

Large Firms and Regions: New Forms of Commitment*

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With the rise of more intensive international competition among developed global regions in the last twenty years, the relationship between large firms and sub national regions has been undergoing tremendous change. Both the internal structure of large producers and the outward commitments that they make toward the regions in which their production facilities are located have been thoroughly transformed. Increasingly, hierarchical networks of "tiered" suppliers, capable of delivering complex parts and modules, and embedded in a variety of different institutional support contexts have emerged.

Many initial observers feared that the outward features of the new global competition --freer capital movement, increasing FDI in preference to trade, neo-liberal hostility to strong labor--would result in a purely cost driven race to the bottom in which "footloose" capital targeted cooperative regions and punished those unable or unwilling to make concessions on cost. As time has passed, however, the reality of large firm-region relations has turned out to be much more complicated than initial economic intuitions led one to suspect. Though the transition has been (and continues to be in many places) a turbulent and unpredictable one, cost has been only one of a number of considerations for large producers in weighing their relations with regions--the quality and sophistication of the supplier base in production and product quality, innovation and production flexibility have also proven to be very central concerns. In this context, the process of change has in many cases given rise to very innovative new policy arrangements (from both firms and governments) that seem to deepen and strengthen large firm commitments to regions, rather than weaken them. Certainly this is not the only outcome that one can observe in industrial regions in the advanced industrial world--there are many regions in which large firms play only a peripheral role and there are also many maquiladora and contract manufacturing zones in which cost does seem to be a decisive calculation. But the style of industrial region in the advanced industrial "Triad" regions in which large firms have become more committed rather than less seems to be an enormously widespread phenomenon at the present time.¹

This chapter proceeds in three steps. The first section will outline the central elements of the transformation that has been taking place in industrial production over the past 20 years. The next section will then discuss the role that large firms have played in this transformation and the impact that the transformation has had on them and on their commitments to regions. The point will be made that large multinational firms have been both instigators and victims of the transformation process. This double identity has in a wide array of cases led to the broad adoption of highly flexible multifunctional team organization in production, the emergence of hierarchical network supply structures and to greater commitments to the regions in which the network supply structures are located. Finally, the paper will turn to the way in which regions that host the process of transformation in industry both experience it and have sought to influence the process. The point there will be that, like firms, regional governments are being forced increasingly into cooperative/collaborative strategies for the delivery of institutional support in the economy. On the one hand, collaboration with firms in the design and delivery of

¹ For a good survey of variety of large firm small firm relations as well as organizational and network structures in European industrial regions, see the forthcoming book by Colin Crouch, Patrick Le Gales, Carlo Trigilia, Helmut Voelzkow, *Local Production Systems in Europe: Rise or Demise?*, (Oxford : Oxford University Press, 2001-forthcoming). This essay will deal with only one of the variety of types discussed in that book--the networked region. In so doing, I by no means mean to imply that there is little or no variety in industrial regions in Europe. I simply want to concentrate on one very prominent type where large firms are very central players in regions.

policy is increasing, while on the other hand collaboration among governmental entities at various levels is also becoming inescapable.

I.: Transformation of Production in the last 20 years: Overcoming the opposition between quality and cost through the reintegration of conception and execution

International competition in manufactures and services has been radically transformed in the last twenty years. The long post war years in which exchanges between global industrial regions involved areas of significantly different levels of economic development and technological sophistication --the US on top, followed by Europe and then Japan-- are gone (at least among the so-called "Triad" regions). So too are the long and stable product cycles and firm-controlled technological trajectories that characterized that era. Now the advanced industrial regions of the globe are all comparably developed economically and sophisticated technologically. Companies and industries in one region are more or less equal competitors with those in other regions. Producers of automobiles, machinery, electronics, telecommunications, steel, pharmaceuticals, high tech products of all kinds —etc-- in each of the regions compete with producers from each of the other regions. Technological leadership changes hands frequently and the pressure of this global competition, in turn, pushes technological change across a wide array of sectors. Further, in the face of this kind of competitive pressure firms have created even more market instability by accelerating the introduction of new products to gain short term advantage. This dynamic of global competition, accelerated technological change, and shortening product cycles has created an environment that is fraught with risk and uncertainty for individual firms, both large and small.

These changes in the competitive environment have, in turn, led to tremendous changes in the way in which firms organize production. In order to achieve greater flexibility and to enhance their capacity to absorb and develop new technology, firms have begun to reform their organizational structures in ways that integrate conceptual and development processes with implementation and production ones. The idea is to eliminate bureaucratic hierarchy and sectional division within firms so that there is simpler and more direct communication and feedback among roles while at the same time eliminating unnecessary redundancy, empty procedure and cost. The preferred organizational form for this, speaking ideal typically, has become the multifunctional team which incorporates some combination of (or all) development, finance, production and purchasing roles. Using these new internal organizational forms, firms have sought to expedite the time that a product takes to move from the design phase to the production phase and to allow for more rapid and continuous change in what is produced.²

These internal efforts at simplifying structure while increasing the integration of conception and execution have been accompanied, for the same environmental reasons, by efforts to radically reduce the level of vertical integration within firms. Increasingly, firms are confining themselves in production to “core competencies” —i.e. areas in which they have commanding technical or production expertise—and rely on outside suppliers for parts and technologies that

² This is an ideal typical description. In practice there is wide variation away from the type, with firms deploying a dizzying variety of mixtures of the elements of new production concepts. For good discussion both of the extent of diffusion and of the variety in which such diffusion occurs, for the US, see Paul Osterman, *Securing Prosperity*, (Princeton: Princeton University Press, 1998) and Eileen Applebaum, Thomas Bailey, Peter Berg and Arne Kalleberg, *Manufacturing Advantage: Why High Performance Work Systems Pay Off*, (Ithaca: Cornell University Press, 2000). For Germany, see Michael Schumann, et. Al., *Trendreport Rationalisierung*, (Berlin: Sigma)

the firm cannot afford to either produce or develop itself. Moreover, though they outsource much of the product that they assemble, firms do not deal with suppliers as anonymous and easily replaceable market actors. Rather, because flexibility and product and production quality is so important in the competitive market, purchasing (OEM) firms increasingly seek to maintain longer term, close and collaborative ties with their suppliers. Significantly, in order to ensure a robust collaboration where information about product and production flows rapidly and in all directions, large firms insist that their suppliers adopt organizational forms in production—above all teams and other cross functional arrangements—that mimic the ones that the large firm itself uses. This facilitates collaboration by blurring the boundaries between the OEM and the supplier and helps to ensure production quality because all are using similar benchmarks and in most cases norm standards.

Large firms prove to reap great benefits from this internal recomposition and external realignment of their suppliers organizations. As suppliers are drawn into the development process, their teams are incorporated into the flow of production and jointly governed monitoring organizations are created that make it possible to optimize and rapidly restructure the decentralized flow of production. All of this enhances the flow of information about the product and the market in the aggregate among the participants without making it necessary for any single participating firm to bear all of the costs of production. The flow of market and technological information is expanded by seeking out suppliers who work for other OEMs. The new production relations do not want to close any circles; openness to expertise from elsewhere is a key to its success.

This alternative decentralized arrangement in production is typically very collaborative, and open, yet at another level it is also very hierarchical. Large OEM firms do not engage in horizontal and fully open and collaborative relations with all of the suppliers that manufacture parts that go into the final product. Rather, OEMs tend to organize collaborative and long standing relations with a small circle of suppliers--so called "first tier" suppliers--with whom collaboration is most intense. These suppliers increasingly deliver complex "modules" to the end user--combinations of parts and subassemblies that they have in part manufactured themselves and in part have drawn from other suppliers in the supply chain-- i.e., from second and third tier suppliers. As we will see in the next section, the capacity of these for the most part small and medium sized supply firms to produce with quality and flexibility is a matter of growing significance in industrial regions.

Evidence of extensive decentralization of production is great. The number of subcontractors employed by OEM firms is declining significantly, while the quality and sophistication of the products the remaining suppliers produce is increasing. Developments in the European Automobile industry bears this out very clearly. The percentage of total purchases by OEMs in the form of modules from first tier suppliers (an indicator of increasing supplier sophistication) is increasing dramatically. In 1993 modules suppliers accounted for 22% of total European purchases. In the year 2000, module suppliers accounted for 43%. Number of direct first tier suppliers to large OEM firms in the industry is significantly declining. Mercedes reduced the number of suppliers it deals with from 2500 in 1990 to 500 in 2000. Fiat's first tier suppliers fell from 720 to 410 in the same time period. BMW 's similar numbers went 1100 to 450 and the number of Ford Europe's direct suppliers fell 1700 to 600 during the same period.³

³ All of these numbers are taken from Bianchi and Enrietti, " THE DYNAMICS OF INNOVATION IN THE AUTOMOTIVE TECHNOLOGY DISTRICT OF PIEDMONT"

The crucial thing to appreciate about these arrangements is that they are new. They draw on and in part resemble older forms of flexible production—in particular craft production—but in the end they depart quite significantly from older forms. Craft production classically sought to achieve the reintegration between production, development and design within the firm through a strong reliance on highly skilled, but also very specialized, skilled labor and trusting hierarchical relations with management and engineering on the shop floor. Because of the existence of these specialties and the cumbersome internal bargaining about change that it entailed, traditional craft production (classically among German machinery producers) involved a clear trade off between the quality and cost of the product--the better the former, the higher the latter.

By contrast, the new arrangements seek to overcome the opposition between quality and cost by attacking the strong roles that specialized skill categories create on the shop floor and the hierarchical division between shop floor and higher management and engineering that the craft model retains. By reducing functional divisions and specialized roles, discussions of product design and production reorganization can occur without delay or efforts at obstruction by entrenched interests. Speed and simplicity, combined with decentralization and concentration on core competencies make high quality production more capable of rapid change, more efficient and less costly. The institutionalization of continuous participatory monitoring of the process by its participants, moreover, builds reflexivity into the process and thus encourages continuous improvement and legitimizes continuous change among those affected.⁴ Evidence from many quarters seems to indicate that the new model of flexibility is much more successful at lowering cost while maintaining or even enhancing both production quality and flexibility.⁵

One has to be careful in describing general trends that the impression is not created that everything is diffusing everywhere in the same way and at the same pace. Naturally this is far from the case. First of all, not all regions are affected by large firm recomposition. But even in those that are, there is a tremendous amount of variety in the degree to which actors are affected by the above outlined environmental changes. There is also variation according to the degree to which firms and regions have been able to implement alternative principles of flexible organization. And finally, the alternative principles of flexible organization themselves allow for tremendous variety in implementation. There is simply not a single best way to integrate conception and execution, enhance flexibility in production and maintain low costs in production in the world economy today. There is a wide variety of successful examples in the highly developed industrial regions of the global economy.

II: Deregionalization and Re-regionalization: Large firms as both Victims and Drivers of Change.

As the above ideal typical discussion suggests, large, often multinational, firms have been both the central victims and the principle drivers of these changes in the way that production is organized. By victims, I mean that they have been forced to implement tremendous changes in their own factories, which has been an enormously painful process in many cases. Firms have had to crush old hierarchies and recompose organizational contours within production (at levels

⁴ Charles Sabel, "Learning by Monitoring" in Richard Swedberg and Neil Smelser, eds., The Handbook of Economic Sociology (Princeton: Princeton University Press, 1996),

⁵ Gary Herrigel and Charles F. Sabel, "Craft Production in Crisis: Industrial Restructuring in Germany during the 1990s" in Pepper D. Culpepper and David Finegold, eds., The German Skills Machine, (New York: Berghahn Books, 1999)

of firm governance as well as production integration) in order to stay competitive. Many large firms have shut down entire workshops and parts of plants as they turn to outsiders to supply what was formerly produced in house. In other cases, formerly captive parts divisions have been spun off as independent entities (e.g. GM's Delco division). Remaining in house divisions between design and production have been redefined to facilitate closer and more continuous cooperation. Multifunctional teams get formed linking the shop floor of plants with other parts of the firm. These alternative internal governance structures come at the cost of the destruction of older ones, ending thousands of careers for those managers and workers not fortunate enough to be included in the new arrangements.

Large firms have not only been the targets of change however. They have also been significant drivers of change, particularly regarding relations with their suppliers and, by extension, with the regions in which their production operations are located. While attempting to transform their own production arrangements, large producers have set in motion a dynamic process of de-regionalization and re-regionalization in production. In the end this is a highly paradoxical process: De-regionalization calls off all prior commitments that the large firm has in a region. Re-regionalization deepens a large firm's commitment, on different terms, to a region.⁶

By de-regionalization I mean that large firms break off, end, or insist on dramatically changing their standing traditional ties to the regions in which their production facilities are located--they effectively, if figuratively, remove themselves from the social and economic relations that constituted the old regional economy. This occurs because the internal changes in their own production arrangements make it difficult for large firms to deal with outside suppliers in traditional ways any longer. Both arms length pure market ties and long standing ties with specialized and high quality craft producers are abandoned. In place of these traditional ways of dealing with local outsiders, large firms insist that their external suppliers make the changes that the OEMs themselves have and align their own operations with those of the OEM in order to ensure high quality, low cost and highly flexible production. This move can be very difficult for smaller and medium sized suppliers to undertake--it requires significant internal reorganization that can be fraught with conflict and job loss.

Moreover, in most cases, OEM's not only demand differently organized suppliers, they also demand a smaller number of them. And there is no guarantee that those re-engaged by the OEM will be drawn from the same local pool that had previously supplied them. The key for newly self constituting OEM's is that their suppliers know how to participate in the new style collaborative and team based modes of production and that they can contribute technologically to the collaboration within very clearly delimited cost parameters. OEM Firms are just as inclined, therefore, to lure to the local region outside firms with extensive experience in new style production organizations and with ties to other OEMs as they are to engage local old timers who are struggling to change. Local firms not up to speed can be shut out very rapidly, or wind up placed quite far down and removed from the OEM in a developing system of supply tiers. This process of adjustment can be very traumatic for a region. The process unavoidably produces losers.

By the same token, however, the OEM's are very infrequently seeking to utterly abandon the region in which their production facilities have traditionally been located. They have too many

⁶ Gary Herrigel, "Large Firms and Industrial Districts in Europe: Deregionalization, Re-regionalization and the Transformation of Manufacturing Flexibility" in John Dunning, ed., Regions, Globalization and the Knowledge-Based Economy, (Oxford: Oxford University Press, 2000)

sunk investments there in the form of R&D capacity, plant and human capital. Large firms don't want to leave their region, they are simply being driven to radically redefine their relationship with it. The new productive relationships that emerge effectively re-regionalize production in ways that enhance the commitment of firms to the quality and prosperity of producers in a region. Re-regionalization involves the insistence by large producers that new suppliers adopt the new style production methods described above (group based production, high quality, low cost, flexible decentralized but collaborative subcontracting), so that the large firms themselves can re-commit to production in the region. This general re-regionalization trend has tended to come in one of three variants.

The first is the so-called "Lopez Strategy", and is the furthest from the ideal typical model presented above. It is named in reference to the notorious GM/OPEL and Volkswagen purchasing manager from the early 1990s who pushed suppliers very aggressively and unforgivingly to produce at levels of cost that the large firm desired. This strategy relied very strongly on the market to select appropriate suppliers and used the threat of immediate release and deprivation as a goad to suppliers to comply with the large firm demands. This was a minimally collaborative and utterly non-nurturing strategy: "Do it our way, or else. We do not care how you do it; just do it." This was an important strategy during the early and middle 1990s, but by most accounts it seems to have given way to less severe forms of OEM-supplier engagement. The reason?: An overly obsessive concentration on cost led to the neglect and underdevelopment of techniques that would be able to enhance supplier production quality, innovative capability and flexibility⁷

The second strategy has the look of a private regional industrial policy in the sense that it is largely initiated by large firms who then work in collaboration with regional governments and secondary associations to cultivate the kind of networks of local subcontractors that firms need. There are many examples over the last decade of very large firms making significant "public" (in the sense of extra-firm) investments and developing elaborate regional schemes to help local suppliers participate in new style production arrangements. The goal has been to help suppliers develop the skills (both human and organizational) needed to participate in low cost, high quality, flexible and collaborative production relations. Most of these efforts initially targeted larger first tier suppliers, but increasingly second and third tier suppliers have been targeted as well. Awareness is growing that with the decentralization of production networks the quality of the end product depends increasingly on producers at the lower levels of the production chain.

Perhaps the best example of large producers engaging in private industrial policy occurred in France. There, initially, large firms had hoped that the central state would be able to construct an industrial policy that would improve access to training and to new technologies among small and medium sized supplier firms in the regions surrounding larger manufacturing plants. According to Hancke, this centralized public effort soon ran aground (largely because of the absence of significant regional institutions in France), but the need for sophisticated suppliers in the Automobile industry became increasingly acute. Stepping into the breach, Peugeot in particular began to direct its own resources (and use its influence in the central government to have its resources directed) to the improvement of regional technology institutes and training facilities in the areas around its main plants. The goal was to improve skill levels in general, to diffuse knowledge of new style production techniques to its suppliers and, ultimately, to strengthen the independent technological development capacity of small and medium sized firms.

⁷ see, for example, Dorothy Ostle, "VW dumps Lopez system" Automotive News, Detroit, Dec 6, 1999

Peugeot no longer wanted to carry the extensive array of development tasks that it had in the past and was eager to transfer much of this to competent suppliers. To do so successfully, it needed to engage in a regional industrial policy to strengthen its supplier base. Hancke's evidence shows that by the end of the 1990's this strategy had been very successful for Peugeot and for French regions.⁸

Another example of a large firm effort to transform its regional supplier base, though in this case from the beginning the firm worked cooperatively with regional authorities, is in Piedmont, Italy. In Piedmont, Fiat has traditionally been the dominant producer in the region. In the beginning of the 1990s, the firm began to embark on an internal and external reorganization campaign that dramatically altered its relations with regional suppliers. The firm wanted to cultivate those firms that had some degree of development or innovation capacity and upgrade the level of supplier firm capacity in general in the region. Paradoxically, the first move that it made was to identify its most sophisticated suppliers, those with clear track records of innovation and technological sophistication, and then encourage those firms to cultivate clients outside of Piedmont and away from Fiat. This move was intended to destroy the old monopsonistic culture that had previously characterized Fiat's relations with its suppliers and create greater openness and access to ideas and technologies for the Fiat production network in general.⁹

Next, Fiat sought to improve the competitiveness of its suppliers by transferring research results out of the firm's own research center, Fiat Research Center (FRC). Bianchi and Enrietti write that "in 1992, FRC set up a new department called External Diffusion of Innovation (EDI), whose task [was] to identify sectors [and].. to spread "in-house" innovations [out of house]. This department also has to develop new products based on the technology and skills which are already available." Finally, Enrietti and Bianchi also indicate that Fiat worked very closely with the Chamber of Commerce in Piedmont and with several local Polytechnics to assist smaller suppliers in gaining access to the needed expertise and know how required to participate in production at the level that Fiat desired.¹⁰

There are also examples of large producers, regional governments and local secondary associations collaborating in the development of regional training and technology diffusion policies to upgrade the quality of second and third tier suppliers. The two best known examples are the Wisconsin Supplier Training Partnership, involving John Deere, Case, Harley Davidson and other OEM's in the United States, and the CONSAF consortium, again in Piedmont, that brings together Fiat Auto, Iveco, New Holland, Zannussi and their first tier suppliers. Both of these consortia seek to use the know how of OEM firms and their top suppliers to encourage the development and improve the production quality standards of subsidiary suppliers. This involves direct tutoring of sub-suppliers in the methods of high quality, flexible, low cost production techniques as well as co-ordinating the flow of public monies for education and technology transfer in the direction of those firms. In the Wisconsin case, large OEM firms collaborate with regional subsidiaries of federal technology and training agencies—Manufacturing Extension Partnership Agencies (MEPs) which are devoted to helping small business, and community

⁸ Bob Hancke, (1997), *Modernization without Flexible Specialization: How Large Firm Restructuring and Government Regional Policies Became the Step Parents of Autarchical Regional Production Systems in France*. WZB, Discussion Paper, FS I 97 304. Berlin Wissenschaftszentrum Berlin; Hancke, (1998) "trust of Hierarchy. Changing Relationships between Large and Small firms in France" in *Small Business Economics*, 11:3, 237-252

⁹ This story about Fiat and Piedmont comes from Ronny Bianchi and Aldo Enrietti, "THE DYNAMICS OF INNOVATION IN THE AUTOMOTIVE TECHNOLOGY DISTRICT OF PIEDMONT" November 1999, manuscript

¹⁰ *ibid.* quotation from page 13

colleges. In the Italian case, the CONSAF co-operated with existing national programs aimed at suppliers and co-ordinated the incorporation and service of the consortium members' second and third tier suppliers.¹¹

The third form of re-regionalization emerges as a collective response on the part of component suppliers, their associations and regional authorities to large firm efforts to change production and supplier relations. The best example of this supplier self mobilisation, to my knowledge, is the German *Arbeitsgemeinschaft Zuliefererindustrie* (ArGeZ). This organisation was formed in the early 1990s in response to the aggressive efforts on the part Ignacio Lopez, first at Opel and then at VW, to redefine automobile subcontracting and above all to drive down OEM costs (and subcontractor prices). The ArGeZ countered Lopez's hardline strategy on a number of levels, including making public criticisms in the media. But the group also constructed a series of minimum standards for supply contracts and developed a standardised set of terms and conditions language for contracts which it encourage all of its members to abide by. The ArGeZ and its member associations also worked to diffuse information about new production techniques and organisation. As time went by in Germany, regional governments began to lend support to ArGeZ's constituents through the construction of "Supplier Initiatives" which also sought to assist subcontractor firms in their regions, particularly those that serviced the Automobile industry, to adjust to the new demands large OEM's were placing on them. As large OEMs gradually moved away from the Lopez strategy, they also began to lend support and cooperate with these associational and regional government efforts.

The point of all of these examples is to show that concern on the part of large producers for the integrity of the regional environments in which they are active continues to be very intense. The quality and health of regional small and medium sized firm subcontractor infrastructure is central for many large OEMs' adjustment strategies and hence, firms are becoming vigorously engaged in the construction of the conditions and supports that makes the existence of such an infrastructure of firms possible. In other words, the above examples show that large firms are not weakening their commitments to regions, they are redefining them very systematically. And the outcome of that redefinition is a very strong commitment to the health of the regions in which their production facilities are located.

III.: Conclusion: Challenges for regional policy actors.

The developments described thus far reveal two significant challenges for regional governments. Both challenges push policy making entities toward great collaborative arrangements in the construction of policy and give rise to very significant blurring of the boundaries between public and private and between different levels of government.

The first challenge is that the process of re-regionalization redefines the character of economic practice in a region as much for regional governments as it does for supplier firms. Old forms of intervention and of policy that were appropriate for more the less collaborative and less recombinatory relations between suppliers and their OEM's are no longer suitable for the kinds of relations that are being established in new style hierarchical networks linking OEMs and

¹¹ On the WSTP, see Jeffrey Rickert, Jonathan Zeitlin, Darya Vassina, and Joel Rogers, *Common Problems and Collaborative Solutions: OEM-Supplier Relationships and the Wisconsin Manufacturing Partnership's Supplier Training Consortium*, Draft report produced for the Center on Wisconsin Strategy, January 2000; on the Italian project, see Massimo Follis, Dipartimento di Scienze Sociali - Università di Torino *Training actions to improve performances at the second tier of the supply chain for automotive components*

suppliers. Governments have to come up with new policies and forms of relating to a changed economy. Like the firms they serve, regional policy institutions and actors are finding that they need to work very closely with private clients to develop needed institutional supports and policies as they become necessary. The collaborative relations between large firms, secondary associations and regional industrial policy entities and polytechnics are examples of this. Firms want governments to provide services, especially for training and knowledge diffusion, and yet the firms need to closely collaborate with those public outsiders to ensure that they are adequately informed of the very latest needs in production. Much as multifunctional teams inside a large firm collaborate and meld with a those in a supplier, firms and governments increasingly produce policy as a kind of joint venture for regions.

The second challenge runs in the same direction, but it significantly complicates the trend that has been revealed by the first. That is, as governments increasingly find it necessary to engage in collaborative policy making and delivery with large producers in their territories, they are also finding in many cases that those large producers do not view the boundaries of their "region" in the same way that the regional government does. Very frequently, large manufacturing firms understand the region relevant to the construction of their new hierarchical networks of suppliers to extend significantly beyond the boundaries of the small regional government to which they pay taxes. Those firms, moreover, care for the competitive capabilities of suppliers located outside of local political boundaries as much as they do for those located inside and hence place pressure on local governments to cooperate with neighboring ones in a joint collaboration with the firm in the provision of new service. In Germany and the US, where there are relatively discreet regional governments, this can mean that Baden Württemberg and Rhineland Pfalz or Wisconsin, Iowa and Illinois cooperate with large firms in the provision of supplier education and training programs. In other places, where regional government is less well developed, city governments and national governments must collaborate. When a "region" gets constituted by a large firm in a way that crosses national boundaries, as they frequently do in Europe, national and supranational entities can become involved. Collaboration and cooperation across public and private lines is becoming increasingly inescapable in contemporary industrial policy making.