by monitoring lines in order to enhance their



manufacturing flexibility and maintain their competitiveness. A crucial aspect of this movement toward the new principles has been the creation of regional agglomerations or clusters of similarly oriented, learning by monitoring oriented firms. For the large firm and the broader sectoral community, in the terms of this volume, the process involved the creation of regionally concentrated asset augmenting practices.

Crucially, this movement toward the creation of a particular form of regional industrial practices has nearly always involved the destruction of old regional realities, both within and among local firms. The American automobile makers Chrysler and Ford, for example, revamped much of their product development and production organization during the late 1980s and 1990s, introducing multifunctional teams at various levels of their organizations, constructing collaborative development and production relations among them with significant injunctions for continuous self monitoring and insisted that their suppliers do the same. If the suppliers resisted, they were cut out of the system. If they agreed to participate, they were incorporated into the self-monitoring collaboration of teams' at all relevant levels of the auto producer. (Helper 1989, 1993) Loyalty in this process was not important to those trying to construct the new alternative form of flexible production; the capacity to cooperate and solve problems was. If old trusted suppliers could not adjust, new supplier firms who could demonstrate their problems solving capacity were employed. This shift on the part of large producers has transformed major manufacturing regions across the globe, in both the developed and the developing world.

This process of destroying the old and constructing the new involves both processes of de-regionalization and re-regionalization. The de-regionalization comes with the decision by the large producer and its major suppliers to abandon the old way in which they engaged in production and by extension were embedded in the region. All ties are cut in the sense that all are put under pressure to shift to the alternative system. The instigators are not under obligation to take any relations that they had under the old system into the new system, and in any case only those who are willing to produce in the new way, old friend or new, will be incorporated into the collaborative design and production process. The old production system and the old regional division of labor between producers and suppliers are in this way (and in a manner of speaking) killed and a new system with a new, and perhaps even more dense and extensive regional division of labor is put in its place. If anyone has followed the history of automobile regions in the US or France or Germany over the last ten years, it should be plain that this process of de-regionalization and re-regionalization is a very traumatic and brutal process.

But the success of these efforts to move toward collaborative, team based flexibility cannot be denied. And, that it does not depend on a pre-existing tradition of flexibility or craft knowledge or skill is proven by the fact that some of the most successful cases are regions in which there had long been a tradition of rigid mass production (the American midwest, Czech Republic, Hungary), or regions in which there had been relatively little industrialization at all (Ireland, Scotland, Austin Texas, Singapore) (Wittke & Kurz, 1998,

Sabel, 1996, Wong, 1997, Hall 1997). The role of the sectoral communities around large firms in accomplishing this de-regionalization/re-regionalization is also most clear in those regions, such as Hungary and the Czech Republic, where the new flexible system was imported by multinationals. In Hungary and the Czech Republic, German and American automobile producers, along with their core new style suppliers, went in, closed down most of the existing automobile capacity in each place and next to the old factories and with only those of the old workers that were needed and who could demonstrate a willingness to work in the new way, constructed new production facilities and in the end a collaborative team based learning by monitoring automobile production cluster. Automobile production is very regionally clustered and collaborative. But it has very little to do with the traditional structures and practices that previously organized automobile production in the region. (Wittke & Kurz, 1998, van Tulder & Ruigrok, 1998, Mickler, et. Al, 1996)<sup>1</sup>

#### **4. Whither Industrial Districts?**

This scenario of the emergence and diffusion of the alternative mode of industrial flexibility raises significant questions for the long term viability of industrial districts-- or at least for those, such as Baden Württemberg in Germany, which have extensive

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<sup>1</sup> Its important to at least point out that this crass abandonment of the old practices is not the case generally in Eastern Europe. It is simply, at least according to the cases that I have read, true of automobile restructuring driven by western multinationals. For the continued salience of the old in the new in sectors no assaulted by MNC's see the great book by David Stark and Llazlo Bruszt, Post Socialist Pathways, ( 1998)

integration with multinational actors who are actively engaged in trying to adopt the new principles of flexible practice. Before I enumerate what my concerns are and why I have them, I want to first indicate at least one way in which I think that many European industrial districts may not be directly affected by these developments.

There is no reason to think that there will be any movement away from the traditional craft production based forms of flexibility that characterizes industrial production in industrial districts if firms in the districts compete in markets in which the alternative form of flexibility is not present. That is, if firms in districts operate in niches that they dominate and experience very little challenge to this domination, then they are not likely to feel pressure to change from the alternative mode of flexibility. For example, it is very unlikely that certain kinds of circular knitting machinery producers in southwest Germany, who together control 98% of the world market for the product, will be pressured to change any time in the near future. Likewise, many of the highly specialized Italian districts making designer plastics and textiles or specialty machinery, in similarly insulated niches, likely will be spared pressure to confront the alternative mode of flexibility. David Finegold and Karin Wagner (1999) have done a very extensive study of the pump sector in southwest Germany and have found, for example, that the kind of pressures facing these on the whole fairly insulated producers have not resulted in significant departures from the craft system of flexibility.

There is, however, a relatively short list of lines of businesses that are insulated from modern trends in the nature of global competition in this way. Indeed, in an industrial district such as Baden Württemberg, insulation from the pressures of the global economy is very far from the case. There are very large automobile and electronics producers located in the region who have felt the competitive pressures and the ideological furor of their major colleagues and competitors in their respective global sectoral communities. Such producers have become acutely aware of the advantages of the new forms of flexibility and of the disadvantages of their own traditional craft production forms of flexibility: Loss of market share to the Japanese and other global competitors using the alternative production methods, declining profits, bad productivity numbers and declining quality as managers pressure the craft system to change models and technologies faster than it is capable of changing, have underscored the superiority of the alternative system. Similarly, machine tool producers in Baden Württemberg have been pressured to change by the growing competitiveness of American machine tool producers on world markets and the continuing excellence of Japanese producers--both of whom deploy the alternative system (Herrigel, 1999, Griffin, 1997). Most of the producers in the industrial district known as Baden Württemberg have had an extremely hard time of it on the world market during the 1990s and have been under enormous pressure to make themselves more competitive. That has given rise to very serious regional debates about the viability and desirability of the alternative flexible team based production arrangements in the local economy (Herrigel, 1997, Cooke 1997, Cooke & Morgan 1998 Heidenreich & Krauss, 1998).

From my point of view, it is very easy to see how movement toward the alternative form of flexibility will be bad for the local industrial district in Baden Württemberg. The key reason for my pessimism is that I don't see how the de-regionalization process will be followed by a re-regionalization process inside the old regional boundaries of Baden Württemberg, or if it will, that this will involve many of the older and numerous producers that characterized small and medium sized firm production in the old industrial district. As noted above, albeit figuratively, the de-regionalization that has accompanied efforts on the part of large producers in other regions to adopt the alternative form of flexibility has involved killing the old regional system: Removing the firm from traditional ties, submitting all of those ties to rigorous re-evaluation, rejecting all claims to loyalty, hiring strangers able to demonstrate their ability to work in a team based learning by monitoring system.

Daimler Benz, Audi, Robert Bosch, IBM, Hewlett Packard, SONY—all large MNC's based in Baden Württemberg—have in fact begun engaging in this process of killing off the old regional division of labor that they were embedded in. This has involved a sharp winnowing of the number of suppliers that firms engage with not simply in general, but also within the region itself. Collaborative production in autos or electronics blurs the boundaries between firms, but it also involves significantly fewer firm boundaries: Multiple sourcing has been replaced with long term contracting with smaller numbers of intimate firms. These firms can be local firms, *but they need not be*: Consistent with the

general process of de-regionalization, the large firms have shown a willingness to invite in foreign expert collaborative suppliers, such as the Canadian firm Magna, to set up Greenfield operations in the region. Such firms already know how to produce in the alternative way and are experts at setting up the alternative system of continuous problem solving that the producers' desire. More ominously for the region, expert collaborator firms can be accessed from their locations elsewhere in Germany and even elsewhere in Europe (including Eastern Europe) without requiring relocation into the old industrial district. Re-regionalization occurs, but it does not have to occur within the old geographic boundaries of the traditional district.

This process of de-regionalization and re-regionalization is in the end good for the long-term health of the sectoral communities that initiate them.<sup>2</sup> And it is not horrible for many firms and workers in the old region who are able to survive the killing that goes on in the transition from old to new. But it is indisputably bad for many firms and workers who become victims of the de-regionalization process. It is not at all clear what will happen to those regional actors (and there are many many of them in the automobile and electronics branches in Baden Württemberg). Not many will be able to turn to the production of circular knitting machines or pumps.

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<sup>2</sup> And thus could account for the discrepancy between the pessimistic tone of my argument compared to the relatively optimistic perspective represented by Cooke & Morgan in their excellent Associational Economy (1998). In their view, the problems in B-W are essentially cyclical and health will return with the return of better economic times. I have no argument with this, though my claim is that the recovery

One major hope is realistic, but it carries with it a very serious probability that the standard of living in the region will decline. The hope is that the firms who are shut out of the re-regionalization process initiated by the sectoral community of large producers, will be able to learn from their mistakes, move in the direction of the new problem solving forms of production and solicit work from producers elsewhere in Europe. Like the auto workers and managers in Hungary and Czech Republic before multinational investment, those in Baden Württemberg left behind by the re-regionalization process initiated by Daimler Benz and Robert Bosch could be attractive raw material for other multinationals in other sectoral communities looking to set up flexible clusters of collaborative production. They can learn too. This is absolutely true. But in order to compete for that kind of asset augmenting investment, producers in Baden Württemberg will have to be willing to offer their capacity to learn at the level of wages that their colleagues in Hungary and the Czech republic currently receive. And this is not attractive.

## **5. What Can Regional Governments Do?**

The process described above is an emergent one and it involves considerable complexity for policy makers. On the one hand, plainly policy makers in regional governments want to do everything they can to assist large producers and their sectoral communities reconstitute themselves on a competitive basis within their regions. Successful re-

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(when it comes) will be on the basis of a very different small and medium sized firm industrial structure than has traditionally dominated the region.



regionalization carries with it inward investment, high quality jobs and significant secondary and tertiary development effects. I am not suggesting, and there is certainly no local evidence in Baden Württemberg, to the effect that regional policy makers should attempt to block the de-regionalization/re-regionalization dynamic described above. Indeed, policy makers in Baden Württemberg are doing all they can to encourage the success of this dynamic by accommodating the large land intensive and Greenfield construction projects of Daimler Benz and others large MNC's in the region which seek to create a new spatial location for the newer production practices. There is in any case much about the current infrastructure of the region that is attractive to high quality manufactures: The many universities and research institutes (in particular the Fraunhofer Institute) are extremely valuable resources for producers, as are the more practical production oriented and vocational institutions in the region which provide services to those on the shop floor. These traditional objects of regional industrial strategy retain their value to producers within the new production systems. The problem is that they do not address the difficulties of those cut out of the new system.

These difficulties are of two kinds, only one of which, in my view, can be addressed at the regional level and even then with considerable difficulty. The first difficulty those cut out of the new system experience is that they have to learn how to produce according to the new principles of flexible production (or find a niche in which their strengths in the craft system continue to have value). Regional policy in Baden Württemberg can be helpful here by encouraging the institutional agents who have continuous contact with

producers—such as agents of the para-public Steinbeiss Stiftung and the various community colleges (Fachhochschulen)—to provide their clients with necessary information and knowledge of the principles as they are being implemented by other producers elsewhere in the region. This was a classic mechanism for the transfer of knowledge and know how in the old craft production based system. But in order for it to function properly in the new context reforms have to be introduced into the service institutions. Most particularly, within the educational institutions, specialized divisions of knowledge tend to reflect the pillarized structure of the old craft system. In order for educational institutions to play a role in the diffusion of knowledge about group work and cross functionality, specialists in the universities need to recognize the rigidity of their own institutional identities. Regional educational policy can instigate this kind of change in the core supporting institutions around the economy (Herrigel, 1997). Trade associations in Baden Württemberg—but also throughout the German economy—have been encouraging regional governments and educational institutions in this direction. They have also been lobbying hard for regional and federal subsidy for firms to receive ISO 9000 certification—a crucial, if perhaps superficial, indicator of familiarity with the new principles of production organization. (Alig, 2000, Hancke & Casper, 1996).

Such are the kind of local policies that regions and regional actors in Baden Württemberg can and have been following in an effort to cultivate the capacity of local producers to participate in the re-regionalization process being initiated by large firms. None of these policies, however, address the second difficulty that the dynamic of de-regionalization

and re-regionalization of production as described above poses to the region: Local producers excluded from the new production networks established by local multinationals will be forced to look elsewhere in Europe to sell their production capacity, and in so doing will have to do so at a level of wages that are being established, at least for now, by the low wage, high quality flexible producers in Central Europe. Here regional actors are inadequate by themselves to address regional problems. National and even European Union level actors will have to address problems of regional de-regionalization or lowering of living standards as a result of investment and wage patterns elsewhere in the community. To date this problem of uneven wage levels and MNC cross border production has been posed more or less exclusively as a trade union and social issue that exists within globalizing multinationals (Simons & Westerman, 1997, Haipeter, 1999). But this example suggests that many workers within small and medium sized specialists in [formerly] high wage areas could be affected. Whether or not the social actors in Europe will have the capacity to act concertedly on this matter is a notoriously open question. The example of the consequences of the adoption of new principles of flexible production in the industrial district of Baden Württemberg, however, suggests that social actors could conceivably find allies in unexpected quarters of sub-national government.

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