Globalization and the Future of National Systems: Exploring Patterns of Industrial Reorganization and Relocation in an Enlarged Europe

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1. National Institutions and New Options for Strategic Change

The reorganization of European industries proceeds on the basis of the pre-existing economic, social and political structures in this particular region. Even in times of an increasingly global economy, the strategies of European companies have to respond to the specifics of European industries and their production models with their virtues and weaknesses. These characteristics include sector composition and the division of labor between large, small and medium sized enterprises as well as manufacturing strategies and patterns of work organization. The shape of European production models is interrelated to the specifics of European national institutional systems following the general assumption that company strategies and practices are shaped by a set of institutional conditions in which these company activities are embedded.

As has been shown by research on "capitalist diversity," (see Berger et al. 2001) there are national or regional institutional settings defining actors and due courses of action, imprinting industries, company structures, and work-force capabilities in a peculiar manner and thereby over time putting nations or regions in specific places within the international division of labor. These institutional arrangements are characterized by a specific momentum and a tendency to persist over time, not only because of comparative advantages within the division of labor at a given time, creating positive feed-back loops, but also due to sunk costs, structural inertia and cognitive lock-ins. In a recursive model linking institutions and collective or individual action, agency, enabled and constrained by institutions, produces and reproduces the very

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institutions (Barley and Tolbert 1997; Giddens 1984; Scott 1995). For example, German emphasis on quality production, flexibility, technological excellence in manufacturing and producing highly priced products could hardly be understood without reference to institutional conditions supporting this outcome. The same holds true, to take another example, for the characteristics of Italian industrial districts.

Because institutions and/or configurations of institutions vary across nation states and regions, supporting certain strategies and practices while constraining others, this institutional perspective is about divergence: divergence on the level of production systems (or production models) as well as on the level of national systems. We assume there is not only one capitalism, but different models of capitalism. And the same is true for models of production. This neither necessarily implies having always coherent national models of capitalism with a coherent set of institutions, nor does it mean expecting only one model of production within one institutional context. The enabling and constraining effects of institutions may vary according to sectors, industries and/or organizational fields (DiMaggio and Powell 1983).

However, to lay emphasis on "path-depending" developments emerging within institutional contexts should not cause us to forget the historical contingencies that initiate a path-depending development, nor to prolong such a trajectory into the future without taking into account internal and external developments that could undermine the stability of particular institutions, and hence the integration of institutional configurations. Especially the theoretical construct of "national models," implying a coherent and stable configuration of institutions, is a particularly conditioned notion, possibly only adequate for quite exceptional historical phases within which the notion itself gained its prominence. Empirical diagnoses of path dependency are restricted to time and space; they are historical accounts. Theoretically, this has the implication of rejecting any notion of institutional "determinism", neither with respect to rule systems at a national level and their subsequent recognition and translation on sub-levels of analysis, nor in general with respect to the relationship between institutions and organizations or agency (DiMaggio 1988; Scott 1995). Institutional theory has not only to be able to explain how institutions arise and persist over time, but also how they decline, change or eventually collapse, which implies asking "how (...) changes in institutional forms and processes are related to changes in organizational forms and pro-

cesses" Scott 1995: 151). Theory has to take into account strategic action within a given institutional setting; otherwise innovation, enabled by the very institutional setting, would be unthinkable.[1] Furthermore, strategic responses of actors within a given setting may also undermine the preconditions of the institutions formerly in place. Moreover, actors or coalitions of actors may increasingly feel uncomfortable with the results of the existing rule system and may try to change the rules, modify its reach, or even replace them deliberately when faced with unfavorable and/or non-intended consequences of the previous arrangement and/or with new options coming up outside the given institutional realm. Without giving agency due recognition we could neither explain how institutions came into being nor how institutions change over time.

Globalization: Facilitating cross-national access to corporate strategies and practices

In this perspective, globalization can be interpreted as opening the "space" for strategic action of corporate actors. Globalization, besides other aspects and meanings of the equivocal term, provides companies with new, extended options for industrial restructuring.[2] This refers, as we claim, to the fragmentation of value chains on the one hand and to relocation of industrial activities on the other hand. As the process of fragmenting value chains is driven by strategies to outsource activities to suppliers, these strategies by the same token break up firm boundaries as a traditional limitation for strategic action and widen the range of feasible strategies. By making use of outsourcing, companies can access strategies and practices that have been initially spurred by actors outside their organizational context, particularly by suppliers. This opening-up character of outsourcing strategies holds true in

1 With respect to multinational/transnational corporations as strategic actors see Lane (2001: 71).

2 To emphasize new opportunities for companies emerging from globalization does not mean overlooking challenges or threats from increasing competitive pressures arising from an easier market access of competitors or new players with regard to home and other traditional markets. Using new opportunities may be a strategic answer to these challenges or threats.

particular in cases in which suppliers are foreign rather than indigenous companies and are therefore not entrenched in the same institutional context as the final producer. New options to relocate manufacturing or other activities abroad extend the strategic scope of European companies as far as the institutional conditions at the foreign location differ significantly from those at the home base. Hence, firms can make use of economic, social and political resources and capabilities emerging in institutional settings beyond the region of origin, providing advantages which could eventually complement those emerging from their home base. Both processes – fragmentation and relocation – are linked. On the one hand, extended options to relocate often facilitate further outsourcing or make it look more advantageous as far as suppliers can achieve cost savings by relocating their activities. On the other hand, new options to relocate are spurred by outsourcing strategies because this makes large suppliers with an international extension available. This interpretation of globalization is open to the outcome that European industrial restructuring at the beginning of the 21st century is not necessarily limited by constraints of traditional development paths.

At the same time, globalization can be understood as an extended and intensified cultural exchange, as a "cultural internationalization" (Streeck 1997: 53) which tends to put into question the taken-for-granted assumptions and beliefs concerning corporate structure and strategy and the broader institutional contexts of organizations and the economy within a nation state. This does not necessarily mean that the original guiding ideas and their specific translation into rules and role models inevitably will be abandoned. The result of questioning assumptions and beliefs could also be a deliberate verification of the previous order in comparison to alternatives elsewhere or to the socially constructed global "best practices". However, the "old" arrangement and framework for corporate decision making cannot be taken for granted any more, and corporate and political actors must constantly justify their decision vis-a-vis a more volatile body of new ideas and concepts. By both mechanisms – the access to foreign institutional contexts as well as the paradigmatic importance of global "best practices" – globalization facilitates the transfer of and access to corporate strategies and practices across the boundaries of national institutional systems, even if these systems differ substantially in their institutional settings.

Exploring patterns of reorganization and relocation

What is the impact of the use of new options for strategic action for company and industry structures and institutional settings in the countries-of-origin? To answer the question of how far and in which ways the path-depending development – i.e., the particular embeddedness of corporate structures and strategies – in West European countries is affected by the newly emerging European industrial architecture implies investigating the future of national systems themselves, such as the sustainability of divergent European "models of capitalism", particularly the "non-liberal" versions (like Germany and France). Furthermore, as pre-existing development-paths of European industries not only constrain corporate strategies but also enable them, the question is about the future of this facilitating role of national systems when an enlarged scope for strategic action leads to loosening ties between companies and national institutional contexts.

For a comprehensive understanding of current industrial restructuring in Europe it is necessary to address these interdependencies between new strategic options and home-societies. As a prerequisite to answer this question we need more precise knowledge on the processes of fragmentation and relocation. Before one can answer how industry and employment structures in Western European countries are affected and whether and in which ways this gives rise to institutional change, one must more deeply explore to what extent and how the new options of restructuring and relocation are actually used. Empirical knowledge on these issues is still incomplete and we ourselves draw upon work in progress. However, available evidence is broad and reliable enough to grasp recent dynamics of change and to sharpen one´s eyes for possible impacts on national institutional frameworks.[3]

3 In the following we draw upon interim findings of our own research on patterns of reorganization and relocation and refer to contributions in this volume. Our research is mainly based on case studies from the automotive, electronics and textile/apparel industries. It covers both final producers or brand owners and suppliers in West and East European locations.

2. Fragmentation of Value Chains

For more than two decades there has been a trend of de-verticalization in West-European industries, predominantly driven by the organizational decomposition of large-scale, vertically integrated and often diversified corporations in "Fordist" sectors. We saw, as Ruigrok (in this volume) put it, "the emergence of leaner and more focused corporations which also tended to operate much more than previously on an international scale". While the crisis of Fordist mass production has undermined the paradigm of vertical integration, the focus of strategic management has shifted from optimizing inside given corporate boundaries towards spreading the system of production and value creation across organizational boundaries to tap external resources and capabilities. Formerly vertically integrated firms – facing global competition in highly volatile markets, rapid technological breaks, and shortened product life cycles – seek to cut costs, spread risks, gain flexibility and responsiveness by again and again reconsidering, redefining and concentrating their core competencies, shrinking their boundaries and outsourcing more and more activities to external suppliers. Since the mid 90s we have watched this de-verticalization trend rising. Moreover, while in several sectors outsourcing clearly is gaining momentum, this is due not only to an acceleration along a well known pattern: the pattern itself is changing. Driven by a new and highly dynamic round in redefining core competencies, traditional demarcations in the industrial division of labor are blurred. Activities that had undoubtedly been assigned to the hard core are now farmed out more and more to external suppliers. Within this trend, outsourcing of manufacturing has attracted particular attention, brought to mind by the emergence of big manufacturing specialists often operating on a global scale- "global suppliers" like the "contract manufacturers" in electronics or "mega-suppliers" in automotive industry.

Outsourcing – as the most prominent leverage for decomposing industry architecture – has been well known before; what has changed is the nature of outsourcing. Even the vertically integrated firm of the old Fordist days had never been fully autarchic in manufacturing. As a matter of the historically developed division of labor among industries, for certain materials, parts, and components, it relied on external suppliers from other sectors. And – within its own realm – there had been outsourcing before. To be able to quickly

respond to demand peaks without building up extra in-house capacities or to prevent the in-house flow of production from disturbance by extraordinary product configurations, OEMs (original equipment manufacturers) in some sectors occasionally gave a certain amount of manufacturing to subcontractors, who used to have a very limited capability profile and were very dependent on the OEMs. But this was only tactical outsourcing. It was used to ensure the functioning of the "normal" vertically integrated firm and was insofar the exception to the rule: it did not undermine the normal case, but helped to make it work. It did not affect the common understanding of a "real" firm, encompassing – beyond all national and sectoral variations – a very broad array of in-house manufacturing as indispensable core activity. From this point of view, different practices were regarded as deviation and needed strong arguments against them.

In the 90s manufacturing opened up to strategic outsourcing, which affected the common understanding of the nature of the firm. To exaggerate the argument: having in-house manufacturing capacities is no longer taken for granted but requires legitimation. It is no longer a question whether firms should give manufacturing of one component or another to external specialists, but whether they should have any in-house manufacturing at all. In-house manufacturing is under revision, and while increasingly external solutions are preferred, a capable supply-base of manufacturing specialists has grown up. This outsourcing move of pre-existing firms has a secondary effect, which might be called outsourcing from the start-up: as far as the externalization of manufacturing in an industry gives rise to a capable and accessible supply-base, newly built-up firms might decide to stay away from building up a broad scope of in-house capabilities and instead use those external resources from the very beginning – thus reinforcing the emergence of new industry structures.

"Modular production networks"[4] *– a new model to organize industrial value chains?*

The broad stream of discussions on topics like the "vertical disintegration of firms" or the "organizational fragmentation of value chains" refers to a disintegration of old structures and de-legitimization of the beliefs they were built on. But where does it go from here? Is there a vanishing point already visible? And how do we account for it? What is the new model to describe the novel industrial practices? Trends in scientific literature indicate a strong move into network-like forms to organize production (cf. Powell 1990; Kenis and Schneider 1996; Bartlett and Goshal 1989), but still there has been a rich variety of models of description and interpretation. In the contemporary debate on vertical disintegration, we have a strong stream of literature on a new model to organize industrial value chains that is suggested – and sometimes recommended – to be the new paradigm. The tide appears to be shifting from "vertical integration" as the ruling principle of organizational design towards "value chain modularity" (cf. Sturgeon 2002).

The "modular production network" as a novel organizational *Leitbild* has preferably been distilled from analyzing and interpreting new industrial practices in the US electronics industry of the 1990s[5], but that particular branch and its successful transformation is only preferred for illustrating a new model of industrial organization which may provide a vanishing point of ongoing transformation of industry in general: "other research strongly suggests, that comparable changes are underway in many other sectors as well, such as apparel and footwear, toys, data processing, offshore oil drilling, home furnishings and lightning, semiconductor fabrication, food processing, automotive parts, brewing, enterprise networking, and pharmaceutical production" (Sturgeon 2002: 456; cf. Borrus and Zysman 1997; Fine 1998; Sturgeon and Florida 2003). If one would try to draw essentials from the highly dispersed and dynamic discussion, the result could look like the fol-

4 In former attempts to grasp this phenomenon we labeled it the "turnkey production network"; cf. Berger et al., 2001.

5 For an overview of the rich body of research based literature on this subject in various sectors cf. Gereffi and Korzeniewicz 1994, for the electronics industry cf. Sturgeon 1997a, Sturgeon 1997b, Sturgeon 2000, Sturgeon 2002, Borrus, Ernst, and Haggard 2000, Lüthje, Schumm, and Sproll 2002; cf. in this volume Gourevitch and Lüthje and Sproll)

lowing broad-brushed sketch of the "modular production network" model and its peculiar set of features:

- "Modular production networks" recompose the fragments of once vertically integrated firms into *distinctive bundles of closely related activities*. As a result a newly defined division of labor is evolving between a new breed of highly capable suppliers ("turnkey suppliers") on the one hand and newly defined OEMs ("lead firms") on the other. While the lead firms focus on product and brand development, marketing and distribution and – eventually – final assembly, the suppliers sell their capabilities in manufacturing and related services on a contract base. As capability profiles are complementary, the roles of the actors in the chain are clearly defined.
- This type of production network has its particular supply base structure: suppliers are horizontally specialized on manufacturing services, providing *generic capabilities* and *turnkey solutions* to a broad range of customers. This particular pattern of horizontal specialization on the supply-side gives rise in different ways to the claimed performance advantage of this model. Relying on generic capabilities, this kind of supplier accumulates a bulk of different products from different customers and thereby creates volumes that easily even surpass those of their biggest customers. Moreover, lead firms benefit from cost advantages, as contract manufacturers can create enormous external economies of scale in parts and components purchasing and utilization of capital intensive equipment.
  In this model the de-verticalization does not flow into the creation of myriads of suppliers, each specialized in a particular activity, out of which network organizers may quite flexibly shape virtual value chains. Instead these contract manufacturers are large scale firms that provide manufacturing services in the so called turnkey mode – producing products without much involvement of the lead firm. Though focussing on manufacturing they need a broader scope of capabilities (in design support, procurement or distribution) to deliver turnkey services.
- According to this model value chains break into segments at points, where the inter-firm *information transfer* can be *highly formalized*. While inside these segments (firms), activities usually remain integrated and are coordinated via a flow of tacit knowledge, the linkages across the organizational borders are built via highly standardized and codified informa-

tion. A common language, i.e. open standards to codify product specifications, are a crucial prerequisite for this type of production network. They allow for the organizational separation of innovation and production, as they ease the interaction across organizational boundaries.

- Resulting from its modular nature this type of production network possesses a high degree of *flexibility* of a particular kind. Different from the internal adaptability of a vertically integrated firm, it is based on the possibility of quickly and easily configuring and reconfiguring production systems out of modular pieces. Lead firms gain volume flexibility if they rely on a layer of manufacturing suppliers providing the capability of quickly scaling up and down production capacities for volatile product markets. Turning to contract manufacturing provides an easy entry to markets without the burden of building up sophisticated and costly manufacturing activities, including the entrance to spatially distant markets. Relying on big contract manufacturers which have built up a global footprint (in several and diverse locations) enlarges the regional reach and locational flexibility of lead firms. Removing the expenses of running and maintaining factories from the lead firms´ balance sheets is particularly promising under the reign of financial markets and "shareholder value".
  Relationships between turnkey suppliers and their customers in "modular production networks" have a high degree of mutual independence. Though both types of actors depend on each other, because their respective capability profiles are complementary (the lead firm cannot substitute the manufacturing capacities and capabilities of the contract manufacturer, and the contract manufacturer has no products of its own and cannot exist without the lead firms´ capacities and capabilities in defining and marketing new products), the mutual dependency in every single case is relatively low. The relationship is based on an exchange of knowledge, as contract manufacturers produce products that the lead firm designs. Therefore it is not a market relationship. But the contract manufacturers´ processes are of a generic type; there is no asset-specific investment. And the exchange of knowledge is highly codified. Therefore, from the viewpoint of the lead firm manufacturing partners in this world are easily interchangeable. And for the manufacturing specialist new customers can be won quite easily, as generic processes and codified interaction allow for a quick and easy introduction of new customers and new products.

The linkage of organizational fragmentation and high combinability of these fragments is based on the modular nature of this particular production network type.

- The modular production network is quite *undemanding in social embeddedness*. Though relations in this kind of network are not market relations, they come close to an arms-length-type of interaction. This model has a particular American flavor. Sturgeon (2002: 451) coined it an "emergent American model of industrial organization," as it allows the usage of networks while protecting a relatively high degree of independence and thus limits the risks of cooperation right from the start. The specific American societal context with its thin institutional embeddedness of economic activities can hardly generate the social resources of trust, reputation, or conventions which limit the risks of opportunist behavior in close cooperative relationship. Therefore the traditional preference of American firms, either for relations coordinated by hierarchy or by markets and their traditional aversion to networks (cf. Hollingsworth 1991). But doing so they were excluded from the particular benefits of using corporate networks. Exactly this seems to have changed, as the modular production network type seems to be highly capable to tap the gains of network-like cooperation while at the same time mitigating the risks.

Scholars pushing this new paradigm of industrial organization forward provide a theoretical model for analyzing and understanding how value chains become organisationally recomposed. At the same time they seem to suggest that "modular production networks" will become the predominant governance form. Furthermore, they explicitly or implicitly claim that the emergence of "modular production networks" and the new dynamics of industrial outsourcing are closely interrelated: the more deverticalzation of value chains leads to "modular production networks," the more outsourcing of manufacturing activities to suppliers is likely to occur. What about the empirical evidence for these expectations? Do we find a more or less unitarian logic in transformation of firm strategies and industry structure? In the following we will discuss these questions based on provisional findings from empirical research in European electronics, automotive, and apparel industries. Doing so, we will emphasize sector specifics as well as European specifics of these industries.

European electronics industry: "Modular production networks" on the advance?

In the late 1980s and early 1990s critical observers had traced back heavy disadvantages and poor prospects for US industries in general and electronics in particular to the relatively thin institutional environment in the US, which excluded the usage of practices so successfully deployed by German and Japanese competitors (Borrus 1988; Dertouzos et al. 1989; Hollingsworth 1991). The "modular production network" seems to be the American way out of this dilemma, as it allows the usage of corporate networks in an institutional environment that had previously been network-averse – thus providing competitive advantage to American firms by giving them access to organizational innovation. And indeed: over the 1990s we watched a strong resurgence of the American electronics industry that went hand in hand with a fundamental change in the industry´s landscape: the emergence and rapid growth of a large and powerful industry of "contract electronics manufacturers", as the turnkey suppliers are usually called in this industry.

In a global economy the US-version of capitalism is often expected to be superior (cf. Albert 1993; Streeck 1997) and therefore a model for other countries. This might be suggested to be true for corresponding business practices like the "modular production network" as well. Being quite undemanding, as it is not very deeply rooted in particular contexts, this concept might be easy to transfer to different places. Its low dependence on institutional embeddedness could encourage its adaptation and implementation in the European electronics industry, which came under pressure due to the success of its American competitors. Therefore, US contract manufacturers might be quite expansive in Europe (and elsewhere), and their offers might be quite appealing and promising for European electronics OEMs. Doing so they might initiate a fundamental transformation of the European electronics industry according to that novel American model of industrial organisation.

In general European electronics firms had been smaller than their US counterparts, but had been no less influenced by the paradigm of vertical integration. And though later starting a trend of de-verticalization changes the European map as well. OEMs externalized their parts and components divisions, resulting in the emergence and strengthening of a supply base of independent printed circuit board and semiconductor producers. But on one

point the understanding of corporate core competencies turned out to be quite resistant for quite a long time: the manufacturing of the most relevant building blocks of an electronic system – the assembly of printed circuit boards, as well as the system assembly itself – stayed in-house. It was only in the 1990s that European electronic firms turned to outsourcing relevant chunks of manufacturing to contract manufacturers. (cf. Lüthje et al. 2002 for the German case) And in the second half of the 1990s this trend speeded up dramatically. It could be labeled as "transformation by invasion", as this push was mainly done by the first-tier contract manufacturers of North-American origin - like Flextronics, Solectron, Sanmina, Celestica und Jabil. Starting with North and Northwest European countries (Finland, Sweden and the UK), then taking hold in France and also in Italy, Spain and Germany, they invaded Europe. By 2001 they had reached huge annual growth rates – often 40 or 50%, sometimes even more. This extraordinary development was driven mainly by a particular growth mode: with the acquisition of manufacturing contracts the contract manufacturers took over the respective manufacturing capacities from their OEM customers – complete plants with equipment, management and workforce. More and more their customer lists looked like a "who's who" of electronics OEMs in Europe. Not only the European affiliates of American OEMs – like Hewlett Packard or IBM –, externalized electronics manufacturing to the big contract manufacturers, but European firms like Alcatel, Ericsson, Philips or Siemens followed up. Within a decade contract manufacturers have become important actors in European electronics value chains. While in the early 1990s this European industry, in terms of outsourcing of manufacturing, very much lagged behind the American industry, a decade later the picture is quite different: OEMs in Europe have caught up in outsourcing, and a capable supply base of contract manufacturers has emerged. By expanding their "global footprint" the first-tier American contract manufacturers - covering 60% of the European contract manufacturing market – are equipped with a broad European manufacturing base of dozens of plants and some ten thousands of employees in West European locations, consisting predominantly of plants acquired from customers and to a smaller degree of newly built-up plants in Central Eastern Europe (CEE), mainly in Hungary, Poland and the Czech Republic.

After the downturn: Contract manufacturers reshaping their production systems

The high dynamics in outsourcing around the turn of the century did not continue. As is well known, since 2001 the electronics industry has gone through a rough and stubborn downturn – particularly in those sub-sectors with often extraordinarily high growth rates, where contract manufacturing had predominantly spread out (computing, communication products). There is a common expectation that contract manufacturers would even profit from the market downturn as increased cost pressure would make OEMs accelerate their outsourcing politics. For the time being this has become true only insofar as several OEMs more urgently try to get rid of their often underutilized and costly manufacturing capacities. But this mode of outsourcing does not work as it did before. While there are a lot of OEM electronics manufacturing plants on offer, contract manufacturers are reluctant to take them. Quite often ongoing production is hit by the downturn, while at the same time workload guarantees given by the former plant owners expire and some lead firms even withdraw contracts in order to fill their own capacities. Moreover, as former expectations in market growth have turned out to be exaggerated and increased cost competition initiates a relocation of capacities into low-cost locations, contract manufacturers, rather than acquiring new capacities in Western Europe, shut down part of those plants they had taken over only recently.[6] This does not necessarily mean that the expansion of contract manufacturing has already come to an end – not at all, because outsourcing may well speed up again when consolidation is over and markets recover. But when American contract manufacturers gain new ground in European markets there most probably will be no large-scale proliferation of "modular production networks" as the concept those actors are so tightly identified with. Already at present we observe trends that are not in line with that organizational model but indicate different developments. These shifts are not caused, but accelerated, by the economic downturn.

6 When OEMs hand over capacities to contract manufacturers neither party necessarily expects that these capacities will last. A contract manufacturer can more easily downsize capacities and close down facilities than a brand-name OEM who would risk negative effects for its image. But in any case: the downsizing occurs sooner and the cuts are deeper than expected.

Contract manufacturers not only downsize but at the same time reshape their organizations. In a rather short time they had acquired a large and often quite heterogeneous bundle of facilities. The single entities often kept on running more or less as before, as they still had guaranteed orders and cost protection from former owners, and as management was absorbed with organizing product shipment for booming markets under conditions of scarce resources and scarce supply in parts and components ("allocation"). In those extraordinary days financial markets honored the sheer growth of contract manufacturers. Now that transition times for acquired facilities are expiring, boom times are over, and the bubble – particularly in telecom markets – has burst; firms are facing much more demanding financial markets which expect a shift from growth to (more) profitability. At the same time they are confronted with much more demanding customers. Facing increased competition, customers insistently ask for significant improvements of costs, quality, delivery performance, etc.. One might expect contract manufacturers to now find the time to reshape the quickly acquired assets in a way they had already had in mind. In this case reorganization would implement those structures and practices characteristic of the "modular production network." In reality, the dynamics of change on the side of the contract manufacturers is high, but logics are different.

Contract manufacturers actively redefine their division of labor with OEMs by considerably expanding their own scope of activities. Partly, they expand their scope of manufacturing upstream and downstream the value chain. While contract manufacturers traditionally focussed on printed circuit board assembly, they have over recent years built up more internal capacities for parts and components manufacturing[7], and they push their way strongly into final assembly of complete electronic systems, including software integration and functional testing. But to a great deal they expand beyond manufacturing: contract manufacturers – as specialists in manufacturing – are strengthening their non-manufacturing capabilities. This again is true for the

7 This refers mainly to printed circuit boards and enclosures. However, contract manufacturers differ very much in defining their scope of manufacturing. Moreover, the politics of expanding this scope are often disputed internally, because critics suspect a relapse into traditional rigidities. But although some contract manufacturers lower these capacities again while actually reshaping their organizations, the overall trend of expanding the scope of manufacturing is evident.

upstream stages of the value chain, where they build up capacities in product design, new-product-introduction, and procurement. And they tend to get deeper into the back-end of the value chain: the configuration of complete customer orders, even handling the order systems and doing the invoice, logistics and after-sales-business (repair). The overall trend is evident: pushing the idea of providing "end-to-end-solutions", the manufacturing specialists want to migrate into a more service based business and thus develop from "contract manufacturers" into "electronics manufacturing services companies".

The capability profile of contract manufacturers turns out to be a matter of variety much more than expected. On the one hand these upgrading efforts clearly show how widely the real turnkey abilities differ from those promised in sales talks. (Insofar the adjustments may be partly classified as a late implementation of the model.) But part of the changes clearly go beyond the model and call it in question. This is most evident in the field of product design: building up own capabilities in product development, contract manufacturers widely deviate from organizational de-linking of product innovation and manufacturing as a particular quality of modular production networks. Here and at other points of the value chain the division of labor is less clear and unambiguous than the model would suggest. While contract manufacturers expand into services to add those attractive margins to the small and shrinking ones in manufacturing, lead firms often hesitate to give them – and pay them for – a more complex job. The reason is that they fear a shift in the balance of power; they fear the emergence of dependencies. This is exactly what contract manufacturers have in mind. As long as they offer manufacturing as a commodity they are very vulnerable – because they are easily interchangeable – and have to be content with low margins. Hand in hand with expanding their scope of activities, they try to build up unique capability profiles. In order to differentiate themselves from competition, contract manufacturers try not only to create a unique mix of manufacturing plus services, but at the same time to specialize in manufacturing itself. While offering more and more specialized processes, tailored to the needs of single customers or sub-sectors, they deviate more and more from the idea of providing a merely generic process portfolio. The reality of contract manufacturing moves away from the modular production network idea that a large array of OEMs share a common supply base of quick and easily switchable

manufacturing service providers. Instead contract manufacturers are working on a different relationship to lock in their customers more tightly and reduce interchangeability.

This may be the most decisive point: redefining the division of labor affects the nature of the relationship in a way which leads more and more away from a relationship in line with the "modular production network" model. The model promises network effects while actors stay in an quasi arm´s-length type of relationship which prevents or at least mitigates them from mutual dependency. A provisional résumé from empirical research gives a different picture. OEMs often feel like they are trapped in a dilemma: on the one hand, to avoid dependencies they shrink away from giving contract manufacturers a larger chunk of the value chain; on the other hand, OEMs often realize that making the relationship with the manufacturing partner closer and more intimate – e.g. integrating the contract manufacturer earlier and deeper into the complicated process of moving from product definition to serial production – may be the only way to make it work, to enhance the performance and to really bring in the benefits of this kind of production organization. Doing so, the frequency of interaction as well the exchange of non-codified knowledge would rise significantly, opening up new risks as the contract manufacturer gets access to sensitive information on products, markets and customers. If partners want to go into this promising relationship, a new set of rules is required which enables cooperation and helps to control the risks.

While some OEMs still hesitate, a lot of firms are moving in this direction, searching their way in a quite pragmatic manner. To find new patterns in division of labor along the value chain and new rules of the game, they experiment on where to break the chains, what to do in-house, where to use the independent specialist and where to get the contract manufacturer more deeply involved. This is contested terrain, as along with the re-configuration of the value chain the power in the chain is newly adjusted, the distribution of gains and risks is newly balanced, and the rules of cooperation are newly established. But one thing is clear: lead firms tend to take the risks of closer cooperation and more interdependencies in the value chain, and they tend to go into more long-term relationships with only a few big and capable manufacturing partners – and by doing so they clearly go beyond the "modular production network" model. There is no single new pattern, instead we see a

variety of production networks arising. More often the same firm uses different strategies for different market segments (by product as well as by nationality).

This move may have to do with the fact that the first-tier American contract manufacturers have expanded their sectoral focus in Europe. Having grown with the computing and communication markets, they now try to diversify into sectors where European firms have particular strengths – like industrial, medical, aviation or automotive electronics. But these markets are highly unfamiliar to them, and – as experience shows – US based contract manufacturers run into severe difficulties when they address these markets with their traditional approach. These markets are often small and fragmented (with "Mittelstand" firms as potential customers), they often lack those standardized product architectures enabling the quasi arm´s-length and highly codified relations in "modular production networks," or they have quite different standards and rules. These sectors have their own patterns of relationships, often characterized by dense interaction, the exchange of tacit knowledge, and long-term business relations. Moreover, there are established contract manufacturers already at work, mostly native firms of small or medium size, that have grown with their customers over a long period of cooperation in often close social and spatial proximity, forming different production networks. This breed of highly capable European manufacturing specialists has hardly been visible in the shadow of the booming American contract manufacturers over the last years. Now, ironically, their industrial practices are more often considered to be a model or at least a vanishing point for American contract manufacturers struggling to gain ground in these particular areas of the electronics industry map. This may indicate a Europeanization of an American model instead of an Americanization of the European electronics industry. This may be due to institutional factors, as the particular structure (in products and markets) of the European electronics industry is closely linked to a particular kind of framework of social institutions. But this could be a premature jumping to conclusions, as it could be due to sectoral factors as well, since there may be a parallel evolution of industrial practices in contract manufacturing in the US-American context.

In sum: in European electronics industry there is a strong trend of organizational fragmentation of value chains. OEMs more and more deverticalize their corporate structures and lean on a new sub-sector of capable suppliers

in manufacturing and related services built up mainly by American contract manufacturers expanding their global footprint. But while we see a boom in contract manufacturing, we do not see it happening as a universal proliferation of the "modular production network" model. Though American contract manufacturers have brought with them several pieces of those practices, we now see an increasing heterogeneity in the shape of production networks (cf. Lüthje and Sproll in this volume; cf. Gereffi et al. 2003).

Automobile industry

In the automobile industry we can observe an ongoing process of outsourcing as well. OEMs increasingly shift tasks, competencies and production volumes to suppliers. Although the suppliers' crucial role in automobile value chains is not a new phenomenon, particularly for the European car industry, outsourcing has gained importance since the mid-1990s. The former quite stable guidelines according to which core competencies have been defined are questioned and new criteria to decide about the scale and scope of outsourcing are considered. In general, final producers redefine the range of manufacturing steps that used to be the core of their activities. Today, for example, only a quite limited selection of manufacturing steps is still taken for granted to be part of automobile factories run by OEMs. Even manufacturing services such as maintenance and logistics, which used to be an essential department of a "decent" automobile factory, are outsourced to specialized service suppliers (see Bonazzi and Antonelli 2003).

Decision making at the OEM is not only driven by considerations about competencies but final producers increasingly strive to reduce their capital tie-up and its inherent risks. Furthermore, outsourcing decisions are also motivated by the aim to reduce complexity and thus the costs and risks of coordination. As a result, final producers consider outsourcing even in cases where they are capable of performing the tasks in question themselves.[8] Since the late 1990s, OEMs move parts and components producing facilities

8 Such a calculation is not necessarily in contrast to the "concentrate on core competencies"-paradigm. Normally, defining core competencies does not only mean restricting oneself to existing competencies but deciding on a basis of at least comparable costs, including capital costs, to establish and re-produce these competencies.

to suppliers. Some OEMs have even spun-off their complete internal supplier divisions (e.g., Ford and General Motors, where the creation of the new mega-suppliers Visteon and Delphi has been the result of spinning-off the internal components divisions). In general, inhouse activities are under far more close scrutiny than they were ten years ago.

The ongoing reduction of inhouse manufacturing corresponds with important changes on the side of the suppliers. The shape of the supplier infrastructure has changed significantly since the early 1990s. Large, internationally operating suppliers ("mega-suppliers") are gaining in importance, a process which often goes along with a reduction of the overall supplier pool on the side of the OEM (see Enrietti in this volume). Quite similar to contract manufacturers in the electronics industry, mega-suppliers evolved not only through organic growth but through mergers and acquisitions. In particular the large suppliers increasingly deliver ever more complex functional subunits of cars ("systems" and "modules") to the OEMs which contain a multitude of parts and components. In these cases the suppliers take over complete responsibility for the manufacturing process (including logistics) of systems and modules, to be delivered just-in-time just-in-sequence according to the product mix in final assembly. Although in automobiles the final assembly of products stays a core competence of final producers, the outsourcing of systems and modules reduces the scope and complexity of the final assembly plants substantially. In some cases – up to now mainly regarding the assembly of niche models in small volumes – OEMs are shifting even final assembly operations completely to suppliers.

The trends of increasing outsourcing by OEMs, of the growing importance of modularization strategies, and of the emergence of transnational mega-suppliers could be seen as indicators for the emergence of modular production networks in the automobile industry, comparable to those characterizing vertical disintegration in the electronics industry since the late-1990s. Hence some scholars emphasize the similarities between the automobile and electronics industries (Sturgeon and Florida 2001; Jürgens et al. 2003), whereas we are turning our attention to the differences between the two industries regarding the process of vertical disintegration and the emerging new governance forms.

First of all, automobile suppliers typically cannot be characterized adequately as contract manufacturers. The division of labor between OEMs and

suppliers is not at the intersection between design (as a function of the OEM) and manufacturing (as a function of the supplier). Instead, outsourcing decisions of the final producers are a good deal motivated by the goal of benefitting from the innovation capabilities of suppliers. Final producers not only appreciate the growing innovation capabilities of their suppliers: they increasingly demand them. By outsourcing innovation OEMs try to benefit from cross-organizational learning processes across the industry and therefore to realize external economies of scale and of scope. Therefore, outsourcing can be described as an increasing specialization of capabilities and not merely as a process of vertical disintegration. It has to be acknowledged, however, that the emerging interfaces between OEMs and suppliers are not as "clear-cut" as in the case of modular production networks. Although outsourcing leads to an increasing specialization of capabilities, it is often unclear what exactly are the core competencies of the OEMs. In particular, concerning innovation related tasks there is an overlap of competencies between OEMs and suppliers. Far-reaching outsourcing strategies of OEMs are going to reinforce rather than to reduce this overlap. As a result, OEM-supplier relationships involve collaborative development; the access to and the exchange of tacit knowledge is decisive. OEM-supplier relationships often cover the whole life cycle of a product which is, despite speeding up innovation cycles in the last decade, still longer lasting than in electronics. Although OEMs expect and demand recurring price reductions, and although negotiations are tough, these factors speak for more long-term and reciprocal relationships than at least the stylized model of contract manufacturing would suggest (Herrigel 2004; Herrigel and Wittke 2004).

Mega-suppliers partly try to improve their position of power vis-à-vis the OEMs by centering their strategies on extensive competencies in systems and modules, including research and development. Quite often Bosch is regarded as successfully applying this strategy in the field of automobile electronics and therefore is seen as a model. However, even mega-suppliers are not very successful in realizing such a new position, which is not really surprising given the fact that final producers can quite easily imagine that a too far driven independence of mega-suppliers could undermine their power position as focal actor within the value chain and hence affect the distribution of profit margins. OEMs in the automobile industry are in a more powerful position, because to this day passenger cars do not have a "modular archi-

tecture" comparable with a product architecture of electronics products, such as PCs. In the automobile industry, overall product design is still developed by the final producer and is not based on few core component suppliers having the power to extensively define component features (such as Intel does in the PC industry).

On the other hand, the emergence of large mega-suppliers marks only one side of the overall outsourcing process. Capable suppliers are also found among 2-tier and 3-tier suppliers, who are of considerable significance within the ramified production network of the industry. 2-tier suppliers, especially, often contribute extensively to product innovation. Although final producers try to reduce their overall number of suppliers, they are still interested in the business relation to these 2-tier and 3-tier suppliers and attach great importance to selecting them on their own, also in cases in which no direct delivery relationship exists because the parts are already integrated by module or system suppliers. Also in this respect module and system suppliers, and among them the emerging mega-suppliers, differ from the stylized picture of contract manufacturers.

Even in cases in which automobile suppliers focus more or less exclusively on manufacturing and could therefore, from a formal point of view, be regarded as contract manufacturers, governance forms deviate from those characterizing modular production networks. Module suppliers in the automobile industry typically don't have generic processes providing external economies of scale and low switching costs. Particularly the manufacturing of complex modules is tailored to one OEM as the customer. The required tight coupling of the module supply to final assembly, still the responsibility of the final producer, explains the fact that module suppliers are often located in proximity to the core factories of the final producers or are even organized in the form of "in-house outsourcing" (cf. Bonazzi and Antonelli 2003 for the Fiat case).[9]

Finally, we can observe counter-movements to the ever increasing outsourcing of activities and competencies. This is valid in particular for the field of automobile electronics, which in the past was predominantly in the hands of suppliers. Final producers now redefine core competencies com-

9 This development affects the patterns of relocation and the accompanied agglomeration effects in the respective regions (see next section; see Enrietti and Sperling in this volume).

prising development capabilities in electronics instead of relying on the reputed suppliers in car electronics. In the same manner, the emergence of alliances with suppliers in electronics can be interpreted as an attempt to readjust the division of labor between final producers and those suppliers with a heavy stake in automotive innovation. The emerging division of activities and functions between final producers and suppliers is in flux and can be described as a "contested terrain." Suppliers attempt to make themselves less interchangeable by developing their (co-)design capabilities, whereas final producers try to limit dependency on – and shift costs and risks to – suppliers. When moving responsibilities to suppliers final producers are quite sensitive concerning the impact this change has on the balance of power in the value chain. Hence they try to avoid the problem of suppliers achieving unique competencies which could not be easily imitated by competitors. Therefore, although final producers strategies result in an upgrading of suppliers to module or system providers with an extended functional spectrum, this upgrading does not necessarily lead to a greater power position of the suppliers. In this respect the automotive case has similarities with the electronics industry, following recent empirical accounts of the changing relationship between OEMs and contract manufacturers (see above), which contrasts the somewhat frozen picture of the stylized model.

Apparel industry

The overall trend of splitting up the value chain can also be observed in the apparel industry.[10] In particular the German apparel industry can even be seen as a forerunner of this development due to specific features of the industry.[11] Outsourcing of manufacturing activities had already in the begin-

10 If we look at the complete textile and clothing value chain (see Dunford in this volume) we find vertical disintegration and horizontal specialization that had already existed for decades and which did not emerge from a more recent process of splitting up the value chain. Normally, textile and clothing production are performed in different firms. Textile and clothing have always been perceived as distinct industries. Mostly, textile companies even specialize on distinct sub-sectors like spinning, weaving or finishing.

11 Because of considerable differences between structure and development of national industries we refer to the German case and give only some hints at relevant points of divergence without aiming at a thorough international comparison. Some of the major structural dif-

ning of the 1990s reached such a point that many observers of the industry expected the development to come to an end (see e.g. Adler and Breitenacher 1995). The German apparel producers had already started the outsourcing of manufacturing activities in the 1970s, relying early on suppliers located in low-wage regions.[12] This kind of outsourcing, using foreign suppliers extensively, even accelerated within the 1990s (see in more detail in section 3). However, in the same period, the set of suppliers, the relationships between suppliers and apparel producers, and the overall architecture of the value chain was subject to change, including the emergence of new focal actors.

In the early days of outsourcing the suppliers' role was functionally restricted and rather subordinate. Suppliers typically worked in an OPT mode ("Outward Processing Trade"), meaning that not only raw materials were provided by the apparel firms but that the suppliers only performed basic manufacturing steps quite easily calculated and monitored on a basis of detailed design and planning inputs. In this respect the typical relationship between apparel producers and subcontractors was more similar to the captive than to the turnkey or modular type of production network. However, in contrast to the captive production network the subcontractor was highly interchangeable and relationships were often short-term, following simple wage related cost considerations.[13] In general, the power position of the average subcontractor vis-a-vis their often brand-name customers was rather weak.

This OPT type of subcontractor still exists in the apparel industry, but it no longer represents the dominant type**.** Instead, so-called full-package sup-

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ferences within the industry elaborated by Dunford, Berger and Locke, and Camuffo et al. (in this volume) highlight institutional contexts of network structure and governance for one national/regional example: the industrial districts of the Third Italy.

12 These suppliers are mostly locals. However, to some degree Western European firms also move their activities to CEE countries. E.g., this refers to former German "Zwischenmeister" who used to work for German apparel producers in Germany and were encouraged to go East by their customers.

13 In some cases a special type of intermediate company steps on the scene. Especially smaller and medium-sized apparel producers make use of emerging intermediates. These firms arrange manufacturing for their customers, monitor the manufacturing process and manage logistics. In these cases the intermediate firm signs the contract with the local subcontractor and the apparel producer with the initial order is free from the tasks of sounding out manufacturing facilities abroad, placing orders according to free capacities and its specific requirements and of monitoring the subsequent processes.

pliers are gaining importance. Full-package suppliers are no longer restricted to basic manufacturing steps but are responsible for a variety of manufacturing related services (technical design, procurement, logistics) and to differing degrees also for creative design inputs within the broader image of the brand. This type of supplier comes closer to the modular type and in some cases in which the supplier is also engaged in design activities he even exceeds the modular type, including the possibility of becoming a competitor in at least some market segments. The shift in the supply chain architecture in the apparel industry, including the increasing importance of full-package supplier, is driven by changing strategies of apparel producers and retail chains as well as by the emergence of a new breed of actor in the apparel business – the so called "new verticals".

Apparel producers respond to changing market conditions not only through the attempt to realize shorter order and delivery cycles but also by offering complete outfits and often complementary accessories for focused consumer groups. These strategies require an acceleration of the production and procurement process and increase its complexity. To meet these demands, apparel producers tend to rely on more capable and specialized suppliers as they did in the past. In order to reduce complexity and to secure other forms of investment, mainly the transfer of knowledge, apparel firms reduce the number of suppliers and develop more long-term relationships to a smaller number of subcontractors, often including functional upgrading. Additionally, to be able to deliver an expanded product spectrum (e.g., complete outfits) apparel producers need to rely on suppliers for products beyond their traditional core competence (e.g. knitwear from a former trousers and suits specialist). These suppliers have to be more capable than the traditional OPT type of subcontractor.

However, up to now German apparel producers have not abandoned in-house manufacturing completely. In some cases, this might be due to the fact that full-package suppliers meeting the new demand are not sufficiently available. But apparel producers keep in-house manufacturing capacities mostly for other reasons. They are using in-house manufacturing – located nowadays mainly in low-wage regions (see below) – as a source of flexibility (e.g., setting up time-sensible flash-programs), but also as a basis for securing core competencies in manufacturing, hence monitoring subcontractors. Furthermore, through in-house manufacturing apparel firms try to avoid

problems of quality assurance, a costly and time consuming complexity of the value chain and a knowledge drain to potential competitors. Some of the reasons which lead apparel producers to develop more close and long-term relationships to subcontractors also provide incentives to control manufacturing activities of suppliers through different forms of ownership (joint-ventures, alliances etc.). As a result, strategies of apparel producers lead to a variety of value chain governance: in-house or majority controlled manufacturing, long-term relationships with subcontractors for core products with high quality standards, short-term subcontracting relationships to utilize new and cheaper production options, long-term but also casual relationships with full-package suppliers and independent license-takers in unfamiliar, complementing product lines. According to the different demands in different market segments the relative weight of these forms varies.

The increasing significance of full-package suppliers results also from a development that is affecting the value chain architecture in the apparel business as well as the traditional boundaries between retail and the apparel industry. Changing strategies of large retail companies and the emergence of the so-called "new verticals" in buyer-driven production networks (Gereffi 1995; Dunford in this volume) spur shifting profiles of manufacturing subcontractors. Large and powerful retail companies (mail-order companies, multi-branch retailers, department stores) increasingly try to make themselves more independent from the apparel industry, especially from brands. At least partly sidestepping their traditional suppliers in the apparel industry they develop their own retail brands by investing in their own marketing and design capacities (see in general for German retail Wortmann 2003). Because they are not provided with production and procurement know-how and cannot and do not want to operate in the OPT mode of production or procurement, they need highly capable suppliers able to assist in the design process, at least with regard to technical design and taking the risk of fabrics procurement.[14]

14 It has to be noted, that this is not without risks and hence not without alternatives. To develop sustainable design capacities is both risky and expensive and the lack of production and procurement know-how adds to this problem. Therefore, in quite a few cases retailers, when trying to position own brands, still rely on so-called private label producers with their own integrated design capabilities and collections who command and organize a production network on their own. Although the private-label producer is certainly a very

The supply chain architecture in the apparel business is also affected by the emergence and overwhelming success of the so-called "new verticals"[15]. Focusing on specific market segments and customers and emphasizing speed and flexibility throughout the value chain, in order to avoid the main risks of a divided value chain and the sharing of margins between retail and producer, vertical companies integrate branding (closely associated with the stores), marketing and sales in owned or franchised stores and a close control of the complete backward value chain. Similar to retail companies developing their own brands, verticals coming from retail or wholesale cannot rely on manufacturing know-how and therefore also prefer more capable full-package suppliers which are tightly integrated and monitored within a production network meeting specific demands. The main feature of vertical integrated concepts, either starting from producers or from retailers, is the integration of branding/design and sales and the ability to translate the information lead from this tight coupling of functions into an accelerated production and procurement process. For the latter element, both owned (or otherwise financially controlled) production facilities[16] and tightly controlled and monitored production networks of independent suppliers are utilized. A tentative classification of the independent suppliers of "verticals" would suggest that they come close to the turnkey or modular type regarding functional scope, lacking however the "merchant" character (Berger et al. 2001).

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capable supplier (with significant design capabilities), the relationship cannot be qualified as modular, because it comprises close collaboration between the creative departments of the retail company and the apparel producer. Together they must develop a common understanding of the brand message.

15 The most prominent European "verticals" are the Swedish company Hennes & Mauritz and Spanish firms Zara and Mango. Although they are less well known, there are also German companies applying a similar approach.

16 There is still a lack of knowledge about value chain architecture and governance of Verticals. However, it is at least evident that value chain governance differs considerably between major players, like Zara and H&M. Owned manufacturing facilities are more likely to be found in the cases where the vertical firm emerges from a former producer, e.g. the Spanish Zara which even integrates owned refinement and dye-works facilities within its production network. A business model which emphasizes speed may have specific advantages by hierarchical control throughout the value chain, overriding other advantages of a fragmented value chain.

In general, evidence from the apparel industry gives reason to refrain from a generalized credo for an unlimited splitting up of value chains.[17] This holds true for tendencies to integrate retail and branding/marketing/design. The aforementioned strategies of retail companies and the emergence of the "new verticals" provoke and strengthen counter strategies of brand-name producers. They try to integrate retail functions by strategies reaching from shop-in-shop systems in co-operation with retailers up to the endpoint of building up a distribution channel of owned shops. Apparel producers integrating forward into distribution channels focused on their own brand might resemble the shape of "new verticals" which started from retail or wholesale.

For the moment it is enough to state that the changing composition of value chains and the changing power position of the relevant actors within them could have consequences for the relocation aspects of the manufacturing infrastructure, as apparel producers, retailers and new "verticals" need different types of manufacturing partners as well as a sound textiles supply base, which are not uniformly available across different world regions. Moreover, as value chain architecture and governance differs between different European countries[18], going back to path-dependant developments of national industries (see e.g. Heidenreich 1990), it is likely that different European countries make different use of the new opportunities emerging in CEE (see next section).

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17 Advantages of a more pronounced division of functions, stemming from either specialization effects, lower capital tie-up, displacement of risks, or the possibility of utilizing cost differentials, must be calculated before the background of risks regarding knowledge transfer and rewards resulting from the ability to react quickly to changing market conditions, relying on hierarchical control or on types of networks offering (almost) functional equivalents.

18 E.g. large retail companies organizing the value chain backwards play a more important role in the Anglo-Saxon context, whereas brand name apparel producers of less significance still characterize the scenario in Italy and Germany. Especially retail structures differ considerably between European countries (see Dunford in this volume; Howe 2003; Potz 2002 for Italy, Wortmann 2003 for Germany).

Modular production networks and beyond

So far the presented evidence supports the view that the 1990s show an overall trend of fragmentation of value chains, propelled by outsourcing strategies of formerly more vertically integrated companies. As a result network forms of production organization are gaining ground. For the industries in focus this is the main tendency. However, the overall result is not necessarily a more and more fragmented value chain, because it is accompanied by the emergence of powerful suppliers trying to capture a larger part of activities and/or functions themselves. Secondly, while pursuing outsourcing strategies final producers are becoming aware of the risk of losing their status as defining actors in their industry to powerful suppliers, or of costly and time-consuming coordination problems in their increasingly complex supply chains. Finally, new actors arrive on the scene, combining formerly separated parts of a value chain, as evidence especially from the overall textile and clothing value chain has shown. In line with other research findings (see for an overview Hirsch-Kreinsen 2002) the division of activities and functions between final producers and different layers of suppliers is contested, and we are in need of better explanations regarding under which conditions newly emerging patterns of the division of labour become stable configurations over time.

Given the predominant trend of outsourcing during the 1990s we raised the question whether the emerging network configuration will mostly follow the modular production network model. Our provisional findings demonstrated that, in fact, the modular production network model captures important features of the emerging value chain architecture and governance. The assumed advantages of this network type also proved to be at work in industries beyond electronics, from which the model had been derived.[19] However, the same findings also show a multiplicity of value chain governance and

19 Support for this also comes from research on production networks of small and medium sized enterprises (SME) where among others a network type has been identified that rest upon clearly defined functions and intersections between the network partners. This type of network especially enables cross-border production networks as network relations seem to be more de-coupled from social and cultural peculiarities which in other cases serve as a basis for processes of confidence building (Hirsch-Kreinsen 2004; Hirsch-Kreinsen and Wannöffel 2003).

within the overall notion of production networks we identified network types that are better grasped by alternative models.

If the assumption that a single new model emerges across industries and national contexts is not valid, then the question arises: how is the emerging variety structured? Does it follow industry specifics or national contexts? The picture is far from being straightforward. There is some evidence that modular production networks are more likely to be found in electronics than for, e.g., automotive industry. However, a closer look reveals that there are alternatives within electronics industry as well, a differentiation which seems to be influenced by sub-sector peculiarities within the industry. On the other hand, in some respect in automotives moves in the direction of the modular production network cannot be overlooked.

Thus, overall empirical evidence lets us assume a variety of network types emerging both within industries and national contexts. Even one and the same company may rest on different types of production networks; i.e., companies strategically make use of alternatives; or the observed variety of forms may result from power struggles between different factions of management within the firm and the inherent dynamics and power struggles of network relationships (Herrigel 2004). In some cases network relationships between companies that used to be "modular" change over time into relationships that are better characterized as collaborative, involving the exchange of tacit knowledge (ibid.), because the manufacturing process is not or cannot be easily made "generic" and "clear-cut" (see also Lüthje and Sproll in this volume, Gereffi et al. 2003). So far, these provisional findings speak against the assumption that modular production networks will be the dominant type of value chain governance and suggest viable alternatives will emerge and/or continue. This is also demonstrated by Berger and Locke and Camuffo et al. (in this volume), stressing the vividness of the "relational networks" of the "Third Italy" even in the era of "globalization". Non-modular production networks are not just relics from ancient times which will inevitably die out; rather, modular production networks that gained ground in the late 1990s proved to be quite unstable.

Two related questions remain unanswered: first, how shall we conceptualize these alternatives; and second, how do we explain the variety of forms and its respective occurrence?

We cannot fully address these issues in this text. However, provided evidence suggests that the network types should be distinguished according to the following dimensions:

- the power distribution of the actors involved, including the question whether there is a focal actor constituting a strategic network: The power position of an actor may depend on different sources ranging from mere market power (including the ability to exploit economies of scale) to unique and critical competencies difficult to imitate, or on privileged access to critical resources.
- the division of competencies and functions: Whether the separation of functions occurs at the intersection between design and manufacturing or whether the overall design process itself is separated between different actors in the value chain seems to be relevant, hence the question of which actors are involved in product innovation.
- the standardization of intersections between network partners comprising the degree to which knowledge exchange can be codified (Gereffi et al. 2003): In line with arguments developed in the debate on the Wintelism model (Borrus and Zysman 1997) this refers to the emergence of industry standards, the type of standard (proprietary, open, or open-but-owned) and the standard setting procedures. Standards may result from negotiations between a variety of actors within an industry or organizational field, sometimes involving special committees and/or industry associations, from state regulation or from an outstanding power position of a focal actor.[20]

How these dimensions are grouped together in a certain field has an influence on both the density of interactions and the durability of relationships, distinctions that have often been applied to characterize interfirm relations. Moreover, we can tentatively distinguish between constellations which differ

20 Distinguishing between these dimensions may help to reconcile some of the problems of assigning network types to industries. Although there are some hints that the existence of such standards and standard setting procedures differ between industries, e.g. restricting "modular design" architectures in automobiles more than in electronics, our findings suggest that the discriminating dimension is not strictly related to industry demarcations but differs between sub-sectors of industries as well.

according to the degree to which trust-based relationships are likely to emerge or are a prerequisite of network building.

In the light of these distinctions we suggest extending the range of relevant network types in order to categorize the observed variety of forms. For instance, the following constellation should be considered as a category: interfirm networks that involve collaborative and long-term relations but rely on neither social and spatial proximity, deep-rooted and dense personal networks, and/or a sense of togetherness based on clan or ethnic relations, nor on the dominance of a lead firm, possibly including financial dependency as in the case of "captive networks" of the Japanese "keiretsu".

In any case, we suggest uncoupling network type and (national/regional) institutional context. It seems more adequate to first conceptualize a typology based on the main dimensions of the relationship between the network actors, and in a second step to identify the institutional mechanisms which restrict and/or enable the choices of network governance. This approach is even more adequate in a situation which seems to allow for more strategic leeway for corporate actors within changing institutional contexts and the emerging new options of globalization.

Is the variety of network forms structured according to national or regional institutional contexts? Some of the contributions to this volume concur with the basic idea that national (or regional) institutional configurations help to explain the emergence of (different) network types or interfirm relations. The strongest support for this comes from the contributions to the Italian case (Berger and Locke; Camuffo et al.), pointing at the resilience of the relational networks of the "Third Italy" not only for the national or regional Italian context but also for its cross-border extension. Other contributions, like Jürgens and Sablowski, highlight the relevance of the US institutional context, especially the Anglo-Saxon corporate governance system, for the emergence of "Wintelism" and the corresponding modular production networks. Similar arguments have been proposed by other authors, emphasizing US anti-trust legislation and deregulation and privatization policies (Borrus and Zysman 1997).[21]

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21 See also Lane (1997) for a comparison between Germany and Britain and Teubner (1999) highlighting the impact of different US and German contract law for the emergence of supplier relations.

However, there is ample evidence that does not fit into traditional institutional explanations of network governance. Perhaps most striking are findings that German (and other West European companies) make use of modular production networks that seem to be adverse to the national institutional context and have emerged in a different institutional context. Findings from the automobile industry also speak against a clear correspondence of national institutional context and network type. Here we can observe similar forms of supplier-OEM relations across national contexts, notwithstanding different ways in which they emerge (Herrigel and Wittke 2004). However, even in the electronics industry where modular production networks are gaining ground, the evidence is mixed, most prominently in Germany. Both the relevance of national contract manufacturers that more resemble the traditional cooperative "German" supplier relation and the reported tendency of a "Europeanization" of US contract manufacturers speak for the importance of varying national and regional contexts.

Where vertical disintegration takes on the modular form a typical "cross-national production networks" is likely to result. This constellation allows a variety of national industries to try to step into the respective value chain as well as final producers to rely on a global-scale supply base provided by the internationally operating and large-scale "modular" suppliers. However, as modular production networks are not the only and predominant type of value chain governance, the question arises whether and to what degree the dynamics of relocation will be affected and which patterns of relocation will emerge shaped differently by governance type. In the next section we will deal with these issues referring both to our own provisional findings and the contributions to this volume.

3. Relocation of Industrial Activities and the Role of Central and Eastern Europe

In the 1990s, new opportunities to locate industrial activities abroad widened the "space" for corporate strategies in Europe. The fall of the iron curtain within Europe and the following transition of former state-socialist societies opened up new markets for West European companies by removing the bar-

riers to the free flow of goods and capital. Furthermore, far-reaching political reforms in CEE countries, as part of the transition process, resulted in the adjustment of law, regulation, business climate and infrastructure, facilitating foreign direct investment, joint-ventures, alliances and extended trade relationships. The prospects of EU membership, as well as the access procedure, evoked efforts of the candidates to fulfill membership requirements and to transform the former societies. The ongoing transition process in CEE is creating a far more malleable institutional environment than in the institutionally "seasoned" societies of the West, giving economically powerful agents a good deal of creative power (Czaban et al. 2003: 18). Moreover, the transition process of CEE so far tends to result more often in liberal market economies producing different opportunities regarding various company policies than used to be provided in most Continental European countries. West European companies can use this elbowroom for a wide range of organizational experiments for which they would meet a more restrictive environment in their home countries. This refers both to local settlement decisions and a variety of employment and other contractual issues.

Western European companies, as well as global players from other world regions, have been increasingly using the newly emerging options in CEE, particularly since the mid-1990s (Kurz and Wittke 1998). There is ample evidence for this in several contributions in this volume. They paint quite a differentiated picture across countries and industries based on case study evidence and industry data. With regard to value chains European enlargement is already in place.

The enlarged and intensified European economic integration supports the view that globalization could be regarded to a large extent as the cross-border integration of economic activities within regional blocs (Zysman 1996). European economic integration has been the major piece of evidence for the regionalization thesis, highlighted by the claim of "Globalization as Europeanization" (Fligstein and Merand 2001). However, in our perspective the extension to CEE is not merely the continuation of (West) European integration. Rather, it may put an extended Europe in a different position within the world economy than the former EU 15. This new position could be characterized by a new combination of traditional strengths and new opportunities. These new opportunities are not only due to lower (wage) costs compared to Western Europe, and more competitive wage costs compared to regions that

have been used previously by West European companies; CEE countries combine cost advantages with proximity to West European markets and company headquarters allowing short lead times and facilitating immediate communication between business partners. Moreover, CEE countries provide a highly qualified workforce and industrial agglomerations in quite a few industries, stemming from the fact that CEE countries had been industrialized countries before and had developed industrial specialization during the COMECON era from which a newly composed East-West division of labor can continue.

We assume that the impact of an expanded relocation to the East on home societies of Western firms will depend on the patterns of industrial division of labor between the West and the East (Berger et al. 2001). Popular accounts of the effects of globalization suggest that production locations would to a large extent be interchangeable, producing pressures on Western companies, governments and (other) regulatory bodies to adjust wage and employment standards. An alternative approach, by contrast, assumes that West European companies and economies can use the new CEE locations in a complementary way, thereby preserving traditional strengths and accompanying them with the advantages of nearby low-cost regions while CEE countries gain the access to foreign markets as part of an international production networks (see Radosevic in this volume for a detailed discussion). This could be especially relevant in all cases where short lead times to the market are predominantly important. Moreover, there could also be the effect that parts of production which had been transferred to other world regions could return to Europe, albeit not to the original home countries. At least this might be the case where foreign investment or worldwide sourcing was not mainly motivated by the aim of serving protected markets in these regions or was even enforced by local content clauses. A low-cost region in proximity could also motivate West European companies to change their strategic focus to market segments where short lead times are more important but nevertheless wage cost restrictions play a considerable role (e.g. within apparel to segments with a more pronounced fashion impact or within electronics with a higher service impact towards Western European customers and final consumers).

Evidence so far favors the hypothesis that a pattern of complementary specialization will predominate in the division of labor in pan-European

production networks. However, even in this case quite severe repercussions for the Western countries are likely to occur. Even in an optimistic scenario the effect would be that a considerable re-composition of the overall workforce would result in which a declining manufacturing employment could be compensated for by increasing employment in other functional areas (design, services, marketing) employing different vocational and/or professional groups. We give just a few examples to show the range of possible outcomes.

(1) To start with a rather drastic example: Employment figures of the German apparel industry declined from 185,510 in 1989 to 48,362 in September 2003, while in the same period, mostly via Outward Processing Trade (OPT)[22], manufacturing migrated to low-cost regions with CEE locations gaining the largest share (more than three quarters). From 1989 to 2000 the share of white-collar employment grew from about 20 percent to almost 40 percent, indicating quite a dramatic functional and vocational re-composition of the workforce at home (all data from industry statistics provided by BBI, several issues). Although the apparel industry in Germany is constantly shrinking both with regard to employment and number of companies the remaining industry is quite successful measured in export figures. Some of the companies are highly profitable international brands. The heavy use of OPT helped multinational apparel companies to emerge which can utilize the increase in competitiveness for their success in foreign markets (Adler and Breitenacher 1995).[23] In 2000 almost 40 percent of the overall turnover of the German apparel industry was realized in foreign markets (BBI, 2000/2001). From case

22 We are using the regulated cross-national type of outsourcing "Outward Processing Trade" as a proxy for subcontracting. Due to regulation there is a reliable data base for OPT whereas aggregated data on subcontracting is lacking.

23 Their data show a connection between the use of manufacturing capacities in low-cost regions via OPT and overall company success. The more companies use OPT (related to turnover) the lower the decline in employment at home, which means that companies not using this option to increase their competitiveness lost market shares or were even forced to give up, while companies using OPT were for these reasons able to partly compensate their losses in manufacturing at home by stabilizing or increasing employment in other functions. The group of firms using OPT to 80 percent and more even show a positive development of their overall employment, because they were able to overcompensate their job losses at home with new jobs abroad, most probably both with regard to manufacturing and distributive functions.

study evidence we know that reputed German brands can have export rates of 70 percent. In international comparison success stories at company level put the dismal picture of the German apparel industry into a perspective derived from the disproportional decline of employment figures compared to several European competitors (see Dunford in this volume).

(2) The case of the North Italian industrial districts, described and explained by both Camuffo et al. and Berger and Locke (in this volume), most clearly captures the picture of complementary specialization, which does not undermine the employment base at home. The case does not solely refer to the apparel industry, but also to other industries which, however, are in relevant aspects quite similar to the apparel industry (e.g. regarding labor intensity). During the 1990s, industrial district companies have increasingly located industrial activities to CEE countries with a heavy emphasis on Romania. However, this did not occur at the expense of employment within the districts, although case study evidence also suggests a changing functional composition of the workforce at home. Berger and Locke contrast this development with the experience of Hong Kong, where most manufacturing activities disappeared. It could equally be contrasted with the aforementioned case of the German apparel industry. Even if we consider employment figures for the overall Italian apparel industry provided by Dunford (in this volume) there remains a remarkable difference between Germany and Italy. The decline of overall employment in Germany is significantly sharper than in Italy.[24]

(3) Whereas these two examples both refer to the same or similar industries, Spatz and Nunnenkamp (in this volume) discuss the case of the automobile industry in high-income countries, which is, in contrast to apparel, usually regarded to be less negatively affected by competitive pressures from low-income countries. With special relevance for Germany are CEE countries delivering final products and parts and components and attracting foreign direct investment. For instance, the German VW group counted 40,000 employees in its CEE locations in the Czech Republic,

24 Berger and Locke reject the explanation that these differences are only due to a time-lag in using the relocation option. They emphasize the impact of the institutional setting of Italian industrial districts explaining the specific pattern of complementary specialization, the strategic positioning of the firms, and their capability to continuous adaptation.

Hungary, Slowakia, and Poland in 2002, more than the 36,000 in Western Europe besides Germany (156,000). The 1990s engagement in CEE is part of an internationalization strategy of the group covering the world triad. It pushed its employment figures abroad from 95,000 in 1990 to 159,000 in 2000 while employment in Germany slightly declined (based on company reports).

In fact, the automobile industry in Germany, Japan and the U.S. as a whole is "among the winners of globalisation" (Spatz and Nunnenkamp), showing overall "favorable wage and employment trends." This is in contrast to the aforementioned case of the apparel industry (see for overall European data Dunford in this volume). However, these trends "mask substantial differences of the various subsectors of the automobile industry." Especially in Germany the labor market situation of low-skilled automobile workers deteriorated, both regarding wage and employment trends. Thus the automobile industry in Germany shows a picture where the negative impact of globalization regarding several subsectors and particular employee groups is compensated by positive effects in other subsectors and employee groups, whereas this could not be achieved in the German apparel industry. Thus the German automobile picture is more similar to the Italian industrial district case, although the different data levels (regional versus industry) balk at a direct comparison.

Spatz and Nunnenkamp show that the repercussions on the home context differ considerably between the three countries, especially between Germany and the USA, and they give hints of institutional explanations for these differences. The most challenging finding is that in contrast to Germany the U.S. automobile industry did not adjust its internal structure – there was no downward adjustment of relative wages of low-skilled work – and thus was "ill-prepared to cope with competitive pressure from below and lost international competitiveness." This questions the popular insinuation of more flexible labor market institutions in the U.S. and is in line with assumptions that German industrial relations are favorable for an internal re-composition of the workforce, although the necessary negotiations and the process of adjustment may take time (regarding the German automobile case see also Sperling, and Pries in this volume).

Although all three examples in some respect are characterized by complementary specialization, the results regarding employment and employment structure in the West differ. In order to better understand such an outcome, we obviously have to identify different patterns of specialization between industries and types of actors and to analyze how they are produced. Thereby we must take into account that the division of labor changes over time because the relocating Western firms learn from experience and the Eastern locations may develop their capabilities.

On such a basis the initial assumptions about the place of CEE within the international division of labor has to be re-examined, given the fact that CEE locations compete with other low-cost regions, themselves developing their capabilities, and that the upgrading capability of CEE may be restricted to compensate for declining wage-cost advantages. The results of these endeavors have an impact on the economic development of CEE but also on the possibilities of Western companies to utilize the emerging relocation option.

Patterns of relocation and division of labor

As the contributions in this volume and our own case study evidence demonstrate, the patterns of relocation strategies and the concomitant choice of CEE differ quite substantially between industries, and even within industries between types of actors and strategic orientation of companies. In the following we sketch the emerging patterns of relocation with respect to the three main aspects: (1) the leading actors of relocation activities and the type of cross-border value chain governance (2) the emerging larger supply base and agglomeration effects in CEE countries (3) the division of labor and its development over time (upgrading).

Automobile industry

Evidence from the *automobile industry* (see Enrietti, Pries, and Sperling, in this volume) suggests that final producers often take the lead in relocation of industrial activities to CEE whereas suppliers normally follow their custo-

mers. The main way to use CEE locations was by foreign direct investment establishing greenfield sites and joint ventures with existing firms. To make use of locations in CEE countries was not only motivated by wage-cost advantages regarding the production of final goods and components to be exported to Western markets or to be used in cross-border production networks of the firms, but also by the development of promising markets. As Sperling shows with evidence from the Volkswagen group, not only labor-intensive final assembly but also technologically advanced and capital intensive parts of the value chain is relocated to CEE countries, based on cost advantages due not only to wage costs but also to tax incentives and the availability of a highly skilled workforce. Skoda was integrated as an independent brand within the group, initially intended to predominantly target CEE markets, and shows all production stages and functions of a full-scale automobile producer including R&D functions integrated within the VW group. Also in the case of the technologically advanced Audi component plant in Hungary, development functions have been partly assigned to the Eastern location while overall car development remains at the headquarter site. As several location decisions of new plants during the 1990s show, CEE locations were selected in intra-firm competition with West European locations, including cases of heavy concession bargaining with different outcomes.

In the automobile industry, compared to electronics, suppliers often do not have the initiative. As the case of Fiat Poland shows (Enrietti in this volume) the traditional suppliers from the West initially followed their customer Fiat, sometimes quite noticeable put under pressure to do so, but then extended their deliveries to other foreign producers in Poland (e.g. GM). Meanwhile they also produce for export, whereby a broader supply base for the European automobile industry emerged in Poland. However, as Enrietti´s figures show, all technologically advanced and R&D-intensive parts and components, building the bulk of multinational automobile companies´ purchase power, are supplied by foreign suppliers, increasingly becoming multinational companies themselves, while the large number of local, independent suppliers deliver the less important and less advanced parts. Moreover, Polish subsidiaries of foreign suppliers still have a subordinated status because R&D and development partnerships with final producers are located at the company headquarters in high-income countries.

The picture regarding the supply base is quite similar in the Skoda/Czech Republic case (see Sperling in this volume), where most parts and component production facilities used to be in place in the former state-socialist industry structure. Local suppliers were overtaken or reorganized as joint ventures by the traditional Western suppliers of the VW group and then restructured and upgraded to meet the new demands. Thereby, the region developed to a highly capable automobile component supply base, not only for the Czech Republic and Skoda but also for other European countries and other Western automobile firms besides the VW group. In the case of Audi Hungary the development of a local supply base is lagging behind. Most parts are delivered by imports from traditional suppliers´ locations. However, Audi management plans to convince their suppliers to invest in Hungary.

Moreover, the reported case evidence in this volume also documents that the profiles of the Eastern location changed over time due to changing perceptions of the opportunities to use these locations, massive investment in upgrading of the Eastern location, and strong efforts on the Eastern side to develop and demonstrate their capabilities.[25] For instance, in the Skoda case it turned out that the upgraded product range produced in the Czech Republic was more successful in targeting Western markets. Whereas the initial plan to mostly target Eastern markets could be understood as a complementary specialization regarding brand strategy, the resulting market position leads to a situation where Skoda products compete far more than intended with cars from other brands of the group. The establishment of an engine development center and a new engine component plant at Skoda and the upgrading and growth of the Audi engine component plant in Hungary (for a detailed description of the process of decision making see Sperling in this volume) points in the same direction and gives more reason to question the assumption that a pattern of complementary specialization emerges as these component plants, together with the newly established Polish subsidiary, compete for orders with West European and even the Mexican plant within the VW group. In many respects, relocation more resembles the pattern of a parallel division of

25 What we might identify as today´s strategy cannot be traced back to a "deliberate" strategy at the beginning, but is better understood as an "emergent" strategy (Mintzberg and Waters 1985) coming into being through negotiations between different fractions of management and the ongoing observation and assessment of often unintended results of the pursuit of formerly deliberate strategies.

labor, not only because technologically advanced and capital intensive production capacities emerge equally in the East but also because Western and Eastern locations compete on equal terms regarding products. At least in the beginning the new industrial capacities in the East did not replace existing capacities in the West; the result was therefore not *re*-location. However, once new locations are in place and develop, substitution effects are likely to occur more often. Finally, it depends on the effects of the newly composed spatial structure on the competitiveness of the firm how overall employment at the Western locations will be affected, regardless of a changing employment structure.

Most recent rearrangements of the brand structure within the VW group, by which the Skoda brand could again be more clearly dedicated to the lower market segment in order to avoid the cannibalization of brands within the group, shows that the division of labor is still in flux and that a reversal development to a more pronounced complementary specialization, at least regarding brand structure, cannot be excluded. The division of labor is contested between the different actors within the company, and given the peculiar institutional context of Germany this implies a considerable involvement of the unions and work councils. "Negotiated globalisation" (Sperling) not only means that the changing profile of the Eastern locations within the group are thoroughly monitored for necessary and feasible re-balancing, but also includes the adaptation of wage and working conditions at home to better meet internally exerted competitive pressure. The case of the newly bargained collective agreement for a new, independent plant for new models is such a case ("5000x5000").

Electronics industry

As is the case in the automotive industry, locations in CEE have evolved over the 1990s as an important supply base for Western electronics firms. But in contrast to the automobile industry, where final producers/brand owners are pushing their production systems across national borders and getting their suppliers to follow them, in electronics manufacturing it is far more the suppliers who have become important drivers of globalizing production. Of course, after the "iron curtain" had disappeared, OEMs from

Western Europe detected, tried out, and used the benefits of those newly opened up spaces in the East. Some built up activities there very soon, in order to address regional markets – e.g. telecom infrastructure companies like the Siemens networks division or Alcatel. Other OEMs – like Philips in consumer electronics – rapidly built up a low-cost manufacturing base for high volume production, addressing EU commodity markets from those Eastern locations.[26] But over time it became clear that it is not predominantly West European OEMs who run the electronics manufacturing base in the East. Their relative weight was reduced – partly due to the fact that some of them reduced their "local content" activities as the basic renovation business of public infrastructure slowed down. The main reason is that a different type of actor turned out to gain ground massively. Regarding electronics assembly on the component and system levels, big first-tier (and several lower-tier) contract manufacturers have been driving the relocation of manufacturing activities and related services into CEE. Leaving home, the first-tier North-American contract manufacturers not only invaded Western Europe, mostly by acquiring staffed and equipped factories from OEM companies, but at the same time (and some smaller West European firms of this particular breed of suppliers did this as well) started to expand their footprint into the newly opened up European low-wage region in the East. Thus their production system in Europe spans a variety of locations, institutional settings and comparative advantages. "Contract manufacturing can be characterized as a mode of integrating, coordinating, and regulating diverging economic, social, and cultural conditions in global production systems" (Lüthje and Sproll in this volume).

For West European OEMs this is a promising opportunity. They can tap those resources in remote locations with different institutional conditions without running any of their own activities there, but by outsourcing their manufacturing capacities to contract manufacturers who (are supposed to) have better expertise in running cross-border production networks. Although OEMs often stay involved in decision-making regarding when and which part of their products the contract manufacturer may transfer to which low-cost site, they stay away from the execution of these decisions. By selling a

26 In some cases these activities have their roots already in the 1980s, when mainly Hungary started to open up for Western FDI.

Western plant to a contract manufacturer, who after a while transfers all or part of the activities to Eastern locations, OEMs not only delegate the particular relocation business to an experienced partner. They also often hand over quite troublesome disputes which might arise from downsizing or closing the plant – disputes that otherwise might damage the OEM´s brand reputation.

Over recent years contract manufacturers have rapidly built up a strong manufacturing base in CEE, mainly in Hungary, the Czech Republic, Poland and the Baltics – preferably in low-wage locations, but still in close spatial and cultural proximity to the industry headquarters in Western Europe. Though contract manufacturers prefer locations with an industrial tradition, these have been mostly greenfield investments, often with the status of toll-free zones. In addition contract manufacturers have taken over some – once again predominantly Greenfield – production sites in CEE from competitors and OEMs via mergers and acquisitions.

The agglomeration effects of these activities are rather limited. From the beginning those factories have focused on assembly with a very high content of electronics parts and components. As the supply base for those parts and components has increasingly migrated to Asia, and since semiconductors, disk drives, motherboards or printed circuit board can be easily transported by air, the bulk of materials is procured from Asia. This is not a peculiarity for CEE locations, but is true for West European and US locations as well. At the same time there are certain peculiarities of the local/regional supply base stemming from the past. For certain non-electronics parts, components and services (like enclosures, packaging, logistics) the local infrastructure has been quite poor. Therefore, contract manufacturers refrain from certain activities or compensate for local shortcomings, either by bringing those things in, doing them internally, or by getting suppliers to co-locate. In some cases contract manufacturers take this last option and run so called “industrial parks.” So on this sub-level of the value chain we find a similarity to the auto industry – but due to the different product architecture on a considerably smaller scale.

The evolving East-West division of labor seemed to move towards a clear pattern, quite in line with a common perception of the capability profile of those Eastern locations. The CEE branch of contract manufacturing was to focus on a certain stage of the value chain – manufacturing and little else –

while the more demanding and sophisticated tasks – process development, "industrialization" of the product, prototyping, procurement, production planning, and ramp-up of production – would stay in the Western branch of those cross-border chain of activities, close to the customer and leaning on the highly sophisticated skill base and innovative resources of Western locations. Concerning the product segment the Eastern locations would specialize in high volume/ low mix manufacturing of mature products of limited complexity, while the low to medium volume/ high mix production of complex, innovative and customized products would remain in Western locations. While in functional respects this complementary division of labor often evolved, the locational pattern of product segments showed some parallelism, as newly acquired Western plants quite often stayed with their established high-volume products. But this could have been only a time lag in establishing the anticipated complementary specialization and not the take-off for an alternative pattern. Nevertheless the Eastern locations grew rapidly and according to expectation: they greatly benefited from the extraordinary boom in certain electronics mass markets, particularly in information and (mobile) communication products. The growth in these segments drove the expansion of contract manufacturers' Eastern branch plants.

Recent developments after the downturn in 2001 clearly deviate from the anticipated path. The geographical architecture of these cross border production networks started to move more heavily and in a different way than was expected. Initially it seemed as if the downturn would have in the East similar or even worse effects as in the West. Like the West European branches of these networks the locations in the East were hit by the downturn in relevant markets, particular in computing and telecom markets. As the exceptional growth did not continue, contract manufacturers answered by melting down ("consolidating") capacities at existing sites and laying off employees – in the East and the West. Meanwhile they react more strategically, using the downturn to re-balance the geography of their East-West production networks. In West European locations there has been (and still is) massive downsizing, often with a "final touch" as contract manufacturers heavily scale down their capacities, mainly by closing down only recently acquired plants not only in the West European periphery (like Scotland, Ireland or Spain) but in industrial heartlands (like France, Northern Italy, Sweden or Finland) as well. Contract manufacturers´ Eastern locations are on the other

hand gaining importance, profiting from a West-East migration of production either inside the European organizations of contract manufacturers or winning new orders directly from Western OEMs. Existing plants in CEE had been downsized or even mothballed for a while and are now being re-opened, re-staffed and expanded. And new plants and locations are added to the CEE base. While in the 1990s contract manufacturers had most of their production space and employees in high-wage locations and only the smaller share in low-wage regions, they are turning around this ratio. Partly this can be interpreted as a late implementation of the expected clear-cut pattern of the East-West division of labor inside these cross-border production systems: now a big share of high-volume production migrates eastwards, as for several recently acquired Western plants the cost protection clauses in the contracts are expiring and the market downturn has increased cost competition and weakened the resistance in Western locations to giving activities away. But the development is more than contract manufacturers shifting high volume production from their plants in Western Europe to their established low-cost plants in Hungary, Czech Republic or Poland – finally creating the "natural" East-West-division of labor. It deviates twice from this pattern: concerning the scope of industrial activities that are taken into account for CEE locations, and concerning the geographical reach of relocation.

Concerning the geography of relocation: CEE locations experience strong competition from new options to locate industrial activities. China is perceived as becoming the global low-wage manufacturing base for electronics – not only serving Asian but European markets as well. On this background the established CEE locations are challenged, all the more as they increasingly lose their low-wage characteristic. Responding to this challenge, contract manufacturers are establishing a new European low wage tier of locations, not only in the more eastern parts of the initially preferred countries, but also tentatively in Slovakia, Romania, Bulgary, Ukrain, Moldavia, Russia. Most remarkable in this context, this move further east does not simply replace the first tier of CEE locations. It is not the move of nomads on their ongoing search for ever new low-wage advantages, but rather looks more like adding a new layer of locations into an existing system. First tier CEE locations work on upgrading, evaluate their experience and try out how far they can expand the capabilitiy profiles for a broader set of activities. They more often cooperate on this with regional or national agencies for economic develop-

ment. And in part they even find support from corporate headquarters, who tend to see relocation in a more strategic way and are interested in creating a more geographically differentiated net with a higher diversity of locational advantages beyond pure low-wage advantages (such as responsiveness or on-time-delivery).

Consequently the scope of activities at CEE locations clearly expands beyond high volume manufacturing, preferably of products with limited complexity. Eastern locations are increasingly viewed as capable of more medium volume and higher mix orders of even more complex products. And in functional respects contract manufacturers are more and more seen as suitable to locate activities there beyond manufacturing: process development, product introduction or some design activities, after-sales services, or even regional headquarter activities.

The geographical reconfiguration of these value networks is in the making, and it remains open what the architecture will look like. But what we see clearly is that certainty on the East-West division of labor is fading away. The strategic leeway regarding how to develop and how to use Eastern locations is broader than expected; the grey area of what can be done there as well as here is also broader than expected. There remain substantial risks and uncertainties, but if this upgrading of Eastern locations works it may turn out to be rather threatening from the perspective of Western locations: it would encompass a group of functions and activities that seemed not only to be resistant to relocation but was even thought to grow and thus compensate for the loss of volume manufacturing.

Apparel industry

The *apparel industry* makes heavy and increasing use of CEE as a low-cost region in proximity to relocate manufacturing since the 1990s. The degree to which companies from different European countries use this option differs considerably, with the German apparel industry in the lead due to former experiences during the state-socialist era and to the pronounced proximity advantages. Because of considerable differences in the relocation pattern between different European countries within this industry we refer to the German case for a start.

Relocation strategies of apparel companies differ from both the ones to be found in the electronics and automobile industry. The main difference is that relocation to a considerable degree relies on the use of subcontracting to manufacturing partners which originated in the CEE context.[27] Neither are the subcontractors foreign, multinational companies as in the case of electronics, nor is relocation mainly driven by the establishment of owned subsidiaries of the Western producers as in the case of the automobile industry.[28]

Because of the pronounced labor-intensity, relatively low investment in fixed assets, and a widespread availability of basic manufacturing capabilities, there are high incentives for Western apparel producers to relocate manufacturing to low-wage regions and to react quickly to wage cost differentials. Therefore there are low incentives for Western companies to invest in given locations but a high propensity to following newly emerging wage-cost advantages. This favors wage-cost sensible, short-term, arm´s length relationships with subcontractors, and normally would rule out the alternative of establishing own facilities in the respective low-cost region.[29] For these reasons the value chain governance regarding CEE is characterized to a considerable degree by exactly this type of subcontracting relationship, although CEE is not only selected as a new location because of wage cost-advantages but also because of the proximity to Western markets and design centers. Within this picture also fits the fact that the center of subcontracting within CEE shifted eastwards during the 1990s, following wage-cost differentials, from the early favorites like Poland to Romania. More recently locations even further East are selected, e.g. Ukrainia, although in the latter case companies have to balance wage-cost advantages with the possible loss of

27 However, among the ”local” offers of manufacturing services are also some companies owned by West Europeans, e.g. former German “Zwischenmeister” who saw their Germany based business vanish and decided to relocate their activities, sometimes encouraged by their former German customers.

28 Small and medium-sized firms lack management and expert capacity to sound out and monitor CEE subcontractors, and are sometimes even too small to be an interesting customer. They can make use of West European intermediate firms. A trustful relationship with such a company lowers the barriers for smaller firms to step into these new foreign opportunities.

29 This seems to be the conventional wisdom about the industry, making it the early example of a “New International Division of Labor” already in the 1970s (Fröbel et al. 1977) and which gave rise to the metaphor of “sewing machine nomadism”.

proximity and a variety of risks.[30] In any case, these relocation strategies are in contrast to the pattern described for the automobile and electronics cases in which the initial investments in Hungary, Poland and the Czech Republic seem to be far more stable, long-term, and less vulnerable, although in electronics experiments with locations further east can be observed.

However, from another perspective, using the relocation option to CEE itself can be seen as a counter-movement to a mainly wage-cost driven mobility pattern of the industry. The more companies put emphasis on fashion and hence short lead times to West European markets, CEE appears as a feasible relocation opportunity in comparison to more distant low-cost regions. Business models favoring speed before cost reduction (see the previous section) make CEE locations advantageous and lower the propensity to join the race to the cheapest location worldwide or to more eastern locations within CEE. Some of the larger globally acting companies even report having shifted manufacturing activities from the Far East to CEE in order to reduce lead times for critical product lines.[31]

Corresponding to this also the above portrayed type of value chain governance does not dominate the scene.[32] Strategies emphasizing high fashion and/or high quality seem to produce a need to establish closer and longer term relationships with a smaller number of subcontractors. Moreover, due to several reasons (see previous section) quite a few larger apparel companies rely, in addition to subcontracting, on own manufacturing sites in CEE countries, which also questions the notion of an industry permanently switching between foreign manufacturing facilities. Obviously there is a need

30 Intermediate firms make it easier for small and medium-sized apparel producers to join the journey without themselves taking the full load of transaction costs of monitoring new manufacturing capacities.

31 E.g., Hennes & Mauritz and Esprit Europe AG reported a shift in global sourcing from the Far East to Europe in the 1990s.

32 There is not one dominant pattern of relocation, although in some respects the apparel case differs clearly from the other industry examples. We hesitate to estimate more precisely the proportions in which the different types occur, nor are we able to consistently attribute the different types of value chain governance to different types of actors. Obviously apparel producers combine different approaches, using both own or majority controlled manufacturing sites abroad and subcontracting relationships. They prefer long term relationships to foreign partners for parts of their product program and use the flexibility gains of short-term and arm´s length relationships for other parts.

to invest in the capabilities of foreign manufacturing capacities, which in some cases affords to secure this investment and to reduce the risk of incubating or supporting competitors by means of ownership or other forms of financial engagement.[33] Additionally, both cooperation with a smaller number of subcontractors on a more long-term basis and establishing own manufacturing sites in CEE are means of reducing the complexity of supply chain management and enhancing speed.

All this indicates that there has been a process of upgrading the capabilities of CEE locations going back to both endeavors of Western firms and autonomous efforts of local firms. This does not only refer to the enhancement of basic manufacturing capabilities in cutting and sewing to meet the demands of Western customers but also to functional upgrading. While in the beginning subcontracting referred mostly to cutting and making (sewing and ironing), step by step more local firms took over new functions, e.g. the purchase of trimmings and logistics. How far this process has developed cannot be assessed at the moment.[34] At least from case study evidence we know that especially some German apparel companies broaden the capabilities of their own manufacturing sites in CEE trying to develop them as regional competence and logistic centers for a wider subcontracting network. In some cases Western firms use their own or majority controlled CEE locations as a base for conquering CEE markets with special labels. In these cases functions and occupational groups will be affected by relocation which in the notion of complementary specialization would have been expected to remain in Western locations. On the other hand Western companies hesitate to upgrade CEE partners to a degree which could make them competitors or enable them to use their newly acquired capabilities to offer extended services for other Western customers, while the ability of the local firms to develop as full-package suppliers or even as branded firms addressing Western markets on

33 In general, dependence of suppliers or subcontractors and correspondingly the dominance of focal actors appear in quite different forms beyond clear-cut ownership relations. In some cases even pronounced differences in market power can have similar effects as financial control. Former German "Zwischenmeister" moving to the East encouraged by their main customer can be seen as such a "mixed" type.

34 The consulting firm Corporate Solution (2001, 12) estimates that 80% of all CEE subcontractors offer simple cutting and making manufacturing services whereas 15% already offer additional trimming procurement or even so-called ready-to-use services.

their own seems to be rather restricted. This has to be observed more closely and further development cannot be predicted. However, it appears that the development of a wider textile-apparel supply base could be a special restriction to a further upgrading of the industry in CEE.

Regarding the backward supply chain, the heavy use of OPT indicates that raw materials from the textile industry still come to a high degree from West European countries, with Western apparel producers being the buyers of fabrics and often trimmings and having control over the backward value chain (see data given by Adler and Breitenacher 1995 for the early 1990s).[35] This means both that most CEE subcontractors are restricted to manufacturing activities and show a rather narrow functional spectrum, and that CEE is lacking a wider textile supply base regarding the materials that are obligatory for apparel products to be sold on Western markets. In contrast to the automobile case there are no leading foreign companies powerful enough to force Western suppliers to substantially follow their customers to CEE. For several reasons only a few West European textile companies, serving the apparel industry, established production capacities in CEE countries, and the former state-socialist textile industry did not manage the transformation to meet the demands of the potential new customers, although recently some improvements concerning the local availability of at least trimmings have been made. Regarding agglomeration effects the wider supply base of the textiles-apparel complex more closely resembles the case of the electronics industry, although for different reasons. The reverse of this development can be seen in the fact that the use of CEE locations by apparel producers more likely refers to those market segments and product lines where West European fabrics are used.

On the other hand, as our provisional findings suggest, the restricted upgrading of local apparel companies and the lacking wider supply base could subsequently prove to be an obstacle to a broader use of CEE locations. This refers to changing strategies of apparel producers as well as to different de-

35 In some market segments the fabrics producer has a substantial influence on the market success of the apparel producer with regard to quality, functional aspects and fashion impact. Correspondingly, relationships with reputed and innovative textile suppliers appear as a core competence of apparel producers and is an integral part of the apparel design process.

mands of other types of actors emerging in the overall textile and apparel value chain.

Apparel producers who expand their range of products beyond their previous core are more heavily reliant on full-package suppliers. The resulting shift from captive production networks (the traditional OPT relationship) to a modular or turnkey type of network (full-package supply) is likely to go along with regional shifts in the supply base as the different types of suppliers are not available everywhere. This might change the relocation pattern if traditional captive subcontractors from CEE countries do not manage to develop into a different type of network partner while there are other favorable regions already in place where this type of business partner has emerged.

This point is even more pronounced if we take into account the overall architecture of the value chain, especially the question of who will be the focal actor. As has been shown before, large retail companies in command of the production network in buyer-driven value chains are almost exclusively reliant on full-package supply because they lack basic competencies in manufacturing and supply of raw materials. With respect to CEE this has a twofold effect. In all cases where labor costs are of major importance and are not compensated by lead time advantages, Far East locations remain a constant alternative to CEE. And in all cases where proximity to the Western markets remains of foremost importance, and full-package supply or even the sourcing of commodities is the relevant option, other European rim locations appear as an alternative, especially if locally produced textiles and trimmings in world market quality are available. This is especially so in the case of Turkey.[36]

It is an open question whether the CEE countries can adopt a similar strategy as manufacturers from newly industrialized East Asian countries who became "middlemen" in buyer-driven commodity chains by "triangle manufacturing" using subcontracting with cheaper offshore factories

36 To rely on Turkish suppliers does not necessarily mean that CEE is completely out of the game. Although we are not provided with reliable data there is evidence that Turkish companies use subcontracting to CEE as well, especially to Bulgaria. However, this means that CEE companies, often very small local companies, only participate as subordinate players, while some Turkish companies have managed to develop own brands or labels for export to Western European markets.

elsewhere in Asia (see Gereffi 1995). Regarding CEE this could be given by the opportunity of using cheaper locations further east. Even if they manage their own upgrading, the slow development of an adequate textiles supply base could turn out an obstacle. The window of opportunity is smaller and more likely to be closed faster given the new WTO agreements and the advantages of China as both an extreme low-cost region and a extraordinarily promising market.

4. Emerging Pan-European Production Networks – Concluding Remarks and Open Questions

For a long time in the post-war era West European industries were shaped by a model of production with clear organizational as well as spatial boundaries. During this period, industrial production typically was carried out by highly vertical integrated companies using their country of origin – such as Germany – as main production base for domestic as well as for foreign demand. Hence, foreign demand was predominantly served by exports, and if companies set up foreign production sites, this was mainly for market access reasons (Bartlett and Goshal 1989; Chandler 1991; Dunning 1993; Dicken 1998). The processes of fragmenting value chains and relocating industrial activities, as they have evolved since the 1990s, are spurring the emergence of alternatives to the established model of production – i.e. a new breed of production networks which are cross-organizational and at the same time cross-national. In conclusion we look on the one hand at the nexus between patterns of fragmentation and patterns of relocation in creating Pan-European production networks; on the other hand we address the question of how these cross-national types of networks are shaped by national institutional settings.

1. Basically, the processes of fragmentation and relocation are intertwined. On the one hand, the increasing use of CEE as a manufacturing base is spurring the dynamics of outsourcing in Western Europe. For example, outsourcing decisions of West European OEMs are influenced by prospective cost advantages that stem from the (re-)location of suppliers' manufacturing facilities. On the other hand, with the increasing out-

sourcing of OEMs many suppliers evolved to huge, often transnational corporations. As a result, the capabilities and strategies of this transnational type of supplier are reinforcing the trend towards relocating industrial activities. However, outsourcing and relocation are not always so closely linked. As we have shown, depending mainly on the sector different actors have the lead in setting up manufacturing facilities in CEE. Hence, OEMs tend to set up offshore activities inhouse, particularly in those cases in which their core competences are concerned (such as in the case of final assembly in the automobile industry). The same holds true for highly sophisticated functions, such as product development (e.g., software development), where relocating (or considering to relocate) parts of these functions to CEE is a recent phenomenon. Also in these cases OEMs and suppliers across different industries relocate development activities by keeping them inhouse.

In any case, with regard to actors the fragmentation of value chains is driven predominantly by West European (or North American) companies rather than being induced by offers of CEE actors. CEE locations mainly serve as a resource base in terms of workforce, industrial agglomerations, infrastructure, etc. In the three industries we are looking at, indigenous players, i.e., companies that are run and owned by CEE actors, are the exception rather than the rule, particularly in the apparel industry. It remains to be seen whether CEE suppliers can raise their weight in European value chains over time. Even so, it might be that the predominance of foreign – i.e., West European or North American – actors is actually a characteristic of Pan-European production networks, distinguishing them from cross-national production networks in other world regions such as Asia. These specifics can be traced back to peculiarities of the transition process in CEE, particularly regarding the comparatively small emphasis which states laid on regulating industrial development.

2. Despite the fact of different relocation patterns, it remains in any case a crucial question as to how the division of labor between Western and Eastern locations appears to develop in order to assess the repercussions of the relocation process for Western societies. Although the notion "complementary specialization" (Kurz and Wittke 1998; Berger et al. 2001) can serve to characterize the industrial division of labor between Western and Eastern Europe in the mid- and late 1990s, findings re-

garding industry specific relocation patterns so far suggest that the emerging location patterns are not stable. The industrial division of labor is still in flux. There is rich evidence for upgrading over time at CEE locations. In some cases manufacturing and development facilities in Hungary, Poland or the Czech Republic are going to develop profiles that in the past have been characteristic of locations in Germany, France, or Sweden – e.g., the manufacturing of high-end cars in small volumes in the automobile industry; medium-volume, medium-mix production in electronics; or the location of innovation related tasks and functions (such as process engineering, software development or, in some cases, even R&D operations). This is not to say that CEE production facilities already match West European profiles in general. Instead, it is still open how far the process of upgrading will reach and how much of Western run activities in CEE it will cover.

It is clear, however, that CEE locations no longer compete only for industrial activities which in the past proved to be the weak spots of West European models of capitalism, such as the manufacturing of cost-sensitive products within the German model of capitalism. Instead, due to successful upgrading in CEE, relocation is an option even for industrial core activities for which in the past West European countries, such as Germany, provided institutional comparative advantages. As a result, it becomes less convincing to describe the division of labor between Western and Central Eastern Europe as complementary specialization. Viewed from the perspective of West European locations, further upgrading of CEE locations would inevitably change the pattern of specialization based on continuing wage-cost advantages compared to the West. CEE locations would then compete with a wider range of tasks and functions at Western locations, and eventually CEE companies could even become competitors for West European companies, at least in some industries and markets. Furthermore, the dynamics of upgrading in CEE and its impact on the international division of labor call in question how useful the 'varieties of capitalism' approach – with its notion of model specific 'institutional advantages' (i.e., an approach whose plausibility mainly stems from differences between Western capitalist societies) – can be in analyzing differences between Western and Central Eastern European countries.

3. Does the above mean conceptualizing strategies and practices of Western companies independent of the institutional contexts within which these firms act? Not at all. We expect the patterns of division of labor between Western and Eastern Europe to vary with the type of actor which is driving relocation. It is a commonplace that "internationalization strategies" of multinational enterprises are shaped by the country-of-origin, while "universal contingencies" also have an impact (Harzing and Sorge 2003). "National institutional contexts (...) shape how (multinational firms) internationalize" (Morgan 2001:1; see in general Ruigrok and van Tulder 1995; Morgan et al. 2001).

   Modifications in the industrial division of labor on the one hand are resulting from changes in relocation strategies of Western transnational corporations which lead to upgrading at CEE locations. In this perspective upgrading in CEE results from learning processes within transnational corporations. This kind of learning is itself driven by several factors, such as the reassessing of CEE facilities capabilities based on positive experience with local management and labor, or the companies' changing perception of the ability of local institutions in CEE (such as education and training institutions), which to some extent results from proactive shaping by Western companies themselves. Upgrading within the multinational firms is often facilitated by the inhouse West-East transfer of resources and knowledge. On the other hand, local actors in CEE are interested in advancing facility profiles as well. Hence, to some extent these actors – local management, employees, local institutions – are pushing forward upgrading. Even within transnational corporations, where to properly locate functions and competencies is often contested. So the emerging profiles of CEE locations to some extent result from bargaining processes within (Western) multinational companies. Nevertheless, successful upgrading strategies depend on the availability of resources and knowledge which are transferred within the multinational firms based on decisions typically made in the West.
4. What about the institutional contexts that shape actors' (re-)location decisions? Several contributions to this book deal with institutional imprints on relocation decisions, although mostly not in an explicit comparative perspective. Even so, the contributions show that the mode of embedding relocation decisions varies by type of outsourcing (governance form) and

type of actors. In the case of Italian industrial districts (as introduced above) the enduring influence of the country-of-origin on relocation patterns is probably most evident, not at least because in this case even extended outsourcing to suppliers doesn't alter the fact that all important actors responsible for (re-)location decisions (OEMs as well as suppliers) remain embedded in the same institutional context, i.e. the industrial district. However, the country-of-origin effect on relocation decisions is less clear as far as outsourcing leads to other governance forms, such as modular production networks. While OEMs strategies and practices continue to be shaped by institutional contexts of their home countries (such as Germany, France or Sweden), in these cases this does not necessarily hold true in the same way for suppliers. Particularly, if globally acting suppliers (such as contract manufacturers in electronics or mega-suppliers in automobiles) are involved who often have their home bases outside of Europe, outsourcing can shift substantial parts of industrial value chains to actors who are less embedded in the same institutional context than the OEMs. To put it differently: the combination of outsourcing by OEMs and relocation by global suppliers can lead to a multiplicity of countries-of-origin. Given that suppliers do not necessarily have the same country-of-origin as the OEMs presumably has an impact on the institutional shaping of relocation patterns. In the German case, e.g., to what extent relocation decisions are still an issue of negotiation between management and labor, if foreign based suppliers are less bound by the German industrial relations system, it is at stake.[37]

As a consequence, reasoning about institutional embedding of economic actors needs to be enhanced if the focus of analyses is directed towards industrial activities (value chains) rather than the field of multinational companies, which has already been studied intensively. In both cases a variety of institutional contexts must be considered. However, with regard to multinational companies there is one country-of-origin predominating the explanation of companies' strategies and practices even at other locations. By contrast, it becomes evident that outsourcing on a global scale leads to an increasing number of countries-of-origin to be equally rele-

37 In the German case, the multiplicity of countries-of-origin of key actors also affects the area of applicability of "negotiated globalization" (see Sperling in this volume).

vant for the institutional embedding of value chains. The multiplicity of countries-of-origin is the other side of the coin, if globalization is understood as a process which opens new institutional spaces for corporate actors (see part 1; in general Berger et al. 2001). We can only address the question of how useful the traditional 'national model of capitalism' approach still is for the analysis of institutional imprints on these cross-national production networks.

5. The question of whether CEE locations will be the natural beneficiaries of relocation strategies from Western Europe, and how the emerging pattern of specialization will look, is not only dependent on country-of origin effects. As has been pointed out with industry findings, the future European industrial architecture is not only a matter of the division of labor between Western and Eastern Europe. CEE locations are in competition with other low-cost regions and/or otherwise competitive world regions. It appears that a successful upgrading is the most promising alternative for CEE countries in this environment. This does not only refer to the immediate capabilities of the manufacturing partner but also to the availability of a wider supply base, including components and raw materials as well as skills and knowledge. The question is how CEE actors can spur upgrading processes in order to achieve a sustainable economic development which is not virtually dependent on foreign resource inflow, and which is not always in danger of being undermined by own relative wage cost increases compared to low-cost regions newly entering the scene. With respect to electronics, Radosevic (in this volume) gives a rather pessimistic outlook for strategies that aim at domestically-led modernization to complement foreign-led modernization, insofar as these strategies imply competition with core activities of Western companies. However, this does not preclude CEE actors from applying strategies that aim beyond the fields of Western companies' core competences. Basically, the emerging Pan-European production networks provide options for this kind of strategy. E.g., some CEE manufacturing activities have been set up by Western companies quite unintentionally, due to a lacking or underdeveloped local supply base (at least in the perception of Western actors). However, which parts of European value chains actually are accessible for indigenous CEE actors, and whether these accessible positions can

serve as a base for broader domestic upgrading strategies, remains an open question.

At present we can only outline possible scenarios and must refrain from a more detailed empirical portrait, not to speak of predicting future development. However, it has to be noted that the possible development is not only influenced by the institutional context in the West. The emergence and further development of "global" or "regional" relocation options should not be regarded as an institution-free economic opportunity. Actually, the shape of the new European industrial architecture, the new division of labor between West and East, and its repercussions for the West are also influenced by the changing institutional context in CEE countries themselves, most probably in co-evolution with a wider European transnational regulatory regime (see Lüthje and Sproll in this volume; also Taplin 2002; with respect to comparable developments in Asia Gourevitch in this volume; in general Djelic and Quack 2003).

REFERENCES

Adler, U., and Breitenacher, M., 1995, Bedeutung, Probleme und Zukunft des passiven Veredelungsverkehrs für die Textil- und Bekleidungsindustrie. Ifo-Studien zur Industriewirtschaft, 51, München: ifo.

Albert, M., 1993, Capitalism vs. Capitalism. New York: Four Wall Eight Windows.

Barley, S.R., and Tolbert, P.S., 1997, Institutionalization and Structuration: Studying the Links between Action and Institution. In: Organization Studies, 18/1, 93–117.

Bartlett, C. A. and Goshal, S., 1989, Managing Across Borders: The Transnational Solution. London: Century Business.

BBI (Bundesverband Bekleidungsindustrie) (ed.), several issues, Die deutsche Bekleidungsindustrie. Jahresbericht.

Berger, S., Kurz, C., Sturgeon, T., Voskamp, U., Wittke, V., 2001, Globalization, Production Networks, and National Models of Capitalism – On the Possibilities of New Productive Systems and Institutional Diversity in an Enlarging Europe. In: SOFI-Mitteilungen, No. 29, Göttingen.

Bonazzi, G., and Antonelli, C., 2003, To Make Or To Sell? The Case of In-House Outsourcing at Fiat Auto. In: Organization Studies, 24(4), 575–594.

Borrus, M., 1988, Competing for Control: America´s Stake in Microelectronics, Cambridge: Ballinger.

Borrus, M., and Zysman, J., 1997, Globalization with Borders: The Rise of Wintelism as the Future of Industrial Competition. Berkeley Roundtable on the International Economy, Working Paper 96B.

Borrus, M., Ernst, D., and Haggard, S. (eds.), 2000, International Production Networks in Asia: Rivalry or Riches? London: Routledge.

Chandler, A.D., 1991, Scale and Scope: The Dynamics of Industrial Capitalism, Cambridge, MA: Harvard University Press.

Czaban, L., Hocevar, M., Jaklic, M., and Whitley, R., 2003, Path Dependency and Contractual Relations in Emergent Capitalism: Contrasting State Socialist Legacies and Inter-firm Cooperation in Hungary and Slovenia. In: Organization Studies, 24(1), 7–28.

Corporate Solutions, 2001, Bekleidung in Osteuropa. Market Guide 2001, Bad Nauheim.

Dertouzos, M., Lester, R., and Solow, R., 1989, Made in America: Regaining the Productive Edge, Cambridge: MIT Press.

Dicken, P., 1998, Global Shift: Transforming the World Economy. 3rd edition. New York and London: Guilford.

DiMaggio, P.J., 1988, Interest and Agency in Institutional Theory. In: Zucker, L.G. (ed.): Institutional Patterns and Organizations: Culture and Environment, Cambridge, MA: Ballinger, 3-21.

DiMaggio, P.J., and Powell, W.W., 1983, The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. In: American Sociological Review, 48, 147–160.

Djelic, M.-L., and Quack, S., 2003, Globalization as a Double Process of Institutional Change and Institution Building. In: Djelic, M.-L. and Quack, S. (eds.): Globalization and Institutions. Redefining the Rules of the Economic Game, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, 302–334.

Dunning, J.H., 1993, Multinational Enterprises and the Global Economy, Reading: Addison-Wesley.

Fine, Charles H., 1998, Clockspeed: Winning Industry Control in the Age of Temporaray Advantage, London : Little, Brown &Co.

Fligstein, N., and Merand, F., 2001, Globalization or Europeanization? Evidence on the European Economy Since 1980. Paper prepared for the conference "Shareholder Value-Capitalism and Globalization, held in Hamburg, Germany, May 10–12.

Fröbel, F., Heinrichs, J., and Kreye, O., 1977, Die neue internationale Arbeitsteilung, Reinbeck: Rowohlt.

Gereffi, G., 1995, State Policies and Industrial Upgrading in East Asia. In: Revue d´économie industrielle, 71, 79–90.

Gereffi, G., Humphrey, J., and Sturgeon, T., 2003, The Governance of Global Value Chains: An Analytic Framework. Unpublished paper.

Gereffi, G., and Korzeniewicz, M.. (eds.), 1994, Commodity Chains and Global Capitalism, Westport: Greenwood Press.

Giddens, A., 1984, The Constitution of Society: Outline of the Theory of Structuration, Cambridge: Polity Press.

Harzing, A.-W., and Sorge, A., 2003, The Relative Impact of Country of Origin and Universal Contingencies on Internationalization Strategies and Corporate control in Multinational

Enterprises: Worldwide and European Perspectives. In: Organization Studies, 24(2), 187–214.

Heidenreich, M., 1990, Nationale Muster betrieblichen Strukturwandels – Am Beispiel der französischen und bundesdeutschen Bekleidungsindustrie, Frankfurt and New York: Campus.

Herrigel, G., 2004, Emerging Strategies and Forms of Governance in the Components Industry in High Wage Regions. In: Industry and Innovation, vol. 11, forthcoming.

Herrigel, G., and Wittke, V., 2004, Varieties of Vertical Disintegration: The Global Trend Toward Heterogeneous Supply Relations and the Reproduction of Difference in US and German Manufacturing. In: Morgan, Glenn; Moen, Eli; Whitley, Richard (eds.): Changing Capitalisms: Internationalisation, Institutional Change and Systems of Economic Organization, Oxford, UK: Oxford University Press, forthcoming.

Hirsch-Kreinsen, H., 2004, Internationale Netzwerke von kleinen und mittleren Unternehmen, Thesen zum Kolloquium "Gobale Strukturen und deren Steuerung", Evangelische Akademie Loccum/Volkswagen Stiftung, 14.–16. Januar 2004.

Hirsch-Kreinsen, H., 2002, Unternehmensnetzwerke revisited. Corporate Networks – Revisited. In: Zeitschrift für Soziologie, 31, 106–124.

Hirsch-Kreinsen, H., and Wannöffel, M. (eds.), 2003, Netzwerke kleiner Unternehmen – Praktiken und Besonderheiten internationaler Zusammenarbeit, Berlin: sigma.

Hollingsworth, J. R., 1991, Die Logik der Koordination des verarbeitenden Gewerbes in Amerika. In: Kölner Zeitschrift für Soziologie und Sozialpsychologie, 43, 18–43.

Howe, S. (ed.), 2003, Retailing in the European Union. Structures, Competition and Performance, London: Routledge.

Jürgens, U., Meissner, H.-R., Renneke, L., Sablowski, T., Teipen, C., 2003, Paradigmenkonkurrenz der Industriegovernance zwischen neuer und alter Ökonomie. In: Industrielle Beziehungen, 10 (3), 393–417.

Kenis, P., and Schneider, V. (eds.) 1996, Organisation und Netzwerk: Institutionelle Steuerung in Wirtschaft und Politik. Frankfurt, New York: Campus.

Kurz, C., and Wittke, V., 1998, Using Industrial Capacities as a Way of Integrating the Central and East European Economies. In: Zysman, J., and Schwartz, A. (eds.): Enlarging Europe: The Industrial Foundations of a New Political Reality. University of California, Berkeley: University of California Press.

Lane, C., 1997, The Governance of Interfirm Relations in Britain and Germany: Societal or Dominance Effects. In: Whitley, R, and Kristensen, P. H. (eds.): Governance at Work: The Social Regulation of Economic Relations. Oxford: Oxford University Press, 62–85.

Lane, C., 2001, The Emergence of German Transnational Companies: A Theoretical Analysis and Empirical Study of the Globalization Process. In: Morgan, G., Kristensen, P. H., and Whitley, R. (eds.): The Multinational Firm. Organizing Across Institutional and National Divides, Oxford: Oxford University Press, 69–96.

Lüthje, B., Schumm, W., and Sproll, M., 2002, Contract Manufacturing: Transnationale Produktion und Industriearbeit in der IT-Branche. Frankfurt, New York: Campus.

Mintzberg, H., and Waters, J.A., 1985, Of Strategies, Deliberate and Emergent. In: Strategic Management Journal, 6, 257–272.

Morgan, G., Kristensen, P.H., and Whitley, R. (eds.), 2001, The Multinational Firm. Organizing Across Institutional and National Divides, Oxford: Oxford University Press.

Morgan, G., 2001, The Multinational Firm. Organizing Across Institutional and National Divides (Introduction). In: Morgan, G., Kristensen, P.H., and Whitley, R. (eds.): The Multinational Firm. Organizing Across Institutional and National Divides, Oxford: Oxford University Press, 1–24.

Potz, P., 2002, Die Regulierung des Einzelhandels in Italien. Grundlagen und Einfluß auf die Handelsstruktur, Discussion Paper FS I 02-104, Wissenschaftszentrum Berlin für Sozialforschung.

Powell, Walter W., 1990, Neither Market nor Hierarchy: Network Forms of Organization. In: Research in Organizational Behaviour, 12, 295–336.

Ruigrok, W., and van Tulder, R., 1995, The Logic of International Restructuring, London and New York: Routledge.

Scott, W.R., 1995, Institutions and Organizations. Thousand Oaks et al.: Sage

Streeck, W., 1997: German Capitalism: Does it Exist? Can it Survive? In: Crouch, C., and Streeck, W. (eds.): Political Economy of Modern Capitalism. Mapping Convergence & Diversity, London/Thousand Oaks/New Delhi, 33–54.

Sturgeon, T., 1997a, Turnkey Production Networks: a New American Model of Industrial Organization? Berkeley Roundtable on the International Economy, Working Paper 92A.

Sturgeon, T., 1997b, Does Manufacturing Still Matter? The Organizational Delinking of Production from Innovation. Berkeley Roundtable on the International Economy, Working Paper 92B.

Sturgeon, T., 2000, Turnkey Production Networks: The Organizational Delinking of Production from Innovation. In: Jürgens, U. (ed.), New Product Development and Production Networks – Global Industrial Experience. Berlin, Heidelberg, New York: Springer Verlag.

Sturgeon, T., 2002, Modular Production Networks: A New American Model of Industrial Organization. In: Industrial and Corporate Change, 11, 451–496.

Sturgeon, T., and Florida, R., 2001: Globalization and Jobs in the Automotive Industry, MIT IPC Working Paper 01–002.

Sturgeon, T. and Florida, R., 2003, Globalization, Deverticalization, and Employment in the Motor Vehicle Industry. In: Kenney, M. and Florida, R. (eds.): Locating Global Advantage: Industry Dynamics in the International Economy, Stanford, CA: Stanford University Press.

Tainio, R., Huolman, M., and Pulkkinen, M., 2001, The Internationalization of Capital Markets: How International Institutional Investors are Restructuring Finnish Companies. In: Morgan, G., Kristensen, P.H., and Whitley, R. (eds.): The Multinational Firm. Organizing Across Institutional and National Divides, Oxford: Oxford University Press, 153–171.

Taplin, I.A., 2002, The Effects of Globalization on State-business Relationships: A Conceptual Framework. In: Geppert, M., Matten, D., and Williams, K. (eds.): Challenges for European Management in a Global Context. Experiences from Britain and Germany, Basingstoke: Palgrave Macmillan, 239–259.

Teubner, G., 1999, Eigensinnige Produktionsregimes: Zur Ko-Evolution von Wirtschaft und Recht in den varieties of capitalism. In: Baecker, D. and Hutter, M. (eds.): Systemtheorie für Wirtschaft und Unternehmen, Soziale Systeme, 5(1), Opladen: Leske + Budrich, 7–25.

Wortmann, M., 2003, Strukturwandel und Globalisierung des deutschen Einzelhandels, Discussion Paper SP III 2003-202, Wissenschaftszentrum Berlin für Sozialforschung.

Zysman, J. and Schwartz, A., 1998, Enlarging Europe: The Industrial Foundations of a New Political Reality. In: Zysman, J. and Schwartz, A., (eds.), Enlarging Europe: The Industrial Foundations of a New Political Reality, University of California, Berkeley: University of Califonia Press, 1–24.