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The emerging industrial architecture of the wider Europe: The co-evolution of industrial and political structures

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Abstract

Project results show that the international industrial networks in CEE are organized by MNCs and are limited in scope (mainly intra-firm). The weakest node for further industry upgrading via network alignment is a national network. There are big national differences in network alignment across CEECs. These differences reflect differences in the strategies of MNCs; the different roles of governments in different industries and countries; and the different positions of local authorities. EU demand operates as a strong 'focal point' (attractor) for the emergence of new industry networks. EU demand generates the necessary 'coherence' for initial and still rudimentary local clustering organized by MNCs. Differences in accession to the EU play a secondary role in market driven industrial networks. However, in sectors where regulations are important (energy, telecoms, pharmaceuticals) network alignment is strongly shaped by State regulations. The global political economy as well as EU accession has shifted CEE states towards a regulatory role. Formal policy alignment with the EU (deep policy integration) leaves unresolved the problem of conflicts and gaps in policy implementation. This may have a significant effect on patterns of industry integration in some sectors in the future. CEE states will have to learn how to influence industrial

development in their territory using structural assistance while at the same time complying with the EU regulatory requirements.

KEYWORDS: Integration, Industrial networks, Foreign direct investments

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1. Background

Pan-European integration started in the period characterized by trade liberalization and expansion of international financial markets. These processes are described in UNCTAD (1994, p. 118) as *shallow* international integration, meaning the spread of market linkages through greater trade and factor flows, and government action to reduce obstacles to these flows. The processes of financial and trade globalization are closely linked to the process of producing goods and services, i.e. to micro/enterprise level globalization. Globalization today is distinctive as a micro-phenomenon that enables production integration and networking and thereby creates *deep* international integration at firm level. Integration at micro level, or the level of international production, goes beyond arm's length market exchanges by internalizing cross-border exchanges under the common governance of MNCs or through different forms of sourcing or network relationships. Interlinkages between macro (shallow) and micro (deep) globalization processes produce a specific economic and technological dynamic of globalization (Radosevic, 1999a). Interlinking produces an unbalanced but increasing integration of some geographic areas or dimensions (competition, production, demand, finance) of the world economy, while simultaneously producing divergence or marginalization of others.

The extent and nature of the linkages that emerge between the 'East' and 'West' of Europe will strongly shape the competitive dynamics and industrial development in central and eastern Europe (CEE) but also in the EU. The accession of the central and eastern European countries (CEECs) into the EU raises the issue of whether 'East' - 'West' industrial networks will act to improve the growth prospects of the enlarged EU or whether they will deepen the differences in levels of development and undermine the prospects for more balanced growth.

Integration through the Single Market and conformance to *acquis communautaire* dominate the policy agenda of enlargement. Integration through different forms of inter-firm co-operation has been considered to be unproblematic and the almost inevitable outcome of institutional and policy integration. It is assumed that deeper institutional integration is more likely to lead to more extensive industrial co-operation.

Market integration is a necessary objective of enlargement. However, it is in no way a sufficient condition for dynamically efficient outcomes in an enlarged EU. Convergence of

CEECs in terms of growth is much more likely if production and technology integration reinforce market integration between them and the existing EU. Otherwise, CEECs could end up being integrated into the EU, but being isolated and marginalized in terms of production and technology linkages and excessively dependent on budgetary transfers. A proper appreciation of the conditions for 'deep integration' demands a better understanding of supply-side phenomena and, in particular, of the extent, factors and nature of production and technology linkages between the existing EU and the CEECs.

Based on research conducted within this project we argue, first, that the way in which CEECs integrate into the wider European economy will be important for the long-term growth of CEE and, in some respects, of the EU. Their integration through production networks, formed within intra- and extra-MNC linkages, is an essential part of the wider European integration, which includes market as well as institutional or policy integration. Second, the micro-level integration of the wider Europe is neither inevitable nor without its problems. The depth of industrial integration is not the automatic outcome of the depth of institutional (policy) integration. The issue of compatibility between policy/institutional and micro-level integration has to be explicitly addressed, as their mutual interaction will determine the emerging industrial architecture of the wider Europe and, thus, the growth prospects for Europe.

This report is organised in three major parts. The first part comprises Section 2 in which we review the relevant literature ; Section 3 which describes our conceptual approach; Sections 4 and 5 respectively which outline the objectives and methodological issues related to the project. The second part, Section 6, presents the results of studies at micro (6.1.), sectoral (6.2) and country (6.3.) levels, that have been undertaken within the project. The third part, Sections 7 and 8, summarises the conclusions from the project (7) and develops the policy implications of the research (8).

2. Literature review

The subject of industrial and economic integration has been of concern to several interrelated streams of academic research. Literature on economic integration, on trade and growth, on foreign direct investment (FDI) and growth, and the international business literature are all relevant for understanding the issue of international industrial networks. In

this section we critically interpret the main issues from this body of knowledge from the perspective of our research topic.

Literature on economic integration

This body of literature is in itself composed of several approaches, which focus on estimating the costs and benefits of integration, on optimal decision-making, on institutional aspects of integration, and on business economic aspects (see Molle, 2001 for an overview). Customs union theory, and common market theories are most often concerned with estimates of static, rather than dynamic effects of integration. Theories of regulation and optimal regimes are concerned with optimal levels of regulation (subsidiarity) while public choice institutional economics is concerned with the issues such as optimal club size and specific interest groups that shape the dynamics of integration. The business economics perspective is closely related to theories of international business to which we refer below. The diversity of these approaches suggests that 'there is as yet no coherent framework to explain the development of integration systems in general (…), nor to explain the path European integration has taken in particular' (Molle, 2001, p. 39).

From an economics perspective the best known approach to integration is to calculate the trade and income effects of integration. Rather surprisingly, the static trade and income effects of integration are limited. For example, the effects of the accession of the CEE countries to the EU have been estimated to be some 0.2% of GDP for the EU and represent roughly a 1.2% increase in GDP for the CEECs (see Baldwin, Francois and Portes, 1997). Economists find it difficult to come to grips with the dynamics effects of integration, such as learning by interacting, specialization and network externalities. Moreover, industrial integration takes place at the micro level, which makes aggregate approaches to integration insufficient and partial.

Literature on trade and growth

The literature on trade and growth is relevant to this project since close links between trade and growth are essential in the catching-up process. Trade serves to promote specialization, increased scale of production and increased variety of goods, in which learning effects are embodied. These learning effects are generated through several mechanisms. However, our understanding of these mechanisms is vague. Empirical and

theoretical research on trade and growth tell us very little about the learning mechanisms which trade entails. As Aghion and Howitt, (1998, p. 311) highlight the mechanisms of how trade affects growth remain unclear. Slaughter (1997), Aghion and Howitt (1998) suggest the following:

- Capital accumulation
- Factor price equalization
- Knowledge spillovers
- Trade mediated technology transfer

However, these mechanisms are devoid of learning content (factor price equalization), or unknown (spillovers) or insufficiently specified (capital accumulation and trade mediated technology transfer).Rather, the empirical literature tends to focus on measures of openness (trade to GDP ratios) in order to establish links to growth. The argument put forward about this research is that openness may be the result of growth rather than vice versa. Data on per capita income cannot identify mechanisms by which convergence or growth takes place. This opens the problem of endogeneity in empirical research, which has been difficult to resolve. In reality growth and trade mechanisms operate in combination, which leads to serious problems for an econometric investigation. In addition, empirical research has to use proxies, which are far from perfect. This has created a huge gap between theoretical models, which are by nature simplistic and empirical research, which has developed on its own.

The work on trade and growth in CEE has mainly followed the empirical route. The majority of analyses have looked at the changing patterns of CEE trade using various factor intensity taxonomies (Landesmann, 1997, 2000; Guerrieri, 1999; Kubielas, 1997; Hoekman and Djankov, 1996) or detailed product level data (Radosevic and Hotopp, 1999, Kaminski and Ng, 2001).

Literature on FDI and growth

This stream of literature analyses this link through analysis of the costs and benefits of FDI, through estimates of spillovers and, at micro level, through linkages between growth

and types of FDI. Several estimates of the direct costs and benefits of FDI were undertaken during the 1970s (see Helleiner, 1989 for an overview). However, all of these are bedevilled with numerous conceptual and measurement problems and have often been confined to only on one aspect of FDI - costs and benefits of licences. Today, in CEE estimates of direct costs and benefits are made by direct comparison of performances of domestic and foreign enterprises (Hunya, 2000). The dynamic effects of FDI are taken into account by estimating spillovers or benefits to domestic firms for which no direct compensation is made. This is done either by collecting circumstantial evidence on linkages or by statistical testing of the relationship between productivity of domestic firms and productivity of foreign investment enterprises.

The underlying assumption of this stream of research is that spillovers are positively related to the extent of linkages. However, the actual connection between linkages and spillovers has not been studied. This means that the mechanisms that generate positive or negative spillovers remain unknown.

The conclusions from this literature is that high growth rates and large inflows of FDI tend to go together (UNCTAD, 2000). However, causation mechanisms are not clear at the macro level as they are very context specific. The positive effects of FDI are likely to increase with the level of local capability and competition while the results regarding indirect effects of FDI are inconclusive. There is no general policy advice for maximising spillovers as they are sector specific and are function of industry, market, and technology factors (see Blomström and Kokko, 1997, De Mello, 1997 and Radosevic, 1999a for a review of literature).

Spillover-type research on FDI and productivity does not look at the *process* by which productivity is generated but only at the *determinants*, which usually are not those that operate in reality but are *ad hoc* statistical proxies. Empirical research on the effects of FDI in CEE (Holland et al., 2001; Hunya, 2000, 2000b; Resmini, 2000; Konings, 2001; Meyer, 1998) shows that:

a. FDI are concentrated in a few countries but are dispersed across industries and geographical sources;
b. In terms of employment, with the exception of Hungary where they operate as a complement, FDI act as a buffer (substitute) for large employment decreases in the CEECs;

c. FDI are deepening trade linkages by having disproportionately high shares in export and imports;
d. The direct effects of FDI are the significantly higher productivity of acquired companies/greenfields than of domestic firms. Foreign investment firms are the main profit generators in CEECs with higher relative shares in investments and R&D than domestic firms;
e. In terms of industrial and market structure FDI play a dual role as restructuring agents by building new sectors (electronics, automotive), and as market seekers (food). They are involved in branches that have relatively stable and promising or growing domestic markets but are not entering (at least not until recently) into collapsing branches with shrinking domestic market (steel, petro-chemicals);
f. The effects of FDI are still localized on acquired or newly erected plants. The extent of spillovers from FDI is still either very limited, non-existent or even negative.

A reasonable conclusion is reached by Holland, Sass, Benacek and Gronicki (2000) who point out that "FDI inflows have improved the overall growth potential of the recipient economies, but primarily through productivity improvements within the foreign affiliates themselves, rather than through increased capital investment, or technology spillovers to domestic firms".

International business literature

The international business literature is one of the major sources of theoretical and empirical evidence on industrial networks. However, the link between international business and growth is not developed in this literature. This is not surprising as the micro– macro link is methodologically the most complex issue in economics. Yet, it seems obvious that inclusion in the global economy may differ, depending on the organizational type of MNCs that enter a country (hierarchy/heterarchy; closed/open; leaders/followers). This link has been discussed in broad terms by Ozawa and Castello (2002) and has been conceptualised via the concept of development subsidiary (Birkinshaw, 1996; Birkinshaw and Morrison, 1995). Ozawa and Castello (2002) try to link the international business and endogenous growth literature by pointing to international business based sources of endogenous growth. The literature on subsidiary development is focused on the process through which MNC

subsidiaries enhance their resources and capabilities and, in so doing, add increasing value *to the MNC as a whole*. A review of this literature shows that:

a) National subsidiary types and their positions are related to the host country and regional attributes;
b) The nature of the organizational type of the MNC plays a role in the opportunities and modalities of integration of a country at the production network level;
c) The organizational types of MNCs are not straightforwardly related to the frequency of 'developmental subsidiaries' , and
d) The organizational structure is secondary to the management of decision-making processes within the multinational firm.

A growing part of the international business literature is concerned with non-equity relationships or networks. This growth reflects fragmentation of the value chain across t he global economy and the changing boundaries of firms. The position of firms in the value chain rather than internalisation issues (which formerly dominated traditional economics literature on MNCs) has come onto the research agenda. A simple procurement or vertical integration dichotomy cannot explain the existence of network forms of organization. Despite high degrees of uncertainty, frequency and asset specificity firms in network relationships do not integrate. The source of firm market power is far less the result of physical and other assets and much more the outcome of inter-firm relationships (Holmstrom and Roberts, 1998). This moves the focus of analysis from individual firms to the mezzo level, i.e. to supply chains, clusters of firms and other emerging organizational forms.

The problem of the multilevel nature of economic integration is taken account of by the work on competitiveness which links micro aspects, many of which come from international business, with sector or country specific variables (see Zinnes et al., 2001; Porter et al., 2002). Therefore, we may expect that the traditional exclusively micro-orientation of the international business literature will develop a more realistic although more complex research agenda. For the first steps in conceptualizing this new research agenda see Casson (2000).

Unlike the literature on FDI, the empirical work on CEE from an international business perspective is much less amenable to generalizations. This literature shows that the diversity of modes of integration of CEE into the global economy runs not only across but

also within sectors and is strongly shaped by the individual strategies of foreign investors. For example, Tulder and Ruigrok (1998) show that the shape of international production networks in the European car industry largely runs along the lines of four strategic groupings: frontrunner (Volkswagen, General Motors, Fiat and Renault), follower (PSA, Ford), peripheral (Suzuki, Daewoo) and (voluntary) lock out (BMW, Toyota, Nissan, Daimler Benz) networks. This demonstrates the role of individual firms in shaping patterns of industrial networks. Industrial networks, which individual firms are part of, have a significant impact on the nature of success of the strategies that firms pursue. Equally, individual firms are able to shape the patterns of adjustment of a large number of firms with whom they are in cooperation or competition. The models of operation of foreign firms in CEE are diverse. As industry studies show, they range from operations where CEE functions as a low cost base, to those where CEE operates largely as a complementary production base. In the upper range of business models we find the establishment of new production models as in the case of VW/Skoda (Dorr and Kessel, 1997; Brezinski and Fluchter, 1998), or integrated affiliates as in the case of GE/Tungsram and ABB (Barham and Heimer, 1998; Radosevic, 2002a). However, the most widespread operation seems to be where CEE enterprises operate as extended workbenches or localizers (Lankes and Venables, 1996). The opportunities opened by the European integration lead to interesting new business models of CEE firms, which are based on extensive use of subcontracting and alliances. A good example of this is Hungarian Videoton (Szalavetz, 1997; Radosevic, and Yoruk, 2001). Based on 26 cases of strategic alliances in Central Europe Radosevic (2002d) found that, as a rule, firms grow either through foreign acquisitions or networking (alliances), or through generic expansion, but an expansion that relies heavily on networking. Generic expansion as a lone strategy is rare. Most alliances can be grouped into production alliances, or marketing alliances (in the software sector). The most widespread type of agreement is subcontracting. The alliances in central Europe are being driven more by unexploited market opportunities and cost differentials than by the wish to displace competition. Alliances are more prone to vertical relationships while FDI are more prone to horizontal links. The comparison of cases suggests that the balance between generic expansion, alliances (networks), and mergers and acquisitions (M&A) as modes of growth, reflects differences in firms' abilities to control technology, and to gain access to market and finance. If the enterprise is able to exert control over two of these three elements, it can ensure growth

through alliances, by trading them for the third, missing or weak element. However, the outcome does not seem to be a direct function of the ability of enterprises to control access to technology, market and finance. It is not possible to fully understand alliances by only addressing their internal characteristics: how these mesh with their institutional context and sectoral structural features must also be taken into account. The types and dynamics of alliances also reflect the political and legal situation of a country (privatization, attitude towards FDI) as well as specific sectoral features in terms of technology, finance and markets. The profile of alliances is shaped through the interaction between firm-specific factors and capabilities, and sector- and country-specific factors.

The above literatures include the approaches and methodologies that are of relevance for exploring the emerging industrial architecture of the wider Europe and fill important conceptual and empirical gaps in understanding its determining factors and dynamics. We can rely on estimates of static trade and income effects of economic integration but can depend much less on estimates of dynamic effects (Molle, 2001). The empirical estimates of the welfare effects of FDI are limited to employment effects. Empirical links between trade and growth show that the relationship operates as a two-way causality (Rodrigo, 2001). The theory is weak in understanding the mechanisms through which export expansion affects GDP growth, and vice versa. Empirical estimates of spillovers give an indication of the possible effects of FDI but do not specify the mechanism by which spillovers occur. The international business literature provides evidence on detailed mechanisms by which companies grow and integrate into global networks but it does not address linkages to host country growth.[3]

The current literature: (i) is primarily focused on macro determinants to explain trade integration, or growth via FDI. Econometric proxies for determinants are often poor substitutes for real determinants; (ii) abstract from the broader institutional environment; (iii) does not conceptualise micro– macro linkages, which is the key to understanding the link between international industrial networks and industry upgrading. From the perspective of our research topic this is unsatisfactory.

[3] Vernon's (1966) product life cycle theory, Ozawa's (1992) theory of Japanese FDI expansion supply driven cycle, and Dunning's Investment Development Path (Cycle) (IDP) and its revision in Dunning and Narula (1996) employ a limited number of variables, and do not stand up to empirical scrutiny.

First, understanding the *process* of industry integration is equally as important as understanding the determinants of integration. There is a tendency for economic integration theory to deal purely with factors of production and trade, concentrating on the *effects* of integration, while political science approaches tend to focus on the *process* of integration, concentrating on political and economic elite attitudes and preferences. What is rarely considered is the interrelationship between these two (for a partial exception see Miles et al., 1995). Understanding of the process variables is essential if want to appreciate the potential for industry upgrading via industrial networks which is essential in our case.

Second, understanding the broader institutional context, in particular, political governance, is essential for understanding the interaction between local and foreign firms' strategies, states, the EU and regions. From a business studies perspective the problem of global production networks is predominantly seen as an issue concerning firms' strategies and the role of co-operative alliances (see, for example, Dussauge and Garrette, 1999). Indeed, corporate behaviour and strategies are essential for understanding the dynamics of production networks. However, if we are to understand the role that networks play in growth then we cannot abstract from the wider relations in which corporate decisions are taken. The dynamics of integration are determined by a complex interplay of forces and understanding of this requires going beyond economic approaches and introducing political governance approaches.

3. Our conceptual approach

If we want to understand the emerging industrial architecture of the wider Europe then industrial organization perspectives must be merged with political economy perspectives. The basic difficulty with an integrated political economy- industrial organization perspective is to define which variables should be taken into account (Hall, 1997). Our unit of analysis is industrial dynamics, which is by itself an open system. As Lundvall (1998) points out '(I)ndustrial dynamics is not linked to one specific level of aggregation in terms of micro-, meso-, and macro-analysis (b)ut presents a specific perspective on the firm as an open system that is affected by and affects wider systems' (p.2-3 cited in Ernst, 1998). Alongside the multi-level nature of the problem an additional issue is multi-dimensionality. The intersection between different networks is either nationally or

sectorally specific and involves a variety of the political and corporate governance and organizational aspects that hinder or enable alignment of different networks.

We do not have a specific or comprehensive list of the factors that shape industrial networks. Implicitly we are accepting the contingency-based view of alliances or industrial networks of Lorange and Roos (1992). This assumes that no particular type of network is better, nor universally more correct, than another (Britto, 1998). The choice of networks is dependent on the particular conditions at hand. Furthermore, unlike the international business literature, which finds contingency considerations only within the set of strategic features related to partner firms, we propose a framework in which variables that influence the formation of networks are broader in scope and relate to CEE state's actions, sectoral features and EU policies. This need for the inclusion of different levels also arises from the proliferation of actors, which today help shape international production networks.
As Strange (1996) argues - very persuasively - we live in a world of diffused power. '(T)he power had shifted upward from weak states to stronger ones with global or regional reach beyond their frontiers, that power had shifted sideways from states to markets and thus to non-state authorities deriving power from their market shares, and some power has 'evaporated', in that no one was exercising it' (ibid., p. 189). Similarly, Dunning (1997) argues that contemporary capitalism has changed towards alliance capitalism, where the relationship between governments and MNCs has changed from being cooperative to becoming more interdependent. If this is true, then we need to take into account the actions of many more actors (MNCs, international organizations, national and local governments, NGOs) if we are to really appreciate the patterns of the international production and knowledge linkages. Each of the levels (national, global, local and firm) plays a role in the process of shaping global industrial networks. For example, country factors in CEE can explain functional types of FDI but not their extent, volume and structure (Lankes and Venables, 1996). The level of FDI cannot be explained by country specific factors or, at least, not by them alone. Since there is not a smooth functional relationship between levels of FDI and a country's economic growth or institutional features this suggests that sectoral, firm and other institutional variables play a role.

The strategies of large firms may often be more decisive than country specific variables in shaping sectoral patterns of international production networks. As von Tunzelmann (1995, p. 10) points out 'by endogenously changing their circumstances through

technological accumulation, firms may ultimately alter the national system itself'. New systems of innovation in CEE will be strongly shaped by the way enterprises develop and integrate their business functions. This points to a need to include an individual firm level in the analysis, especially in cases where large foreign investors can change the entire structure of the industry.

All this points to the need for a multi-level analytical framework which also arises from the nature of globalization. 'Global' does not necessarily mean incorporating the whole world. As Chesnais (1995, p. 85) put it: "'global markets' are exclusively markets where purchasing power and intermediate inputs are effectively located". This implies that the scope of globality is relative to each specific case. It differs across different dimensions: financial markets and competition are more globalized than production and sourcing networks. An industry can be global in the sense that industrial competition is global, i.e. a situation of mutual global market dependence, but this does not imply that the production, let alone the technology, in that industry is globalized.

We approach the formation of industrial networks as an alignment of various networks. Few scholars have adopted this approach. Ernst (1998) points to the "co-evolution of international and domestic knowledge linkages that explains Korea's extraordinary success in information industries" (p. 32). Kim and von Tunzelmann (1998) point to the alignment of networks as an explanation for Taiwan's success in IT. Network alignment comes about through effective coupling of the evolution of national specific systems and the global (regional) production networks. The issue is not only "the question of developing networks but of integrating locally and nationally emerging networks with global network structures" (Kim and Tunzelmann, 1998, p. 1). In particular, we want to examine the ways in which markets, firms, CEE states and EU actions can bring about 'alignment' of these networks.

A variety or multiplicity of networks is what drives the process of integrating CEE into global production systems. By plugging into global supply networks domestic firms externalize their disadvantages in terms of accessing markets, technology and finance by surrendering control to foreign owners. Foreign investors then operate as compensating mechanisms for weakened domestic firms. Weak and isolated national networks are likely to have little growth potential if not aligned to foreign networks.

However, whether an alignment of networks will take place depends not only on their linkages but also on the nature of each individual network. For example, robust industrial networks have developed political governance and corporate governance that match, which is not the case in CEE. For example, an overview of corporate governance in the Former Soviet Union by Estrin and Wright (1999) shows that slow progress in transition arises from weaknesses in implementing effective corporate governance as well as from weaknesses in the broader economic environment (capital markets; banks; product markets). In this case, weakness of national industrial networks hampers their alignment with global networks.

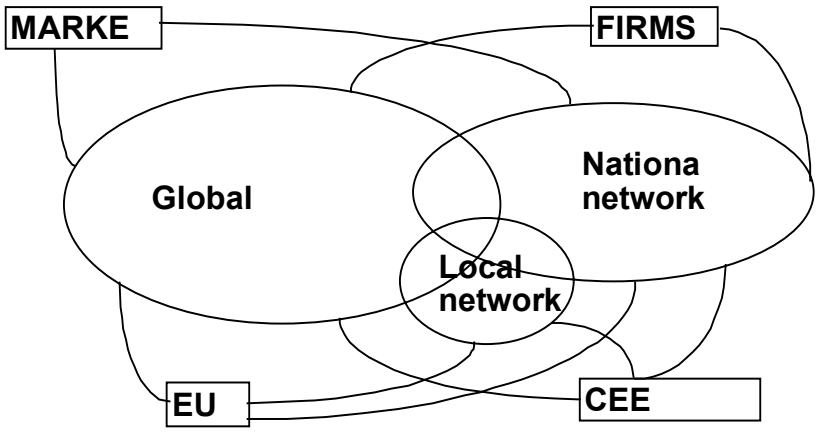
The more national and local networks are developed, the more sustainable will be their alignment with foreign firms and their networks, provided that their interests are complementary. If local production networks are weak then undeveloped domestic firms can only enter dominant alliances, i.e., alliances in which local firms are dependent on the foreign partner. In such situations MNCs dominate network alignment, which eventually produces a weak alignment of networks and thus a weak economic position in global production networks.

For the purposes of the network alignment concept we follow the approach of von Tunzelmann (2002) who defines networks very broadly as "non-hierarchical linkages between agents, which are other than pure market exchange". This 'negative' definition of networks as all else that is not pure markets and hierarchies, is similar to many other basically 'negative' definitions of alliances.[4] (See for example definition of alliances in Dussauge and Garrette, 1999.) For networks to align only information that is transmitted through prices is far from sufficient, and in turn requires network channels of interaction.

Following Kim and von Tunzelmann (1998) the analytical framework should contain all three dimensions — global, national and local networks - as well as their interactions.

[4] Non-hierarchical in this case means out of hierarchy as a mode of coordination. Networks are often relationships between agents who are of unequal power. In this respect, there is often a strong hierarchical relationship within networks.

Figure 1: East' - 'West' networks and their alignment



Graphically and in stylized form this framework, when applied to CEE, may look like figure 1.

The major methodological problem with this framework is how to systematically combine and integrate research on all three levels of networks. A mechanical combination of sector, country and micro studies may not be sufficient. By using the same conceptual framework (network alignment) on all three levels from a governance perspective different levels can be linked and some coherence between different levels of analysis can be generated.

Resources such as human capital, proximity or labour costs, which are, for example, the key determinants in explaining FDI, are only potential advantages for industry integration which, in order to be realized, require matching governance set-up. Looking at the governance dimension of industry integration allows us to understand a complex set of relationships between different firms (foreign and domestic) and local and national governments, which must match up with each other for the sector or country to grow via industrial networks.

We interpret the emergence of a new production location as a multi-dimensional phenomenon, which requires the simultaneous existence of several factors, and complementarities among these factors. Whether complementarities will be achieved depends on the governance dimension of international production integration.

This problem has been approached in the literature as a dichotomy as to whether it is markets or states that are most important in generating growth through integration in international production networks. In the case of CEECs, the market perspective has been dominant in transition economics, which argues that the progress in transition or convergence towards a market economy is both a necessary and sufficient condition for growth.

Hobday et al. (2001) point out that underlying both perspectives is the acceptance of a continuum of government-industry relations typically running from state-led, to corporatist, to market-driven (p. 210). The state vs. market dichotomy is unable to account for the strategies of firms and the differences between them. Hobday et al. (2001) take a significant step forward by bringing company strategies into the state-market debate, both local and foreign, which significantly changes our understanding of industry dynamics.

Although this framework is a step in the direction of a more realistic understanding of the drivers in the process of sectoral modernisation, it still omits a variety of other factors that play quite an important role in CEECs, such as local governments, EU accession and EU demand. Second, the variety of actors and networks that must simultaneously be aligned to bring about industrial change requires a conceptual framework that explicitly brings this interaction into focus. We think that the alignment of a network framework as developed in Kim and von Tunzelmann (1998), which we have further developed in this project, offers new opportunities for understanding the successes or failures in industrial modernization through international production networks.

3.1. Network alignment vs. the commodity chain perspective

A competing framework for understanding growth via industrial networks in a globalized economy is the concept of commodity chains. This framework was initially developed by Gereffi (1994) and the empirical work following this approach was further extended by Kaplinsky (2000) and Humphrey and Schmitz (2001). Gerrefi's work original concept of global commodity chains has been recently relabelled global value chains.[5]

The Commodity chains perspective allows the linking of local and global networks by focusing on design and marketing as well as production. This research has highlighted the underpinning role of networks in trade as well as recognizing the role of global buyers and

the opportunities of upgrading via commodity chains. Global commodity chain research is bringing the idea of governance into research on value chains. This has focused the research on the role of powerful lead firms in organizing global production and distribution networks. The key empirical insight is the emergence of "manufacturers without factories" (Gereffi, 1994) i.e., large retailers and brand-name companies who were creating global sourcing networks, but not necessarily owning any factories themselves. Global commodity chain research looks at the implications of this organizational form on access to trade and markets, on upgrading and on incomes.

Both frameworks - global value chains and network alignment – are descriptive constructs that still need development of their analytical structure. These frameworks have a few common features. First, they both bring in the governance dimension as an integral part. Second, they are both concerned with issues of upgrading and growth and how they relate to industrial networks. Third, they both take into account the unequal powers of actors and the role that strong actors play in structuring chains or networks.

However, there are some significant differences between these two approaches. First, the global commodity chain perspective is greatly concerned with the distribution of rents and how they are distributed throughout the commodity chain.[6] This is not of concern to the network alignment framework which looks primarily at the complementarities among networks and agents and how they bring about full or restricted network alignment and thus growth. From the network alignment perspective the biggest constraint of the commodity chain is its confinement to commodities and resources along the value chain. As von Tunzelmann (2002) points out "resource flows connect agents with one another, but the actions of aggregated agents can also span across resource flows. There is no one-to-one mapping between resources and agents, and the functions of agents overlap. Demands and supplies need to be resolved in a tensor-like structure, since the resource flows are themselves partly interconnected". From this perspective, the focus on commodity chains in

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[5] This approach has been criticised as well as critically developed by Smith et al. (2002).

[6] Gereffi (1999) considers that firms in producer-driven chains generate technology rents, which stem from privileged access to product and process technologies, and organization rents which refer to intra-organizational process know-how (p. 43). Buyer-driven chains, according to Gereffi (1999) generate relational rents, trade policy rents and brand name rents. *Relational rents* refer to several forms of inter-firm relationships like links between large assemblers with SMEs, local clusters and strategic alliances. *Trade-policy rents* refer to advantages created through protectionist trade policies like quotas. *Brand name rents* refer to the returns from the product differentiation techniques used to establish brand-name prominence (p. 44).

understanding upgrading is seen as excessively simplistic. Technology, finance and other resources and networks should all be part of the conceptual framework if we are to fully comprehend the upgrading via industrial networks in the global economy. The focus on vertical linkages omits far too many factors which are shaping the patterns of upgrading in the globalized economy. As Humphrey (2001), one of the active contributors to this research programme, points out, by focusing on vertical exchange linkages research on global commodity chains tends to marginalize local networks, national frameworks - particularly innovation systems, contextual features such as global standards, trade regulations, etc. , and local and national chains which also matter and its productivist perspective minimizes the role of finance.

3.2. Network alignment: from descriptive to analytical concept

Based on the empirical work in this project (the results of which are reported below) we have been able to build three new analytical dimensions of the network alignment framework.

First, based on a case study of the food industry von Tunzelmann (2002) has developed taxonomy of 'network failure', which can arise because:

1) The network relevant to a particular resource flow is missing
2) The network is present but there are anti-developmental (inconsistent objectives)
3) The networks for differing resource flows are mutually inconsistent.

This taxonomy can be applied in case studies that aim to disentangle the causes of success or failure of integration of individual sectors into global industrial networks.

Second, based on case study of ABB, a large European MNC, Radosevic (2002a) has tried to give analytical content to the notion of complementarities, which underpin network alignment concept. By integrating the insights of Milgrom and Roberts (1995) on complementarities we try operationalize and analytically develop the notion of alignment into heuristics, which we label the 'complementarities driven alignment of networks'. The notion of complementarity rests on the distinction between a mere evolutionary coincidence of several factors, which jointly produce a fortuitous one-off outcome, and situations where complementarities operate in a systematic fashion. In the latter case, doing more of activity A raises the value of increases in activity B, which then by increasing B also raises the value of increasing A. In the case of ABB investments in CEE we show that the depth of its

industry integration into CEE has been dependent on favourable complementarities between management, firm and region (country) specific variables and several external variables. Through changes in company strategy and persistent weakness of the technological environment in CEE some of these complementarities have ceased to exist.

Third, case studies, both at firm and industry level, undertaken within this project, show that the morphology of and the way networks operate cannot be understood by looking at their logistics. Network alignment can be understood only through appreciation of i) the content of networking and ii) the power or control structure of different networks.

The unequal resources and capabilities of agents mean that networks and the alignment of networks can be understood only if we take the content of networking and strategic objectives of agents into account. Agents with resources and capabilities are those that structure the nature of the network and the scope of network alignment. From this perspective much of the analytical work on networks and social capital, which is reduced on logistics of networks and associational activities as proxies is quite reductionist. Elsewhere (see Radosevic, 2002b), we develop alternative policy implications of this understanding of networks at regional level.

3.3. Industry vs. policy integration

When compared to other market integration projects (like NAFTA), a significant, if not the key specificity of EU enlargement, is strong institutional integration coupled with market integration. If we describe the depth of policy integration in market integration projects as 'shallow' policy integration then enlargement could be defined as 'deep' policy integration. Equally, shallow and deep dimensions can be identified in the case of industry (micro) integration. Interestingly, and from policy perspective of relevance, is the fact that there is no one-way correspondence between these two forms of integration. 'Deep' policy integration may not necessarily lead to 'deep' industry integration. Equally, 'shallow' policy integration may coexist with 'deep' industry integration and vice versa (See figure 2).

Figure 2: Relationship between dimensions of policy and industry integration

Policy integration ***Industry integration***	**'Shallow' policy integration** (trade and finance liberalization; no free movement of labour; some policy co-operation)	**'Deep' policy integration** (autonomous jurisdiction; direct financial instruments; CAP; single currency regime; movement of capital and labour integrated)
'Shallow' industry integration (spreading of market linkages through trade and finance flows)	**compatibility** in modes of 'shallow' integration	**incompatibility** the lack of industrial integration leads to considerable economic inequalities and cohesion problems.
'Deep' industry integration (a variety of production and technology networks)	**incompatibility** frustration; the lack of political integration leads to tensions and instabilities	**compatibility**; virtuous circle of policy and network learning through integration and 'catching-up'

As figure 2 suggests, the key issue is to match the degree of 'integratedness' on the two dimensions. The problems arise when they do not match due to the relative autonomies of each of these two forms of integration. Intuitively we would expect that there is a relationship between the microeconomic architecture (the ongoing state of the 'integratedness' of economies) and the degree of political commitment (the extent of agreement on how far the policies introduced foster or frustrate that condition).

The challenge for the candidate countries and the EU is to ensure that this relationship is a virtuous one, whereby integration fosters real 'integratedness', which in turn helps to promote further integration. The interactions will vary between different CEECs and sectors, and this should create a few taxonomic situations with specific factors of compatibility and incompatibility.

4. Objectives

In the globalized economy growth is greatly dependent on the way countries integrate into the world economy. Based on this rationale the project aimed to explore the taxonomic features of the emerging industrial architecture of the wider Europe, in particular the strategies and structures of the firms playing an active role in the construction process, chief among which are the major multinationals and large indigenous enterprises, often

linked through a variety of equity and non-equity means (alliances, subcontracting). The focus of the project is on the networks of these multinational companies and the degree to which they reflect and echo the 'shallow' aspects of integration, or provide a mechanism for 'deepening' integration. How far are they laying the foundations for future market/technology expansion? What role do industrial networks play in industrial upgrading of CEECs? Given the specificity of EU enlargement the project aimed to analyse the dynamics of the interaction between 'deep' and 'shallow' policy and industrial integration.

5. Methodological issues

Given the multi-dimensional and multi-level nature of integration the project was based on 10 firm level case studies, on 4 sector studies (electronics, clothing, food and electricity industry), and 6 country level studies (Slovenia, Poland, Romania, Hungary, Ireland and Spain). The latter two countries served as references for understanding the relationship between the national context and industry integration in another socio-economic context. In addition, we undertook two 'auxiliary' studies on trade, and on FDI and employment.

Implicitly, we followed the so-called 'societal' approach to firm, sector and country level comparisons. In contrast to universalist and culturalist approaches, the 'societal' approach means that the context serves as an important explanatory variable and an enabling tool, rather than constituting a barrier to effective comparisons (Hantrais, 2001).

Ten firm-level studies, 4 sector and 6 country studies should have ensured a balance between representativeness and the need to cover for variability. This number was also the result of the resources and time available. Thus, we followed a middle ground route somewhere between the study of one country, firm or sector and a large-scale multinational study. This number of studies has enabled us to investigate a much larger number of contextual or micro variables than is feasible in large-scale surveys while at the same time avoiding generalizations from individual cases. As Hantrais (2001) points out the key methodological problem in such cases is how to select the most appropriate national or industry contexts for analysis without lapsing into the excesses of universalism or culturalism. In our case, the contextual factors were determined, in the first instance, by the network of alignment framework. This framework forms the conceptual basis for comparison.

In interpreting at all three levels we tried to use this framework. However, in the final stages of the project it became obvious that the *context* and *content* of network alignment are much more important and carry stronger explanatory power than the framework itself. While framework itself served as a very useful *heuristic* for analysing firm, sector and country situation, understanding network alignment is not possible by presenting only the logistic or ordering of different nodes of the network alignment framework. In order to understand how network alignment operates it is necessary to explain both the context in which the networking takes place and the content of the networking. Network alignment as logistics and ordering of different elements is especially limited at the micro and national levels but relatively less limited at the mezzo level. Both content and context of network alignment are more homogenous at industry level due to the technological and organizational homogeneity of individual industries. At the micro and national levels differences in context and content of network alignment make the presentation of results through the network alignment framework incomprehensible without taking into account its content and context.

6. Results

The results of the project are reported under three headings: micro, sectoral and national level studies.

6.1. Overview of firm-level case studies results[7]

We undertook ten in-depth case studies of three groups of companies: MNC subsidiaries (4), domestic CEE companies with foreign strategic investors (2) and domestically controlled companies (indigenous manufacturers) (4). Table 1 shows the main features of the case studies. Table 2 shows the focus of individual case studies. Table 3 summarises the main features of each of the network alignment elements in Figure 1.

[7] This section is based on Radosevic and Yoruk (2002) (work in progress)

Table 1. Basic features of firms in our sample										
	MULTINATIONAL COMPANIES IN CEECs				**DOMESTIC COMPANIES WITH STRATEGIC FOREIGN INVESTORS**		**INDIGENOUS FIRMS IN CEECs**			
	EBS- Italy and France	**Tesco - the UK**	**ABB**	**Soufflet - France**	**Elektrim SA- Poland**	**Sokolow SA - Poland**	**Videoton - Hungary**	**Dobrogea SA - Romania**	**Vistula SA - Poland**	**Braiconf SA - Romania**
Industry	Agri-business	Retailer	Power transmission and distribution; automation; oil/gas/petrochemicals equipment; building technologies	Malt, milling	Telecommunications power generating equipment and cables	Meat processing	Consumer electronics	Milling and bakery	Men's wear	Men's wear
Year of foundation	1987	1919	1988	1950s	1948	1970s Sokolow, 1991 Farmfood	1938	1961	1945	1950
Year of privatisation and/or entry to CEECs	1989	1994	1990	1998	1989	2000 merged Sokolow	1991	1995	1993	1996

Ownership	Holding company-part of Montedison	Share-owned company	Merger of ASEA AB (Sweden) and BBC Brown Bovery Ltd (Switzerland)	100% wholly-owned subsidiary	Share-owned company	A share owned company with three foreign strategic investors	100% Hungarian capital	100% Romanian capital - MEBO privatisation	Share-owned company	Share-owned company
Author(s) of case study	Yoruk and von Tunzelmann (2002)	Yoruk and Radosevic (2001)	Radosevic (2002a)	Yoruk (2002b)	Radosevic, Dornisch and Yoruk (2001)	Yoruk (2002c)	Radosevic and Yoruk (2001)	Yoruk (2002d)	Yoruk (2002e)	Yoruk (2002f)

Table 2: Focus of individual case studies		
MNCs IN CEECs	**EBS- Italy and France**	Establishing and upgrading of company network in CEE
	Tesco - UK	Supplier chain development in the CEECs (particularly for own-label products) and adoption of Tesco's business processes
	ABB	Development of production network in CEE and the issue of complementarities
	Soufflet - France	Development of strong local networks at the upstream of the industry
DOMESTIC COMPANIES WITH STRATEGIC FOREIGN INVESTORS	**Elektrim SA- Poland**	Transformation from foreign trade organisation into conglomerates and than to focused firm
	Sokolow SA - Poland	Integration into supply networks of MNCs and development of local supply networks
INDIGENOUS FIRMS IN CEECs	**Videoton - Hungary**	Domestically controlled growth based on networking and contract manufacturing
	Dobrogea SA - Romania	International network as a source of knowledge to the firm
	Vistula SA - Poland	Establishing domestic vertical and horizontal production networks and bulding firm as a network organiser
	Braiconf SA - Romania	Knowledge acquisition and assimilation through global production networks

Table 3: Comparing network alignment elements in case studies

	Eridania Beghin – Say (Montedison), EU MNC	**Tesco, UK**	**ABB, Central and eastern Europe**	**Soufflet, France**
CEE firm	Upgrading of its CEE subsidiaries	Local suppliers are being involved in supply chain	Full integration of CEE subsidaries in ABB network	Foreign breweries in CEE are the main customers
MNC	CEE as a savior for some line of businesses	Expansion as the strategic response to globalization in retailing	Strong complementary interests with CEE countries before shift to knowledge baased stategy	Organiser of local supply networks
CEE national networks	Linkages with upstream suppliers are under development	Weak; TESCO is the potential organiser	Weak links with other local firms	Weak or non-existent
CEE local networks	Linkages with upstream suppliers are under development	Weak; TESCO is the potential organiser	Limited local networking	Weak
CEE government	Privatization enabled a variety of acquisitions and greenfield strategies	Not major problems (cf. greenfields)	Complementary strategic interests during privatisation	Governments are not supporting agriculture
EU accession	Enabled wider European strategy	Enabled wider European strategy	Secondary positive effect in pursuing complementary specialization	Potential, but not yet realised, market opportunities on EU markets
Sectoral impact	Strong indirect impact through competition	Restructuring and increased productivity in retail sector	Strong sectoral impact interms of productvity and technical capability	Strong competition and restructruing effects
Overall assessment of network alignment	Restricted	Weak but developing	Strong but confined on dyadic relationships (before shift to knowledge-based strategy)	Strong and developing
	Elektrim, Poland	**Sokolow SA - Poland**		
CEE firm	Problems in organizational coherence	Strong organizationl and technological		

	(process vs. products)	capabilities
MNC	Strong control interests and conflicts	Main source of finance and know-how
CEE national networks	Acquisitions and competition	Limited links
CEE local networks	Limited networking	Developing links with farmers
CEE government	Rents but also conflicting interests	Irrelevant
EU accession	Attractiveness of domestic market brings oligopolistic competition	Compliance to EU standards as one of drivers of restructuring
Sectoral impact	Restructuring agent with mixed results	Strong direct impact on competition and restructuring in sector
Overall assessment of network alignment	Weak	Restricted

	Videoton, Hungary	**Vistula, Poland**	**Dobrogea SA - Romania**	**Braiconf SA - Romania**
CEE firm	Good organizational coherence	Developed organisational capabilities	Fast building of business functions and capabilities	Gradually improving organisational capabilities
MNC	Complementary interests	Complementary interests	Competition and partnership with MNCs on domestic market	Complementary interests to foreign buyers
CEE national networks	Organizer of subcontracting network	Organiser of production and distribution network	R&D links under development	Weak, restricted on R&D
CEE local networks	Organiser of industrial parks	Non-existent	Limited	Very weak
CEE government	Rents during privatisation used productively	Irrelevant	Facilitating international R&D projects of company	Irrelevant
EU accession	Proximity to EU enables MNCs flexible sourcing	Increased competition	Prospects for further R&D cooperation	Market access

Sectoral impact	Contributed to extensive restructuring in electronics	Vistula developed domestic production network	Strong competition on national market based on product differentiation	Successful restructuring; Strong competition
Overall assessment of network alignment	Strong	Strong	Strong but only in R&D	Weak but developing

We present the network alignment elements from the micro studies despite its being difficult to understand them without an understanding of their content and context. We hope that the summaries of the network alignment elements should be sufficient to give an appreciation of why there are differences in network alignment across case studies. The more the favourable elements working towards network alignment the higher the degree of development of industrial networks.

In continuation we present several stylised or common characteristics, which are derived from comparison of case studies.

First, *the strategic grouping of companies into MNC subsidiaries, domestic companies with foreign strategic investors and domestically controlled companies shows three different situations in terms of corporate governance, resources and strategic orientation.* MNCs have resolved ownership/control problems, have much larger resources at their disposal compared to local firms and have fully integrated the CEE subsidiaries into their company networks. Domestic companies with foreign strategic owners are sharing control and are trading access to local market for foreign technology (know how) and finance. In one case (Elektrim) the issue of control has ambiguous effects on the strategic orientation of the business group and on its organizational coherence while in another case (Sokolow) there is a clear complementarity of interests between domestic and foreign investors. Domestically controlled companies do not have ownership/control problems but are facing much greater deficiencies in resources (technology, marketing, finance). However, although formally independent companies, their growth is based on strong links with foreign partners in supplier (Videoton) or buyer driven supply chains (Braincof, Vistula). All four domestically controlled companies have from the traditional corporate governance perspective an unfavourable ownership structure. They are all either have dispersed ownership or are owned by employees and management.[8] In all four companies there is a notable continuity of management and good track record in terms of business performance and technological capability. These cases suggest that the company resources (management and organization), rather than corporate governance factors, can better explain their current performance.

[8] Sixty five percent of Vistula's shares are in the public offering, 15% are owned by management and 20% by employees. Dobrogea is 98% in hands of employees and management and 2% is held by individuals. Braiconf SA has 40% of its shares owned by employees through the Association of Employees, and 60% are offered on stock market of which 27% have been bought by Romanian interests from third countries. Videoton management undertook its own leveraged buy-out and owns 85% of the shares.

Second, *the nature of their industrial networks does not follow in a straightforward manner from features of their strategic groups. Industrial networking cannot be derived directly from features of corporate governance and company resources but involves a variety of other elements like industry features, features of local and national networks, etc.* Within each of these three strategic groups we find differences in network alignment, which come from a combination of firm and context specific factors. However, if we order the elements of network alignment according to their importance then the strategy and structure of company can be seen to be strongly shaping the nature of networking. This, together with contextual factors, is a good explanation of the differences in network alignment across cases.

The strongest network alignment occurs in the case of the domestically controlled companies Vistula and Videoton. A good organizational coherence and developed organizational capabilities, which matched the interests of foreign buyers very well, have transformed these organizations into organizers of local supply/subcontracting networks. This position was reinforced by other factors such as EU proximity (Videoton) and its competitive pressure (Vistula), by supportive local networks and initial government rents acquired through privatization (Videoton). Soufflet, a French MNC which is active in the malting industry in CEE, has also become network organizer by assisting the restructuring of hitherto weak suppliers networks of farmers. Also, Sokolow, a domestic company with a foreign strategic investor, is active in developing links with farmers. In these last two cases there are also strong complementary interests in the form of local farmers and strong domestic demand. However, the EU still operates only as a potential attractor while the government role is either irrelevant or is considered as being not supportive. This explains why the overall network alignment is somewhat weaker in these two cases when compared to Videoton and Vistula.

Three foreign investors (ESB, Tesco and ABB) have fully integrated their CEE subsidiaries into their global operations and have upgraded them in organizational and productivity terms. Their market-seeking motives (Tesco, ESB) or the combination of market/efficiency/knowledge seeking motives (ABB) together with the absence of hindering factors in the business environment, including government and the EU, might explain why integration has been so successful in these cases. However, in all three cases close relationships between the parent firm and the local subsidiary contrast with still weak but

developing relationships with local suppliers (ESB, TESCO, ABB) or R&D organizations (ABB).

The Polish business group Elektrim is a good example of restricted network alignment caused by problems of corporate governance and strategic orientation in the presence of oligopolistic competition from foreign strategic investors. Two Romanian companies involved in food (Dobrogea) and clothing (Brainconf) are examples of strong build up of intra-firm capabilities but continuing weak 'linkage capabilities' which are essential for network alignment to take place. In the case of Dobrogea, networking in R&D is important for product development and differentiation but its production network is limited. When compared to Vistula and Videoton these two firms operate as 'laggards' with possibly similar potential to become network organizers in the future. This lagging can be explained by a combination of weaker intra-firm organizational capabilities compared to the two very successful CEE cases of Videoton and Vistula, and by a less favourable impact of other factors of national and local networks, EU and government.

Third, *the biggest weakness of network alignment in CEECs is weak national and local networks. In all cases, undeveloped national and local networks are not a sign of strength but a sign of weakness.* Two domestically controlled groups in electronics (Videoton) and clothing (Vistula) have managed to establish domestic subcontracting networks and become network organizers of these networks. Foreign owned companies are embarking on this process but with delay and to a smaller extent, except in cases of malting (Soufflet) and meat (Sokolow) industries where the local supply base is the key to increased market share. Weak local and national networks, which are in need of substantial investment, illustrate and support the econometric evidence on absent or negative spillovers of FDI in CEE. However, in all cases, be they domestic or foreign owned firms, we can see strong upgrading and efficiency improvements. This case study picture conforms fully to data on high productivity of foreign firms as well as data on the rising productivity of domestic firms. However, our cases show that the literature on FDI and industrial change in CEE has given attention to the extent of upgrading and spillovers, which originate from domestically controlled firms, (Vistula, Videoton).

Fourth, *industrial networks are most often vertical and dyadic, i.e. involving parent company and local subsidiary (ABB, EBS, Tesco) or local firm and foreign strategic investors (Elektrim, Sokolow). Domestically controlled firms with good organizational capabilities in sectors that require local subcontracting*

and contacts with multiple foreign buyers are the only ones involved in multiple networks (Vistula, Videoton, Braiconf). In these respects, they seem to be the best potential agents of network alignment or growth in these economies. In many CEEs, FDI are very important in terms of sales and employment and even more so in terms of profit generation and investment. However, from a long-term and structuralist perspective domestic firms that are capable of becoming network organizers seem to be equally as important, if not more important, for building externalities and synergies.

Fifth, *domestically controlled firms grow through a combination of generic expansion and networking or reliance on foreign buyers (Braiconf, Vistula, Videoton) or suppliers (Dobrogea) or on foreign strategic partner (Elektrim, Sokolow). Our cases suggest that the issue of control is important in terms of strategic orientation of company but also the linkage capabilities or ability to grow based on networking with foreign partners seem to be even more important.* The importance of such capabilities and, related to them network based strategy. stems from one of the crucial inherited disadvantages of ex-socialist firms which is weak system integration at product level and weak process integration at network level (see Radosevic, 1999b). This inherited intra-firm deficiency operates jointly with weak systemic phenomena in CEECs such as externalities, networking, complementarities and synergies. Our sample suggests that the operations of foreign investment enterprises are not in any way a guarantee that these weaknesses can be resolved or improved. *Our evidence suggests that there is no straightforward relationship between the foreign presence and the degree of network alignment.*

Sixth, *the structure and strategy of MNCs are strongly shaping the depth and the extent of industrial networks.* Soufflet and Sokolow are oriented towards building their supplier base by offering technical assistance to farmers. ABB has been very fast and successful in integrating their local subsidiaries into a global company network. Tesco has transferred its business processes and practices to its CEE operations. EBS also has developed links with local upstream suppliers. Elektrim's foreign strategic investors and their controlling interests have strongly shaped company strategy. In all cases where foreign investors are present as full owners or as strategic investors their strategies have been decisive in determining the extent and nature of the network alignment and local sourcing that has taken place. When faced with the negative externalities in the business environment as is the case with a poor supplier network, or weak support from government for agriculture, these strategies tend to become conservative or less ambitious in terms of network building. Equally, strategy is itself a self-

discovery process and in a few instances investor strategies have been re-shaped by prospects for growth, which were not initially recognised. Examples are R&D and the technological links of ABB with local universities.

Seventh, *industrial networks are predominantly production networks and only to a very limited extent technology (knowledge) networks*. In the case of Dobrogea R&D networks have been important for product development. In the case of Videoton, the company has been involved in a few small design projects. Based on their own efforts some of the clothing companies (Vistula, Braiconf) have developed design capabilities. In all these cases, technology development has involved a conscious strategic effort.

Knowledge transfer is inevitably part of any production linkage as in the case of subcontracting in clothing or electronics. However, explicit knowledge or technology networking was rare in our case study sample. Where intensive knowledge transfer occurred it was confined to production links, for example support to farmers (Soufflet, Sokolow). Our case studies suggest that technology networking does not automatically follow from production networking. The requirements for further technological networking are emerging as the next structural barrier to growth for CEE enterprises.

Eighth, *for domestic firms the EU operates as a favourable factor through its proximity and demand (Videoton, Braiconf, Vistula), as a source of competition from the EU companies (Elektrim, Dobrogea) and as source of know-how (Sokolow)*. EU accession has further reinforced all these advantages and in the case of agriculture is likely to offer new market opportunities. For foreign investors CEECs are new markets (Tesco, ESB, Soufflet) or markets and production locations (ABB). For ESB, the opening of CEE was an essential strategic opportunity. For ABB, expansion to the East was logical given the global nature of its activities. Tesco has successfully pioneered expansion to CEE in the retailing business where such expansions are fraught with numerous risks. For them, EU accession does not seem to affect things in terms of strategic orientation and perceived benefits from their CEE presence. For Soufllet, accession may open opportunities for export to the EU. *However, despite the somewhat secondary importance of EU and EU accession in network alignment this factor in all cases gives a clear focus and long-term orientation for company strategies and coherence to network alignment*. This conclusion about the secondary but nonetheless strategic importance of EU accession in building industrial networks may be the result of a bias in the portfolio of case studies which does not involve

industries (with the partial exception of Elektrim) where regulatory aspects are prominent (see sections 6.2.3. and 6.2.4).

Ninth, *national governments are neither the source of the problem nor the facilitator in network alignments. Similar to the effect of EU accession, this factor is secondary*. It is secondary as a result of the passive role of government in privatization. In a few cases, governments have provided rents to local investors (Elektrim, Videoton), which have been used productively. The assessment of the role of government in network alignment via competition policy (telecom liberalization and the position of Elektrim), subsidies (support to local suppliers in agriculture in the case of Soufflet, EBS and Dobrogea) or R&D support (Dobrogea) is much more complicated and our cases do not provide sufficient basis for a full assessment.

Tenth, *the entry of MNCs along with the non-equity links of domestic firms with foreign buyers has significant effects on industrial restructuring and on the nature of competition in the sectors. In all cases, the entry of MNCs has changed the nature of competition in individual sectors* (ESB, Soufflet, Tesco, ABB). In cases when foreign investors are present indirectly, i.e. via strategic investors (Elektrim, Sokolow), or as major buyers (Vistula, Videoton, Braiconf) or as competitors (Dobrogea), the sectoral effect is equally strong.

6.2. Overview of results of the industry studies

The project analysed industrial networks in four sectors, clothing, food, electronics, and electricity. In the rest of this section, we present the four themes that emerged from the studies of the four sectors. First, although scale and scope of industry upgrading differs across sectors there are some common features. Second and third, we interpret patterns of industry integration in sectors through the alignment of network and sectoral systems of innovation frameworks. These are generic frameworks which enable us to compare different sectors. Finally, we analyse the relationship between production and policy integration as it emerges from the four studies.

6.2.1. Industrial upgrading patterns

Patterns of current industrial upgrading in CEECs are shaped largely by the capabilities that domestic enterprises have inherited. Socialist enterprises were production units rather than business units with fully developed portfolios of business functions. Their

common feature in the post-socialist period is that they are relatively weak in three key areas of capabilities (Radosevic, 1999b):

- Marketing skills, finance, organization
- Product systems integration capabilities
- Network building capabilities at firm level.

Weaknesses in marketing, finance and organization are inevitable for firms that operated in closed, centrally planned economies.

Production and continuous improvement require integration of different functions (finance, R&D, engineering, procurement, production, and sales) whose integration is essential to innovation dynamics. This capability, which we call product system integration capability, takes time to develop. Integration of different functional capabilities is developed only in domestic 'blue chip' companies.

Production and innovation have to be organized across several tiers of suppliers, which are all involved to different degrees, not only in terms of production, but also in terms of innovation. This process integration at firm level or network building capability is even more rare and is present only in domestic firms that have been able to become network organizers. Where this capability has been developed it has enabled the departure from the production units of centrally planned systems. In terms of upgrading being able to adopt a bargaining position towards foreign firms, is the most developed strategic position.

Production capabilities, including, in particular, engineering and workers' skills, are often higher than might be expected. For example, Yoruk (2002) argues that the CEE clothing firms have inherited from the socialist period weak process efficiency but have a well developed product and process know how.

In order to operate in a competitive environment enterprises have had to reduce these three inherited weaknesses by pursuing three types of upgrading (see Table 4).

Table 4: Inherited weakness of CEE firms and areas of upgrading

Weakness	**Area of upgrading**
Marketing skills, finance, organization	Managerial/functional upgrading
Product systems integration capabilities	Product upgrading
Network building capabilities at firm level	Process upgrading esp. 'linkage capabilities'

We would expect that the post-socialist enterprises would upgrade on all three dimensions to the extent needed to meet competitive pressures. Indeed, case studies and business press evidence suggest that after 10 years of post-socialist transformation enterprises in CEECs have significantly improved their marketing, finance and organization compared to the early transition period. In order to prosper in a market environment and to export they have had to improve quality and develop functions that were only rudimentary in the past.

However, those capabilities whose development is dependent on building networks may develop only slightly or not at all. The capabilities of local CEE firms to integrate the system at product level (combining foreign with domestic solutions, customisation, etc.) and organise a network at firm level (manage domestic subcontractors) are still weak.

The work in Yoruk (2002), based on in-depth research of clothing firms in Romania and Poland, shows that the pattern of upgrading in CEE does not proceed in a balanced manner along functional, process and product upgrading. What emerges is a distinct pattern of upgrading shaped by the specific transition circumstances of CEE. Financial difficulties and lack of domestic demand have locked clothing firms in both Poland and Romania into outward processing (OPT) for several years. This mode of integration has strongly shaped their pattern of upgrading in several respects. First, high dependence on foreign markets and weak financial capability has made Romanian firms very dependent on foreign partners. Most are unable to launch their own brands and they are focused on being quality suppliers with only their production function developed. In contrast, Polish firms are trying to reduce their share of income deriving from OEM relations and are developing their own brands for the domestic market. In order to improve their position in the domestic market and their bargaining position with foreign firms, they have organized networks of domestic SME to be clothing subcontractors. In this way, large Polish clothing firms are operating as network organizers developing not only product but also process capabilities, and especially linkage capabilities. However, this pattern of upgrading by Polish firms is not linear as they are still very dependent on OPT relationships and the barriers to own brand manufacture (OBM) production for export, are still insurmountable. Romanian clothing firms operate, as single enterprises with no attached networks and are primarily focused on and dependent on foreign buyers.

Yoruk (2002) shows that through OPT the CEE firms have become stuck with the role of production units, which is more or less how they performed under the socialist system. Polish firms have managed to make a small escape from this subcontracting trap as a result of vibrant domestic demand.

This case study shows that despite being exposed to very similar foreign partners industries in two countries have responded differently. Their response is partly the result of past capabilities and partly the result of different modes of privatization. Polish firms operated during the 1980s in an environment with some degree of competition and brand recognition whereas Romanian firms, which operated under the closed economy of the Ceaucescu regime, did not carry out any business functions related to market relationships. These differences in past capabilities were compounded by differences in privatization. In Poland, large firms were broken down into individual plants that continued to operate as SMEs. With the new opportunities, the larger domestic firms have started to reintegrate some of these plants into their network as subcontractors. In this way, they have started to develop network-building capabilities. In Romania, the lack of domestic demand and continued dependence on foreign buyers accompanied by cash flow problems and the pattern of privatization, which retained large firms, have induced a different pattern of upgrading which is mainly intra-firm oriented. However, the weaker technical and other capabilities of Romanian firms compared to Polish firms, have oriented them much more towards external R&D and consulting organizations. Also, their orientation and the deepening of linkages with foreign buyers has meant that they have improved more in terms of depth of capabilities (quality, technology, efficiency) rather than in terms of breadth of capabilities, which has been achieved by Polish firms (Yoruk, 2002).

The differences in upgrading patterns between the two countries have important effects on the opportunities for further industrial upgrading, growth and productivity. Different patterns of upgrading have emerged that cannot be explained by the 'quantity' of foreign capital or foreign presence via subcontracting. This suggests that the notion of 'quality' of foreign investment is a reasonable one to adopt to understand the growth effects of foreign investments. By 'quality' we mean the institutional context, factors and process of network alignment. A similar 'quantity' of foreign capital or foreign presence via subcontracting, may produce significantly different patterns of industrial upgrading depending on domestic factors, which are not easily discernible at the macro level. Thus,

industry network studies are necessary complements to econometric studies on FDI as they can pinpoint the potential for further industrial upgrading and differences in patterns of upgrading.

Among the different types of upgrading we would expect that the first to develop would be functional upgrading. Functional upgrading should include development of the R&D function, which in the past in CEECs was usually not located within the enterprise but was 'dislocated' to industry institutes. Data on business expenditures on R&D in CEE show that this strengthening of the R&D function has not taken place on any large scale (EC, 2002). A study on the food industry by Yoruk and von Tunzelmann (2002) argues that upgrading in local firms has shown up "the divorce between technology and production capability". By this, they mean that the R&D function is not yet embodied within firms and firms are dependent for technology on foreign buyers (partners) and in exceptional cases have links with a domestic industrial institute. In the case of local firms that become part of a MNC, production integration takes place through strategic decisions made within the MNC, as the organizer of the local network of subsidiaries.

We have already pointed out that CEE firms are very deficient in network building capabilities. This function has become crucial for sectors whose supply or distribution chains are poor or disorganised. In the food industry, domestic and foreign producers are faced by a fragmented agricultural sector. Initially, foreign investors showed very little interest in the upstream agricultural end of the value chain. Poor productivity and poor quality production together with the low appropriability of potential investments in upstream agriculture deterred foreign investors. However, as Yoruk and von Tunzelmann (2002) argue, they gradually becoming involved in the restructuring of upstream agriculture. Foreign investors have had to teach farmers how to produce quality output for MNCs so that, in some respects, they have begun to operate as hubs for local supply chains. It is not only MNCs in agri-business that have been forced to organize local networks: foreign retailers such as, Tesco, a UK retailer with investments in several central European countries, have become involved in the whole supply chain, setting up close relationships with agricultural producers. Local firms are not yet able to invest in these activities and to operate as network organizers. Yoruk (2002) and Yoruk and von Tunzelmann (2002) show that now we can find domestic network organizers in the clothing sector in Poland but not yet in the food industry.

In CEE electronics, the pattern of industry upgrading is marked by the strong dominance of foreign MNCs as investors. In the relatively short period of the 1990s a clear trend towards expansion of the existing facilities in manufacturing in terms of increased investment, employment and export can be seen. This has involved sometimes significant upgrading of production capabilities in order to achieve standardized quality.

However, we do not find cases of functional upgrading and moving from manufacturing to engineering within the same firm. Most often CEE electronics firms operate as product specialist plants or rationalized operators, which explains the limited possibilities for functional upgrading. In addition, the limited autonomy of subsidiaries indirectly confirms this impression.[9] Firm-level evidence of mechanical engineering in Hungary shows that contractors have been willing to provide assistance to bring their subcontractors up to the level of quality suppliers (Szalavetz, 1996). However, any further improvements have been very rare. This illustrates the difficulties involved in deepening production integration. It also points to the discontinuous character of technological integration and the emerging structural barriers to CEE firms after initial productivity improvements and establishment as quality production units in a MNC network (see Radosevic, 1999a, Chapter 5).

In our study of electronics we argue that further expansion of similar types of FDI may generate a critical mass of investments, which, in the second stage, may lead to differentiation between types of plants with different product mandates.[10] However, with the exception of Hungary, none of the other CEECs has reached a critical mass of foreign investors in electronics. An important development noted in Hungary is the emergence of clusters of companies, which collaborate to meet the demands of other investors. In a globalized economy with 'flagship' firms that operate as the centre of a network of suppliers this may be expected development. .[11]

Increased sourcing among foreign investors may generate clustering and spillovers. However, clustering and spillovers may not emerge between local and domestic firms but

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[9] However, given our sparse evidence we may be mistaken and further case study analysis of Polish and Romanian clothing sectors is needed (see Yoruk, 2001).

[10] For example, some analysts think that the presence of so many assembly factories in Mexico (Guadalajara) has created the critical mass necessary to develop a local supply network. This is seen as a threat to Asia's electronics companies. A similar potential for endogenous spillovers seems likely in the Czech Republic in the automotive industry after the recent entry of Peugeot-Toyota, which is in addition to the already developed production network of VW-Skoda.

[11] Rugman and D-Cruz (2000) define a flagship firm as a firm that "provides leadership to a vertically integrated chain of businesses with which it has established key relationships" (p8).

only between foreign firms. This might partly explain the absence of spillovers in CEECs, highlighted by econometric studies.

In summary, the study on electronics shows that the mastering of process technologies has primarily taken place within foreign firms although it has occurred in the more successful domestic firms (Radosevic, 2002c). In some respects, the situation in Central Europe in electronics is similar to the situation in Malaysia and Thailand (but not Korea and Taiwan), where the overwhelming dominance of MNC investments is matched by the absence of major local exporting firms (Hobday et al., 2001).

All three industry studies show that the upgrading of the CEE firms has been primarily functional. Product and more especially process upgrading or network building has been less present. Within functional upgrading it seems that there is a trade-off between deep and fast functional upgrading of firms that are either subsidiaries of MNCs or their subcontractors and slower but broader functional upgrading, i.e. mastery of several additional functions of domestic firms which are autonomous. Examples of this latter situation are the case studies of Videoton (electronics) (Radosevic and Yoruk, 2001), Vistula (clothing), Sokolow (meat), Dobrogea (food) (Yoruk, 2002). Patterns of upgrading are sector specific but they are difficult to generalize about as they are influenced by a variety of firm and country specific factors.

6.2.2. Sectors as innovation systems

Industrial upgrading in the globalized economy is highly dependent on the nature of international industrial integration. Among other factors, networks are strongly dependent on industry specific features, which strongly determine the motivations and strategies of MNCs and local firms. Sectoral systems of innovation is a concept developed within innovation studies which provides the conceptual apparatus through which different innovation features of sectors can be expressed. This dimension of sectors is important if we want to understand the relationship between the prospects for upgrading and industry networks.

A sectoral system of innovation is "the system (group) of firms active in developing and making a sector's products and in generating and utilising a sector's technologies: such a systems of firms is related in two different ways: through process of interaction and

cooperation in artefact-technology development and through processes of competition and selection in innovative and market activities" (Breschi and Malerba, 1999, p. 131). This notion is based on the assumption that sectoral systems are strongly determined by the features of the technological regime and thus can be defined by the particular combination of four fundamental factors: opportunity conditions; appropriability conditions, cumulativeness of technological knowledge, and nature of the relevant knowledge base.

- Opportunity conditions reflect the likelihood of innovating for any given amount money invested in technology search and development.
- Appropriability conditions are the possibilities of protecting innovations from imitation and of reaping profits from innovative activities.
- Cumulativeness denotes an economic environment characterized by relevant continuities in innovative activities, which can take place at different levels.
- Nature of knowledge and means of knowledge transmission can differ greatly across different sectors. The nature of knowledge strongly affects the way technology opportunities and knowledge externalities are transmitted among distant firms (ibid).

As Arza (2001) (cited in Yoruk and von Tunzelmann, 2002) points out, these supply-driven categories need to be supplemented by demand characteristics to provide a more adequate account of sectoral differences. This seems intuitively obvious in the case of 'opportunity' where technological opportunity has as its equivalent in market opportunity on the demand side. However, demand side factors are not obvious in the case of appropriability, cumulativeness, and knowledge base. As a working solution we take as the demand aspects of the framework market structure and ownership (appropriability), demand for problem-solving which can be incremental vs radical (cumulativeness) and demand for technology or multi-technology based knowledge (knowledge base).

Table 5 summarizes the evidence from sectoral studies and s presents it within the sectoral systems of innovation framework by taking into account factors on both the supply and demand sides. Given that the evidence from sectoral studies is not always very detailed this should be seen as a tentative, but nevertheless useful, exercise in understanding the nature of industrial networks in CEE. Table 6 summarizes the information presented in Table 5.

Table 5: Sectors as sectoral systems of innovation

Industry	Clothing	Food	Electronics	Electricity
Opportunity	Low technological opportunities. Small local markets. Large but competitive export markets	Low to medium technological opportunities. Growing but small local markets	Medium technological opportunities. Large export opportunities	Low technological opportunities. Limited purchasing power
Appropriability	Weak appropriation mechanisms via firm specific know how. Competitive market structure. Differentiation possible.	Medium. Appropriation via building firm-specific know-how. Supermarkets increasingly control supply chain	Low in low-tech segments of electronics. Market access is in hands of large MNCs	High, due to knowledge based and market structure. Relationships with regulator are the key to appropriability
Cumulativeness	Low. Incremental change. Opportunity to build on the existing know-how. Quality and differentiation pressures generate strong demand for change	Medium. In domestic firms, strong demand for less costly incremental change	Low to medium. due to fast product change. Demand for radical change is medium to high in MNC firms and low in local controlled firms.	High to medium but localised. Incremental technical change. Radical change is dependent on new investments and modernization. Weak spillovers to other firms.
Knowledge base	Production know-how available in house. Intra-firm demand for new knowledge is strong	Limited knowledge base in local firms. Strong demand for diversified knowledge and its integration into firm business processes	Limited knowledge base in local firms. Strong demand for diversified knowledge and its integration into firm business processes	Probably, sufficient for the current level of technology but low for efficiency improvements. Need and pressure for diversified knowledge base.

Table 6: Summary of technological regime in industrial sectors in CEE

Industry	**Clothing**	**Food**	**Electronics**	**Electricity**
Opportunity	Low		Medium	Low
Appropriability	Low	Medium	Low	High/Medium
Cumulativeness	Low	Medium	Low/Medium	High/Medium
Knowledge base	Narrow	Broad	Broad	Medium

When interpreted from a sectoral systems of innovation perspective we can reach several interesting conclusions regarding the nature of industrial networks in CEECs:

First, *technological opportunities in the analysed sectors are low (clothing, electricity), low to medium (food) and medium (electronics).* Usually, technological opportunities in electronics are perceived as high. However, electronics in CEEC is in the low value-added segments where parts are standardized and despite fast product change there are few opportunities for technological improvements, which are primarily confined to process improvements. Poor technological opportunities are coupled with the small local markets for clothing and food. The margins in these sectors are further constrained by the 'price conscious' CEE market. The export opportunities are the best in electronics as the market is growing. In clothing, export opportunities are also high but the market is saturated and therefore competitiveness with regard to price plays a part. Electricity and food are domestic market oriented which limits the market opportunities.

Second, *limited prospects on the supply and demand sides are coupled with weak opportunities for appropriations of investment in innovation*. In clothing, weak appropriation mechanisms combined with a competitive market structure limits the incentives for long-term investments and hard control modes of investment. When appropriability is low knowledge may diffuse to other firms or sectors. Opportunities for appropriability are greater in the food industry via firm-specific know-how. However, firms' incentives are reduced as they try to confine knowledge flows within firm boundaries or within networks of suppliers (Soufflet, Sokolow). Also, the increasing involvement of supermarkets in supply chains reduces the appropriation opportunities for firms, which have to share knowledge with supermarkets, who increasingly control the supply chain. In electronics, due to increasing codification of knowledge the appropriability is low, especially in value-added segments of CEE firms. Also, MNCs control

access to the market, which further reduces the opportunities to protect investment in knowledge.

In electricity, technology is based on a dominant design, and through a combination of codified and tacit knowledge and market structure (usually monopoly or oligopolies) opportunities for appropriability are high. However, electricity is also a highly regulated sector and appropriability of investment can be significantly reduced through regulation of prices or interconnection charges. Hence, good relations with the regulator are the key to appropriability.

Third, *our industry studies confirm the conclusions from studies on sectoral systems of innovation that low (high) cumulativeness is correlated with low (high) appropriability*. Cumulativeness is an important determinant of industrial networks as high cumulativeness can lock foreign investors into the domestic economy. In both clothing and electronics cumulativeness as a factor of locking-in of foreign investments seems to be low, but for different reasons. In the clothing sector, low cumulativeness comes from the incremental and equipment-embodied character of technical change. In differentiated segments of the clothing sector the cumulativeness is high but there is still the question of how CEE producers can upgrade to these segments. In electronics, fast product change as well as low appropriability reduces the possibility of accumulating firm specific knowledge. In domestic oriented sectors (food and electricity) the opportunities to build firm specific knowledge are high. In the food industry, investments by foreign firms in local supply networks may guarantee that the networks already established will continue to operate. In the electricity sector, where the needs for modernisation, refurbishment and new investment are huge, this may lock in foreign investors. However, poor relationships with the regulator or unstable appropriability conditions in this sector may be detrimental to the accumulation of knowledge in deterring foreign investors.

Fourth, *given the strong dependence of CEE firms on MNCs the knowledge base acquired from these relationships is narrow and confined mainly to production efficiency with very few design capabilities, other than in the clothing industry. In domestically controlled firms the acquired knowledge is broader but not necessarily of an equal depth to the narrow knowledge base in foreign controlled firms.* Demand for a diversified knowledge base seems to be the strongest in the food and electronics industries. However, the local environment in CEE is not able to complement firm technology efforts by providing the necessary complementary knowledge and skills. In electronics, the existing

knowledge base is narrow and if upgrading is to continue a much more diversified knowledge base will be required. The situation is similar in the food industry, which has become a multi-technology industry and is no longer the 'low-tech' sector conventionally depicted. Is it possible for a diversified knowledge base to be developed in response to direct demand from local and foreign firms? In many cases there is a enormous scope for policy experimentation on how to develop a diversified knowledge base in cooperation with private firms.

Fifth, *the innovation features of the clothing sector (low opportunity, low appropriability and cumulativeness, and a narrow knowledge base) explain why all CEECs have quickly become integrated into industrial networks in this sector.* Clothing has low opportunities and low appropriability and cumulativeness. The knowledge base is simple, generic and embodied in equipment and materials. These low opportunities, appropriability and cumulativeness have helped CEE firms in that the barriers to entry are correspondingly low. However, these advantages make the networks sensitive to changes in cost and demand and if there are significant changes in demand and cost this may be the first sector from which foreign firms will exit. Therefore, CEE firms need to develop 'lock in' mechanisms by developing design capabilities.

Sixth, *the electricity sector is 'the most favourable' for locking FDI due to high/medium cumulativeness.* In the electricity industry the existence of a dominant design is the factor that shapes the innovative strategies and technological trajectories of firms. However, the relevant knowledge base is confined to specific technology and is not fast changing, at least not once investments have been made. Appropriability conditions may be changed through vertical integration, regulation and learning curve effects. *Despite the low opportunities, high to medium appropriability conditions will continue to attract foreign investors.* The key variable for the degree of industrial integration is the relationship with the regulator and the role of the state in privatization. This is especially true as 'the profitability of most energy players in candidate countries is derived form administrative pricing decisions; operations are usually not cost effective' (McKinsey & Co, 2002, p. 13). The medium breadth of the knowledge base may pose a barrier to further upgrading although with full integration of the EU market the relevance of the national knowledge base in energy may decrease.

Seventh, *the food sector has low/medium opportunity but medium appropriability and cumulativeness.* This makes the food sector a potentially favourable sector for further industry integration provided that national networks develop which would:

a. Generate a diversified knowledge base
b. Restructure upstream agriculture
c. Fully open the EU food market to CEE firms

Eighth, *electronics is the sector with favourable prospects for close and long-term industry integration*. Because the knowledge base is codifiable and can be transmitted internationally, electronics has spread quickly in some CEE countries, which, in the space of only a few years, have become global production locations. Technological opportunities in CEE value added locations are medium but good export opportunities, and medium-low/medium cumulativeness will continue provided that :

a. A national innovation system develops which would enable the knowledge base to be broadened
b. local firms cluster and develop knowledge externalities, which would counteract currently low appropriability conditions.

Overall, the features of a technological regime explain why industrial upgrading through industrial integration in these sectors has been relatively limited and also point to the possibilities for further upgrading.

If the automotive industry in CEE had been included in our analysis the overall picture would be more optimistic. In the automotive industry, opportunities are medium while appropriability and cumulativeness are high. These factors make lock-in of foreign investors and the prospects of investment growth, and spread of industrial networks more likely. Innovation activities in this sector involve the 'systemic' coordination of various elements of tacit and codified knowledge. In addition, the ability to act as effective systems integrators confers a highly cumulative nature on firms' production and technological activities (Breschi and Malerba, 1999). These sectoral features are part of the reason why the overall effects of and prospects for industry integration in a country greatly improve after the entry of a major automotive investor(s).

6.2.3. Sectors from a network alignment perspective

Technological and organizational homogeneity of individual industries make comparisons from a network alignment perspective easier than comparison across countries.

Table 7 we summarizes the results of four industry studies from an alignment of network perspective (Yoruk, 2002; von Tunzelmann and Yoruk, 2002; McGowan, 2002; Radosevic, 2002a).

Table 7: Network alignment factors in four industries in central and eastern Europe

Industry	Clothing	Food	Electronics	Electricity
MNCs	Efficiency seeking investments. Buyer driven supply chains	Market seeking investors	Efficiency/market seeking investors	Market seeking investors
CEE firm(s)	Subcontracting trap. Long term aim to develop OBM based exports.	Competing with MNCs	Mainly 'dependent subsidaries'	In competition with new entrants
CEE national networks	Weak	Limited and weak	Limited	(Not clear pattern across countries)
CEE local networks (SMEs)	Linked to large firms (Poland). Very weak in Romania	Limited	Limited	Non-existent
CEE government	Not impact on industrial networks	Not impact. Weak support in upstream agriculture.	Not strong impact, except in Czech R and Hungary via specific FDI incentives. Strong impact of local governments.	Key source of regulatory change. Strong direct impact.
EU as regulator	Not impact	Impact via food standards	Not impact	'Regulator of last resort'
EU demand	Strong attractor	Potential attractor	Strong attractor	Potential attractor
Overall network alignment	Integration via subcontracting networks, export oriented.	Integration into MNC production and technology network, local market oriented	Hungary, Czech R and partly Poland strongly integrated into MNC led production chains	Network alignment strongly shaped by state orientations

The food industry has attracted a considerable number of EU MNCs primarily in a search for market share. The early entrants were companies operating in downstream

segments such as confectionery, soft drinks, tobacco, sugar, dairy products and brewing. The entry of MNCs has had a strong impact on the industry and market structure and on the nature of competition in the sector as key local players have been bought up.

Being oriented towards local market and faced with the low quality of domestic agricultural produce and the desire to retain market position, investors were forced to do something about poor state of the upstream sectors. The case studies (Soufflet, EBS, Sokolow) show that MNCs had started to restructure those segments upstream in the value chain on which they directly depended. By offering assistance to farmers and small local producers they hoped to keep strict control of their know-how through firms specific technology and long-term cooperation agreements . Foreign retailers such as Tesco had a strong impact on the food sector by starting to source locally.

The size of the local market has restricted the degree of commitment of MNCs though the prospect of exporting to the EU markets may change this. However, food standards, strong competition in the EU market and an un-restructured upstream sector currently reduce the potential attractiveness of this market for foreign investors. Those local firms that have not been taken over are competing with MNCs and have managed to make improvements in quality, marketing, and distribution (Dobrogea, Sokolow).

The biggest obstacle to further industrial integration and upgrading are the weak national networks, and particularly the links with local R&D organizations. Foreign companies are not linked to national R&D institutes in the food industry primarily because of their poor technological and R&D level. Yoruk and von Tunzelmann (2002) describe this situation as 'network failure', which is partly due to a lack of commitment from governments to improve agricultural technology. Local networks in Poland are developing through cooperation with large firms, both foreign and domestic. However, in Romania, local networks are undeveloped. Generally, MNCs dominate both the scale and scope of network alignment though some growth of domestic firms in the food industry is discernible. Domestic market orientation of MNCs, still unrealised potential for exporting to EU markets, weak national networks and weak, though beginning to improve, local networks, and a government role which is confined to privatization, create a situation of moderate network alignment.

In the clothing industry, foreign buyers are the main drivers of integration and network alignment. They are efficiency seekers that make relatively limited commitments in

terms of equity. Local firms are unable to export on their own and are heavily dependent on buyer driven supply chains. They are oriented towards meeting the quality, delivery time and flexibility requirements of buyers. The industry dynamics are driven by export, especially to EU markets. In Poland, domestic firms are trying to reduce their dependence on subcontracting and strengthen their presence in the domestic market (Yoruk, 2002). The most successful clothing firms in Poland have started to operate as network organizers by subcontracting to SMEs. There is no impact from the government and cooperation between the large clothing firms and other organizations (institutes, consultancy organizations, chambers of commerce) does not affect network alignment, which is very much market driven.

Network alignment in electronics is strongly driven by MNCs, both by first movers like Philips and Samsung, and by contract manufacturers, such as Flextronics. These companies are targeting CEE in order to achieve flexibility and low costs. Less of a pyramid structure in the electronics sector compared to the automotive industry, limits the extent of local subcontracting. Networking is mainly confined to subsidiaries and parent firms, or to subsidiaries in other countries. There is patchy evidence that local sourcing is confined to low cost components such as plastic and mechanical parts (Radosevic, 2002c).

Local enterprises are not strong actors grasping opportunities that arise from entry of MNCs and integration into EU markets. This is the most serious handicap to deeper industry integration for CEECs, and largely reflects the differences in historical heritage across CEE. Large ex-socialist electronics conglomerates are lagging in many respects and especially in terms of technology, finance and market access. From the few cases of successful restructuring, for instance, the successful turnaround of Videoton in Hungary, it is difficult to make generalisations. The success of Videoton rests on the simultaneous existence of a variety of elements along a network of alignment approach whose combination is difficult to replicate (Radosevic and Yoruk, 2001).

It is unlikely that 'local champions' or 'blue chips' will emerge in the foreseeable future in electronics. On the whole, domestic firms (with perhaps a few exceptions) will play a dependent role in global production networks. This may not be a problem since very efficient branch plants have been established in CEE. Driven perhaps by contract manufacturers (turnkey suppliers), we may see some clustering of local firms of different

sizes. Local sourcing beyond local subsidiaries is limited but has started. A major reason for limited local sourcing is low level of local SMEs.

In the Czech Republic and Hungary, which are leading locations for electronics, government policies have been important for understanding the patterns and timing of investments.

Local governments in CEE, working jointly with MNCs, have become the most active agents for integrating FDI into the local economy. The local authority through its support for the Videoton industrial park, played a key role in its success (Radosevic and Yoruk, 2000).

The proximity to the EU market, and the sheer size of this market, operate as strong attractors to locate in CEE. While MNCs are the key organizers or pushers of this process, EU demand determines the strength of the pull force. The case study evidence suggests that the accession process is a secondary factor as obstacles to trade and FDI have already been eliminated.

Network alignment in the electricity industry is determined more by the interplay between the strategies of large EU energy operators and the behaviour of the CEE governments towards privatisation and than by regulation (McGowan, 2002). The EU is important but secondary in this process though governments and MNCs make their decisions based on the view that these countries will join the EU and that the regulatory regime and market structure will converge. Local firms have had a limited role in this process. Their impact as state owned companies was subsumed by the impact of the State. Local networks play negligible role in this sector. The key role of governments and the tensions between them, foreign investors and the EU/OECD regulatory regime are strongly shaping the depth and scope of industry integration.

From this overview of the four sectors several general features of industrial networks in CEE from network alignment perspective can be highlighted.

First, *network alignment is driven by the strategies (motives) of MNCs, which strongly influence its orientation, depth and scope*. This effect is especially strong in sectors where alignment is market driven (clothing, electronics, food) but less so in sectors where the scale and scope of alignment is driven by the strategic decisions of national governments (electricity).

Second, *domestic firms are dependent on foreign firms in terms of market access (clothing), competencies (electronics) and capability to establish production and, distribution on a competitive basis and to*

restructure upstream suppliers (food). This does not mean that domestic firms are not important but they are faced with significant constraints in terms of access to technology (electronics), markets (clothing) and finance (food). Irrespective of the sector, those domestic firms that are operating successfully have achieved this in cooperation with foreign partners.

Third, *a common feature of all sectors is the weak national and very often local networks.* Cooperation with other domestic firms, with local infrastructure institutions is limited. This is partly the result of weak governments, which are faced with huge problems of coordination in pursuing a variety of conflicting objectives (liberalization vs. protection of national champions, budget revenue vs privatization, support for industry R&D vs. market oriented government policy). However, where governments have pursued sector specific policies, such as in electronics and electricity, their impact is visible.

Fourth, *EU demand operates as a strong attractor (electronics, clothing), as a potential but still unrealised attractor (food, electricity) while the EU as a regulator has a strong influence on food exports and in the electricity sector acts as a 'regulator of last resort'.*

Fifth, *in all sectors the role of foreign capital in network alignment is critical.* The weaknesses of domestic networks and local firms have been revealed. Poor network alignment has posed problems for governments how to moderate industry integration. In opening themselves to foreign markets and MNCs, and conforming institutionally to EU, WTO, OECD requirements, the network alignment framework in CEECs has been shown to haveserious weaknesses. . These weaknesses will not be overcome by access to the market alone.

6.2.4. Policy and production integration

One of our points of departure in this project was the relationship between industry integration and policy integration. The uniqueness of the accession process is that it involves not only market integration but also deep institutional integration as candidate countries have to adopt a very large number of EU regulations and institutions.

One of the major conclusions that came out of the industry studies, was that for sectors like clothing, electronics, and to an extent food, accession to the EU is a non-event. In these sectors market driven network alignment has already taken place and the EU regulatory framework seems not to be relevant. However, in sectors, like electricity, where the regulatory framework is a primary factor, the effects on industry integration are quite substantial. This conclusion conforms to the conclusion of a recent McKinsey & Co. (2002)

study on enlargement. Table 8 shows the depth of EU related regulatory change across several sectors.

Table 8: Sectors by the depth of EU related regulatory change (policy integration)

	Low	**High**
Analysed in this project	Clothing Food Electronic	Electricity (energy)
Other studies	Automotive Banking	Telecoms Pharmaceuticals

Our evidence on the relationship between policy and production integration originates from the electricity sector (McGowan, 2002). However, unlike the McKinsey & Co. study, which assumes that the main changes will come from further liberalization in the sector, McGowan's (2002) research points to the gap between the adoption of the regulatory framework (which incorporates a time-table for liberalization) and the real impact of such legislation.

Policy integration, defined as the incorporation of specific EU legislation into national legislation, appears to have been achieved in all three countries analysed (Poland, Hungary and Czech R) (ibid). Moreover, these countries have gone further than is required by EU legislation in setting timetables for full market opening. Nevertheless, it seems that the real impact of such legislation is uncertain primarily due to the different objectives being pursued by the states. Both McKinsey & Co (2002) and McGowan (2002) point to the trade offs between conflicting objectives of the states. According to McKinsey & Co. (2002) these are:

1. The need to ensure a stable free-market environment that minimizes end use prices (liberalization objective)
2. The need to minimize the social costs of such a move (social objectives)
3. The need to maximize the privatization proceeds from the sale of state utilities still in state hands (budgetary objectives).

McGowan (2002) sees the conflicting objectives arising from:

1. Developmental role of the state which nurtures national champions
2. Lack of regulatory resources (state capacity for regulatory role)
3. Rent seeking by incumbents and new entrants (MNCs).

In conclusion, our research has confirmed that policy integration in order tomeet the requirements for EU membership is an important factor in understanding the dynamics of industry integration in sectors that are governed by regulatory regimes rather than free markets. McGowan (2002) shows that:

> a) the key variable in understanding the relationship between policy and production integration is the gap between nominal policy conformance and the implementation of policies,
>
> b) this gap originates from the conflicting objectives of state which are related to state orientation as well as the capacity of the state to pursue its role in an autonomous manner.

6.3. Comparative overview of the country study results

Industry networks are to a great extent firm- and industry-specific. Nevertheless, their extent and nature differ significantly across countries. In this project, our focus was on firm and industry levels; at these levels the morphology and the processes of network alignment can be discerned more easily than at the national level. However, the research objective was to link industry networks with the issues of industry upgrading and growth. Thus, studying the national level was essential to complement our understanding of the broader context, especially nation states, and how it can affect industry integration.

We undertook six country studies (Slovenia, Poland, Romania, Hungary, Ireland and Spain) in order to shed some light on the national similarities and differences regarding industry networks. Despite having a common methodological framework for these studies, comparisons between countries are notoriously difficult. The absence of a common data set for such a 'fluid' subject and diversities among countries generated country studies each with their own specific focus. Nevertheless, it is possible to trace common issues in these studies without undermining the differences in focus and in national contexts, which serve as an important explanatory variable to effective comparisons.

6.3.1. Ireland and Spain as reference cases

In this section we confine ourselves to issues of relevance for the CEECs from the studies of industrial networks in Ireland and Spain. This comparison revealed three factors common to Ireland and Spain and the CEECs.

a) *Common structural reasons for the EU accession*

Examination of Irish and Spanish integration into the EU economy shows that there are common structural roots with the CEECs to their integration into the EU through industrial networks. These can be found in the exhaustion of one development model and the need to replace it with another.

Up to the end of the 1950s Ireland had adopted an import substitution industrialisation strategy, which failed. This was followed by an outward oriented and export oriented strategy as being the only option left. After 30 years of protectionism and a difficult economic situation FDI entered the picture in the 1960s. This was followed in 1973 by EU accession.

Spain had also followed an import substitution industrialisation strategy until the early 1970s but one that did not exclude FDI. However, these were local market oriented FDI, which were filling an investment gap. During the 1970s, Spain suffered a structural crisis, which was resolved by liberalization and EU accession in 1986.

EU accession came as a result of the failure of previous development strategies rather than being the result of political will.

CEECs have opened up after a prolonged period crisis that started in the 1970s and was compounded by the transition period of the 1990s, but which varied in duration and intensity across countries. The transition crisis in CEE is, in some respects, similar to the crisis suffered by Spain between 1974 and 1985. In both cases, opening led to an increase in the share of services and improved industry productivity. Similar to the situation in Spain and Ireland, EU accession for the CEECs is likely to follow after failure of their growth model. In this respect, the roots of EU accession are deeper than is usually acknowledged in political debate.

The Spanish, and more particularly the Irish accession, have produced very favourable results as a result of considerable structural assistance. Since EU accession for CEE will come at a similar stage of development we can expect that the effects will be similar.

b. FDI vs indigenous industry

The opening of the Irish and Spanish economies has meant that FDI have become dominant in exports and sales. This has brought to the fore the relationship between the

foreign and domestically controlled sectors, which is an important policy concern in CEECs. In Ireland, domestically controlled employment decreased by 19% in the period 1975-95. It was not until more than 20 years after accession that indigenous industry became net employment generator. In the 1960-1980 period there was no employment growth recorded for Irish indigenous industry, which continued to be weak until the end of the 1990s when its revival became visible through its overseas operations.

In Spain, market opening and FDI made it difficult for traditional firms to face new competition. Domestic firms lost local market share but became more active in exporting. In Spain we can also find some elements of a dual economy (Molero, 2001). Spain's exporting is driven by FDI so that overall export is not a reflection of its structural competitiveness but mainly results from FDI enclaves. FDI are domestic market oriented except in a few sectors where they are clearly export oriented. Similar to central Europe, the automobile industry is important in attracting FDI. High tech sectors are more likely to be foreign controlled than are traditional sectors. There has been loss of domestic market in all sectors.

We can find a similar situation in several central European countries where the dichotomy between modern, foreign dominated industries contrasts with traditional industries involving many domestic firms. For example, in Hungary, nine foreign-dominated industries represent 50% of manufacturing sales (Hunya, 2002; Hamar, 2002). The productivity gap between domestic and foreign firms is increasing (Hunya, 2000). Domestic firms are net employment losers. Only in Hungary, the biggest inward investor, has domestic industry become a net employment generator (Mickiewicz et al., 2001). Hamar (2002) shows that in 1998/99 although the relative gap between domestic and foreign firms in Hungary has increased, domestic firms are catching-up in absolute terms.

Irish experience suggests that the domestic sector may not automatically become a driver of or complement to FDI. In fact, Irish policy historically is full of criticism for FDI, in terms of their limited contribution to growth, limited linkages and under-utilisation of engineers and neglect of the indigenous industry. In reality, MNC backward linkages per job are higher than in the domestic industry (O'Connor, 2000).

If we judge the future based on the experiences of Ireland and Spain then the next 10-20 years of policy-making in CEECs will be concerned with the gap between the domestic and foreign sectors.

c. Government role in network alignment

Spain and Ireland offer contrasting experiences with respect to the role of government in fostering industry integration. In Ireland, after 20 years' experience and many mistakes, the government has developed the capability to be a 'network supporter'. The government role has been facilitated by strong continuity of FDI. The strategy of the Irish Development Agency towards FDI has remained constant since the 1950s. From a policy of generally trying to attract FDI it cultivated links between local and foreign firms through the National Linkage programme. Its policy has become very sophisticated, and very selective to the point that the policy priority is to attract the key business functions and support subsidiary based development. FDI policy in Ireland is accompanied by offerings of vocational training programmes and programmes in advanced technologies, which are geared towards FDI and are designed in cooperation with investors. The selectivity of this policy is labelled the 'rifle shot' approach.

Spanish policy is much less sophisticated. There has been no conscious effort to upgrade the position of subsidiaries within MNCs or to explicitly address the issue of linkages. Vocational and technology programmes designed and geared towards the needs of foreign investors have not been developed. Some selectivity exists at regional level but the overall policy is aimed at attracting FDI in general.

The 'shot gun' approach is characteristic of the majority of CEECs. Quite recently that Hungarian government, then the Czech government, started to address the issue of linkages between domestic and foreign firms (cf. Hungarian programme 'Integrator'). Government's role in relation to FDI has not yet been articulated except through privatization, which has become an FDI policy by default. Selectivity in incentives for FDI has emerged in the Czech R with respect to electronics and high-tech industries and the results seem to be positive (Radosevic, 2002c). Vocational training with respect to needs of FDI is the weakest aspect of FDI policy in CEECs. There is also a lack of consistency towards FDI in CEE. For example, in Hungary tax incentives for FDI were withdrawn in 1994 and than reintroduced in 1996 together with Free Trade Zones. In Slovenia, it was only after 1999 that there was a shift towards support for FDI. In Poland and Romania incentives are weak.

On the other hand, the Irish case shows the danger of FDI as the only industrial policy, especially if it is general and not linked to domestic policies. This raises the critical

importance of coordinating different policies geared towards industrial integration. We address this issue in the section on policy implications

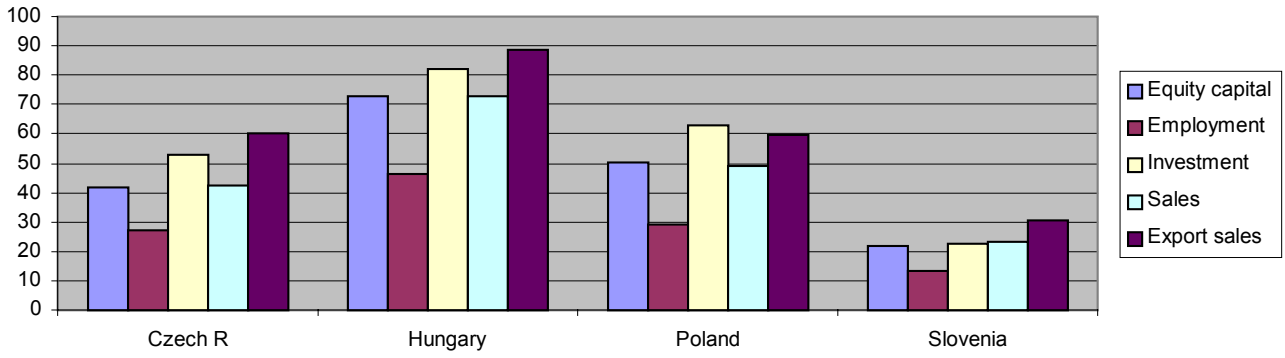
6.3.2. Comparison of country studies

In this section we compare the results of four studies on industrial networks in Poland, Slovenia, Hungary and Romania. In section 6.3.1 we abstracted from internal political economy factors of Spain and Ireland the issues of relevance for CEECs.

Our four country studies show that the extent, nature and modes of integration into global economy via industrial networks cannot be understood outside the national political economic context of each country. This does not mean that other factors such as EU demand and regulation, and the strategies of MNCs are not important. From the analysis in the previous section it should be clear that these factors are very important. In fact, one of our conclusions is that the strategies of MNCs are one of the major factors in structuring network alignment. Yet, if we want to understand the extent, nature and modes of integration of CEECs into the global economy at micro level, then the national context seems to be of paramount importance. This in no way contradicts our conclusion on the relatively limited importance of governments in sectors where network alignment is market driven (electronics, clothing, food, automotive). In fact, the weak role of government is part of a broader national political economic context. As McGowan (2002b) argues in his paper on state orientations and production integration the issue of state orientation and state capacity in the context of EU enlargement is complex and not amenable to simplified view of retreat of the CEE states to their regulatory role. This is the main reason why we need to introduce many more national context explanations into our comparative conclusions.

The first issue that arises from these studies is *country differences in terms of the modes, and scale and scope of integration into international industrial networks.* By this we mean the great differences among the four countries in their degree of penetration of FDI and their policies in relation to FDI and other forms of industry integration. Figure 3 shows differences across countries in terms of several indices in the manufacturing sector. The difference in presence of FDI in Hungary and Slovenia is especially strong, We do not have data for Romania, which however would show a much smaller presence of FDI than other central European economies.

Figure 3: Share of foreign investment enterprises (FIEs) in manufacturing, in %, 1999



Source: Hunya (2002) based on WIIW Data base on foreign investment enterprises

These differences have emerged as the result of several factors of which the most important are i) differences in their levels of development and socialist legacy, ii) the strategies of MNCs (which foresaw EU enlargement), and iii) the changing dynamics of the political economy of government business relationships in each of the CEECs (speed and pace of transition).

The Socialist legacy, especially previous levels of development, openness and degree to which economies were reformed during the 1980s, has had a major influence on the initial stages of transition (for example, Hungary vs Romania). These differences have been compounded by differences in modes of privatization, as being the most important policy towards FDI. In this respect, Hungarian direct sale privatization, Polish delayed direct sale privatization, Romanian protracted privatization and Slovenian privatization to managers and employees have been significant in explaining the extent and modes of industry integration. The outcome of these processes is very high penetration of FDI in Hungary, medium but increasing penetration in Poland, low penetration in Slovenia and limited penetration in Romania.

These factors, combined with the strategies of MNCs, have generated diverse national patterns of modernization. For example, as a result of FDI the export and industry structure in Hungary has been radically restructured and technologically improved. In

Bulgaria and Romania changes have been significant but have been in the direction of technological deterioration of the export structure, while in Poland the situation is somewhere between these two (see Hotopp et al., 2002). Slovenia is the only Central European country that has not increased its share in the EU market (Rojec and Jaklic, 2002).[12]

In Hungary, modernization is very much foreign led while in Slovenia it is domestic led. The outcome of these two different patterns is not clear-cut but there are trade offs in terms of long-term effects. Domestic firms in Slovenia control 70% of exports while in Hungary this figure is only 23%. On the other hand, surveys suggest that Hungarian firms occupy low positions in international networks and are confined to production-only subsidiaries while Slovenian firms are occupying higher positions in international networks with exporting firms having broader set of functions in these networks compared to those in Hungary (Dyker and von Tunzelmann, 2002).

Protracted privatisation in Romania limited takeovers by foreign investors and until recently the main entry mode was through greenfields (80% of FDI) (Turlea and Mereuta, 2002). The main mode of integration in clothing sector is OPT subcontracting arrangements. Integration of Romania into industrial networks via OPT and, in some sectors via FDI, is the result of the particular political economy situation in Romania which Turlea and Mereuta (2002) describe as 'systemic unrest'. By this they mean that domestic industrial networks in Romania are "temporary and fragile vertical and horizontal links between independent, opportunistic agents acting in unstable markets"' (p. 13). Systemic unrest has its origin in market stress (due to the dominance of short-term cash-based contracts), institutional stress (due to an immature and unstable institutional framework), and organizational stress (due to inherited structural bias and resistance to adjustment).

The Polish political economy of government – business relationships is characterised by a defensive 'policy by default' in response to interest group pressures (Dunin-Wasowicz et al., 2002). Government's focus has been on budget revenue in conditions of fiscal crisis, which has led to neglect of the growth aspects of industry integration.

Overall, it seems that the political economy of Hungary was the most conducive to integration via industrial networks. 'Deep' integration of Hungary into international

[12] However, the level of exports of Slovenia at the beginning of the '90s was much higher than that of other central European economies.

production networks did not happen despite the fact that the state reached a consensus and achieved the necessary autonomy to resist individual group pressures. It would be interesting to explore why the political economy situation in Hungary has been and continues to be so favourable compared to other countries. The cycle of change in the political parties in power in Hungary is no different from that in other CEECs so this is not the reason. While the withdrawal of the Hungarian State was visible in many respects, this did not exclude it from being active in privatization and presently in trying to enhance the linkages between the domestic and foreign sectors. An important and distinctive feature of Hungarian political economy is its commitment from the socialist period of the 1980s towards FDI.

This situation is in stark contrast to Slovenia where FDI did not rank as prominent policy objective until recently. Since 1999 there has been a policy shift towards FDI as a means of industrial upgrading. However, its implementation requires consensus from the various stakeholders and the shift cannot be performed only by dint of fiscal incentives and promotion programmes.

The Czech R is another example of a shift in policy from domestic-led modernization based on voucher privatization and (at least nominally) 'minimalist government' towards a more activist role of the state in innovation and upgrading via FDI. This shift started with the new government that took office in 1998. The Czech case, especially in electronics, suggests that the implementation capability rather than normative policy, is more important for the effects of integration via industry networks (Radosevic, 2002c).

The strong impact of national political economy of government business relationships on modes, scale and scope of country's integration into global industrial networks does not mean that this national specificity runs across all sectors. For example, despite a strategic orientation towards modernization via MNCs The Hungarian State has also favoured dozens of 'national champions' but with relatively poor results.[13] Despite a strategic orientation in the early 1990s to privatize via voucher privatization, the Czech R has opted for some strategic individual sales.[14] The Polish government has refrained for a long

[13] Among the most well-known cases in this group is the bus manufacturer Ikarus. After a long series of attempts to turn around this largest CEE bus producer based on domestic capital the company has entered into a joint venture with Renault (Hunya, 2002).
[14] The most often cited case being Skoda Automobilova.

time from direct sales to foreigners. On several occasions it has allowed sales to 'domestic' capitalists, but again with poor results.[15]

In all these countries, despite the differences in the orientation of the state towards foreign capital, telecom operators have been privatized to foreign strategic investors. In the case of telecommunications the technology and finance gaps were too large for modernization to be carried out under domestic control. Yet, without an understanding of the political economy of government business relations in individual CEECs we cannot understand the delays in privatization of telecoms, shifts in attitudes or (in)consistencies towards foreign capital.

Second, the strategies of MNCs, in particular market seeking strategies, have led to a very high degree of integration of CEE countries as markets in the global economy, notably the EU. In this respect, there do not seem to be significant differences across CEE countries. *Country differences in the political economy of government business relations have not influenced the extent (scale) of market seeking FDI. The main differences in the scale of international industrial networks across CEE countries arise from differences in the presence of export oriented FDI, not from the presence of market seeking FDI.*

MNCs have managed to overcome country differences in modes of privatization and establish themselves as the major market players. Indeed, irrespective of country differences in all CEE countries there is dominance by foreign investment in breweries, tobacco, many segments of food industry, in telecoms. It could be argued that differences in the national political economy of government business relationships do not have much effect on outcomes for market oriented FDI. This to a great extent reflects the resource superiority of MNCs, and their market seeking motives and puts a new light on the emphasis in the international business literature on modes of entry, which from this perspective may be misplaced given the superiority of MNCs in terms of resources and market seeking motives of MNCs. This conclusion is quite compatible with firm and sectoral studies, which show that MNCs have structured the scale and scope of network alignment in CEECs.

In addition to country case studies there are few other data that support this conclusion. For example, the share of foreign patenting across CEECs is very similar in absolute terms across all CEECs, which vary in size from (1.5m) Slovenia to (38m) Poland while the number of non-resident patents varies only from 35,000 to 38,000 (1997). Given

[15] The best known case has been the sale the to domestic Kulyzcyk Holding.

the big differences in size this is striking and shows that the country differences do not matter in this respect. MNCs seem to be primarily concerned with the protection of their market position with IPR as one of mechanisms, and differences in technological capabilities of CEECs do not seem to be of concern to them. Figures for non-resident patents in EU economies also show a striking homogeneity in this respect though at a level three times higher (Mickiewicz and Radosevic, 2002).

Mickiewicz et al. (2002) show that the increasing differences in sectoral distribution of FDI employment across countries are closely related to the relative order of FDI inflows per capita. The more countries that receive FDI inflows the more likely it is that the various types of FDI will emerge. Increasingly diverse types of FDI accompany the increasing unevenness in FDI presence across Central European economies. The deeper the penetration of FDI then the more we would expect it to be accompanied by a more diversified structure of types of FDI - in particular with a higher share of exporters than distributors and local suppliers.

However, this does not mean that export oriented FDI are determined by a clear set of fixed variables, as econometric research tends to suggest. Indeed, in some sectors we can see clear determinants, which can produce robust regression results. For example, the food industry is a good example of market seeking FDI. In production of TV sets market-seeking FDI are complemented by efficiency seeking investments. In much of the electronics sector, we find efficiency seeking FDI. In clothing, there are buyer driven supply chains, not equity investments , which are involved in cost-based (efficiency motivated) subcontracting. However, the most common cases are changing motivations and strategies. Case, sectoral and country studies show that there are dynamic processes of change and learning within MNCs with multiple and complementary motivations.

The motivations and strategies of MNCs are not fixed but are multiple and overlapping and are changing, based on the self-discovery and learning of investors. For example, MNCs in the food industry have learnt that they must embark on the restructuring of upstream sectors if they want to continue to serve local markets competitively (Yoruk and von Tunzelmann, 2002). Companies like the contract manufacturer Flextronics have discovered the CEE as location for electronics, a region which in the past did not have

developed electronics competencies but which offers competitive advantage today.[16] This has led to a wave of other MNCs establishing operations in CEE (Radosevic, 2002c). In the automobile industry, market-seeking investment, which began after the abolition of tariffs with the EU, has been transformed into efficiency seeking operations (Dunnin-Wasowicz, 2002).[17] In power engineering, we find examples where initially efficiency seeking FDI have been transformed into technology seeking FDI as local technology capabilities have been recognised and plugged into the global network (Radosevic, 2001). These processes of learning and entrepreneurial discovery by MNCs are not country specific.

Country differences in political economy have influenced the pace, and to some extent the modes but certainly not the scale of market seeking FDI, or at least not in the long-term. This fact applies even to sectors where government policy did not play an important role like the PC assembly industry, and where initially there were significant country differences with respect to the presence of foreign producers who only served local markets.[18] In all CEE countries, there is a significant presence of local assemblers. A case in point is Poland, which is the only country where domestic PC assemblers have had the dominant share.

CEE local PC production has emerged as a cheaper alternative to international PC manufacturers' products. However, international PC manufacturers are gradually starting to hurt established local manufacturers, because the former have developed strategies to cater for the price-sensitive CEE PC market. Local manufacturers operate on narrow margins and many will not survive in the medium term, whereas international manufacturers are committed to this market for the long term (Radosevic, 2002c).

This suggests that MNCs will find ways to penetrate the domestic market and that country differences in the political economy of government business relations do not significantly influence long-term outcomes. However, country differences are an important variable if we want to understand differences in export oriented FDI. In this case, the future dynamics of industry integration can be understood through the interplay of national

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[16] For evidence on competencies of the CEECs in this respect see analysis based on US patent data (Radosevic and Kutlaca, 1999)

[17] In Slovenia, with the break up of Yugoslavia Renault transformed its market seeking operations into efficiency seeking (Rojec and Jaklic, 2002).

[18] The only export-scale PC assembly investment has been made in the Czech Republic by a Taiwanese firm, First International Computer, which has set up a production plant in Rudno near Prague (Gartner Dataquest, 2000).

differences and strategies of MNCs compounded with a variety of other factors such as EU accession and local governments.

Third. *A common feature of industry integration in CEECs is the big gap in the performance of domestic and foreign firms*. Table 9 shows that labour productivity, capital productivity, export intensity and profitability are much higher in foreign investment than in domestic enterprises.

Table 9: Foreign investment enterprises in percent of domestic enterprises, 1998

	Labour Productivity	Capital Productivity	Exports Per sales	Profits Per sales
Czech Republic	189	132.8	187.5	3200
Estonia	150.2	61.8	137.9	300
Hungary	286.7	149.7	259.9	333
Poland	194.4	110	161.8	277
Slovenia	197	129	152.1	103

Source: Hunya, Gábor, *International Competitiveness Impacts of FDI in CEECs*, Paper presented at the 6th E.A.C.E.S Conference, Barcelona, 7-9 September 2000, (http://eu-enlargement.org/), Mickiewicz, Radosevic and Varblane (2001), and Hamar, J. (2001), Multinacionalis vállalatok Magyarországon, Európai Tükör, No 80. és "A külföldi és a hazai tokével muködo vállalatok szerepe a magyar ipraban, Külgazdaság, 2001, no. 65, p.4-34)

This feature is common to all CEE countries and differences are due to sectoral differences in FDI presence rather than to country specific variables. Country studies and sectoral studies conform fully to this aggregate picture. Also, they conform to econometric findings on the lack or negative spillovers. For example, Hamar (2002) finds for a sample of foreign firms in Hungary very few backward linkages, domestic subsidiaries which are very strongly dependent on MNC headquarters and local SMEs being involved only occasionally in the supply chain. Rojec and Jaklic (2002), based on a sample of automotive suppliers, find that ownership does not explain technical complexity, sourcing patterns or differences in strengths between suppliers and buyers and thus indirectly confirms the absence of spillovers. In Poland, foreign firms are oriented towards the domestic market, which reduces the scope for possible spillovers, which are usually higher in export-oriented activities (Dunin-Wasowicz et al., 2002).

Rojec and Jaklic (2002) show that foreign investors are motivated by low labour costs as long as they are able to realise similar or higher levels of productivity as in their

home country. Differences in productivity between the foreign and domestic sectors in CEECs show that so far this has been achievable.

Fourth, *the overall dominance of foreign investment firms across CEECs does not mean that domestic firms do not have a part to play in industrial integration. Across all CEE countries we can find examples of domestically controlled firms that have managed not only to survive but also to restructure and grow*. Where many domestic 'blue chip' companies have been 'taken over', some domestic companies have survived.[19] In some cases, the state has considered it inappropriate to sell off all the 'family silver' and has been keen to support entrepreneurial domestic management. In our project we analysed some of these success stories (Elektrim, Vistula, Videoton, Dobrogea). In many cases, resources deficiencies, rent seeking and oligopolistic competition from foreign investors or simply an unfortunate coincidence of several events has led to eventual failure.[20] The successful companies have managed to attract 'passive' foreign investors and have continued to retain autonomy.[21]

However, these success stories seem to be more the exception than the rule. From an industrial networks perspective (see above) the most successful are those domestic firms that have managed to become network organizers. Based on the country studies we would assume that the frequency of successful domestically controlled firms should negatively correlate with the degree of presence of FDI other things being equal. The main candidate that this hypothesis could be applied to is Slovenia, where the presence of foreign firms is relatively small and where the health of the domestic economy has enabled domestic firms to survive and grow. Romania has an even lower level of FDI but it is unlikely that there are a large number of domestically controlled companies that could operate as network organizers. Turlea and Mereuta's (2002) paper on Romania which describes the centralized economy legacy and the current, as they describe it 'systemic unrest', in that country confirms this view. Rojec and Jaklic's (2002) paper presents the results of research on Slovenian outward investments, which shows a relatively high presence of Slovenian firms in the countries of ex-Yugoslavia. However, these are still market seeking, greenfield, trade oriented affiliates with specific products that are acceptable in these markets all of which

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[19] Paradoxically, many of these success stories had corporate governance solutions, like management employees buyouts, that are considered as poor from corporate governance perspective.
[20] The most known examples of different outcomes in this respect are two Polish shipyards Gdansk and Szeczin.
[21] A good example in this respect is Croatian pharmaceutical company Pliva.

suggests that they are still far from being agents of deepening industry (production and technology) integration and are mainly operating as mechanisms of market integration.

In this respect, national studies have confirmed the general picture deriving from firm and sectoral studies, which suggests that domestic firms (large and small) and related national networks (R&D institutes, infrastructure intuitions), are the weakest links in network alignment.

Fifth, *the unexpected conclusions from the firm and sectoral studies, confirmed by the country studies, is the importance of regions or local authorities for network alignment.* This finding is surprising given the generally poor state of local governance in CEECs.

Until 1989, the system of local government was relatively unimportant across CEE. In centrally planned economies proximity was not an asset and potential local linkages were not used as sources of efficiency improvements or innovation (Radosevic, 1999c, 2002b). The dominant linkages were inter-regional and were organized within individual sectors or within large *combinates*. This created dependence of regions on the centre and reduced regional policy to sectoral policy for the industrialization of rural peripheries (Gorzelak, 1996).

From the onset of the transition period a trend towards decentralization and fragmentation of local government into municipalities and communes was immediately discernible. These lowest levels of governance were given broad autonomy, even in relation to finance. Given this new freedom, local governments tried to strengthen their position by, as Peteri (1993) describes it, 'enterprising local government' or by transferring the rules of the private sector into public service areas. They established production and service companies which were accompanied by an increase in institutional and council rents and revenues. However, given their small tax base and small size the new situation in fact increased the role of national governments. This trend towards fragmentation of regional governance into municipalities and communes was followed by a re-concentration of power into national government. The mezzo or regional level was either abolished (Czech R and Slovakia), became an appendage of central government (Poland, Bulgaria and Romania), or had only marginal powers (Hungary) (Hughes et al., 2001 based on Horvath, 1996, p. 22).

During the 1990s none of the CEECs formulated any comprehensive regional policies. Even after 10 years of transition, no coherent regional policy agenda has been set. The impression is that most CEECs are still in the process of learning and defining regional policy within a policy discourse that has been dominated by transition issues and more

recently by the accession agenda. However, there are regional aspects to FDI policies in some CEECs (Hungary, Poland, Czech R) in terms of greater incentives for investors in backward regions.

Among the country studies Poland seems to be distinctively different in this respect. One of the conclusions of Dunnin Wasowitz et al. (2002) is that the strongest actors (national governments, MNCs) have done the least in terms of development of export and innovation orientation of the economy whereas the weakest actors (domestic small firms and local governments) have done the most. In Poland, typically over 20% of municipal budgets in 1990s were invested in infrastructure closely related to the needs of FDI. Also, some localities have designed explicit policies for attracting investments. They point to spatial planning as a generally unexploited instrument of FDI policy. In our study on electronics we concluded that the local authorities in Hungary played an important role in working jointly with foreign investors in establishing industrial parks and new capacities.

In contrast, in Romania the role of regions in relation to FDI is almost non-existent (Turlea and Mereuta, 2002). Regional effects are confined to urbanization or growth of urban centres with no agglomeration effects (ibid.). In Slovenia, regions are also not important in relation to FDI.

This suggests that it is not possible to make generalisations about the role of local governments in network alignment across CEE. However, it is no coincidence that the local government has been most prominent in Poland and Hungary but not elsewhere. Poland and Hungary are the only two CEE countries where the system of local governance is comparatively better developed than the rest of the CEE. Administrative reform and country size are the reason for Poland. In addition, in Hungary the system of public finance is comparatively decentralised (Gorzelak, 2000, p. 144, 145).

As Smith (1998, p. 281) points out foreign supported programmes in CEE have involved piecemeal attempts to construct an entrepreneurial local state in the sphere of regional development. This has involved the formation of Regional Development Agencies as the mechanism to bring into partnership the range of local and external agents. The development agency acts as a 'broker' or catalyst for the formation of a wider network of relations between local agents and government, both at central and at local level. Although agencies are important agents of change in the long term, the weaknesses of the enterprises and other organizations in the region have undermined their role and potential of for inter-

regional networking. It is vital that these new organisations -establish themselves as political as well as administrative agents and create linkages with county, municipality and national levels.

Sixth. One of the important points of departure in this project was that there is a significant interrelationship between EU policy integration and the depth of industrial networks. The firm case studies have demonstrated two things. First, *the impact of the EU in that demand was an essential factor in the strategies of MNCs as the main actors in structuring network alignment*. Second, *the impact of EU accession and the related policy alignment is secondary or even negligible. However, the industry studies show that this second point is true only in sectors where network alignment is market driven (electronics, food, clothing)*. In electricity where network alignment is based on the strategies of MNCs, which are in turn based on and strongly conditioned by the regulatory regime the impact of EU enlargement is a key aspect. In this respect, our conclusions conform exactly to the recent findings of McKinsey & Co. (2002) in their study on the business effects of enlargement.

However, the important point is that *the major effect on EU enlargement on industrial networks does not come about through direct EU regulation but via the national state, in particular its orientation and capacity to comply with EU regulations while, at the same time, pursuing growth or restructuring objectives*. McGowan (2020) has analysed this issue with respect to the orientation of CEE states (developmental or regulatory orientation) and state capacity (weak or strong state). We next summarise the main conclusions of his analysis:

a. Overall the impact of the EU upon member states economic orientations appears to be strongest in terms of regulation. Indeed, we can observe a shift of the candidate countries towards a regulatory mode if for no other reason than to comply with the EU *acquis communautaire*

b. EU enlargement will enhance the state capacity of CEECs but this will vary widely across countries depending of the pre-existing administrative capacities, traditions and political attitudes.

c. The expected shift towards a regulatory mode in the candidate countries will depend on two groups of factors:

1. On the degree of compliance with EU regulations
2. On exploitation of ambiguities by countries in the orientation of EU policy.

The degree of compliance or different implementation gaps may increase significantly with enlargement and thus may enable the pursuit of sectoral policies, which may be inconsistent with EU policies - most likely with competition policy.[22] This will have effects on the nature of industrial integration. For some companies these effects will be difficult to cope with in terms of their present strategies or market (industry) restructuring. Implementation gaps may emerge for two reasons. They may emerge either due to:

1. Individual groups pressures, or
2. Weak administrative capacities

In real political processes these two maybe intertwined and difficult to separate. Ambiguities in the orientation of EU policy are the possibilities open to countries to operate as developmental states while at the same time conforming to the regulatory policy of the EU. For example, Ireland is often cited as an example of a 'developmental' state operating within the EU regulatory model. Undoubtedly there are many CEE States that would like to emulate this successful interaction between a flexible developmental state and EU membership.[23]

The history of the CEE accession process is still too short to provide detailed evidence on how differences in the accession process are related to industry integration at country level. McGowan's (2002) study on electricity sectors shows the importance of the implementation gap when we consider the impact of policy integration on industrial integration as well as factors that play a role in state orientations in this sector. For further research at country level we consider the above framework to be a useful guide to explore the interaction between EU regulation and CEE states and its effect on industrial integration.

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[22] We note that all candidate countries have managed only to open the competition policy door, however, none has been able to provisionally close it. This reveals poor preparation in aligning national rules on competition to the 'acquis communautaire' and suggests that this may continue to be one of the major problems in further negotiations.

7. Summary conclusions

1. Alignment of industrial networks with other complementary factors is far from being an automatic process. Based on firm, sectoral and country studies undertaken within the project we show the mechanisms and processes behind successful, failed, or partial network alignment at firm, industry and country levels.

2. International industrial networks in CEE are organized by MNCs and are limited in scope (they are mainly intra-firm). Emerging linkages are confined to parent firm and local subsidiary and their subcontractors in some cases. The strategies of MNCs are shaping the profile and objectives of these networks

3. The weakest node for further industry upgrading via network alignment is a national network. National networks are composed of large and small local firms, their mutual links and their links to infrastructure organizations (university, services). Local firms are the weakest in terms of being potential network organizers. The emerging domestic firms that operate as network organizers are the seeds of potentially different patterns of industry upgrading. These local champions are firms that grow based on networking with foreign firms.

4. There are wide national differences in network alignment across CEECs. These differences reflect: differences in the strategies of MNCs; different roles of governments in different industries and countries; and different positions of local authorities.

5. EU demand operates as a strong 'focal point' (attractor) for the emergence of new industry networks. EU demand generates necessary 'coherence' for initial and still rudimentary local clustering organized by MNCs.

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[23] Within our project, work by O'Connor (2002) shows the extent as well as the nature of the activism of the Irish state, but within a broad range of factors, which contributed to Irish growth.

Differences in accession to the EU play a secondary role in market driven industrial networks. However, in sectors where regulations play an important role (energy, telecoms, pharmaceuticals) network alignment is strongly shaped by state regulation.

6. The global political economy as well as EU accession has shifted CEE states towards regulation mode. Formal policy alignment with the EU (deep policy integration) leaves unresolved the problem of conflicts and gaps in policy implementation. This may have significant effect on patterns of industry integration in some sectors in the future. CEE states will have to learn how to influence industrial development on their territories by exploiting structural assistance while at the same time complying with EU regulatory requirements.

7. In CEECs where regional (local) governance is developed, like Poland and Hungary, local authorities are emerging as important players in aligning local and foreign networks despite limited decentralization and lack of financial autonomy. There is plenty of opportunity for EU policy actions to strengthen the role of regions in industry integration.

8. Our research is based on the application of a network alignment framework with the objective of understanding emerging industrial integration of the wider Europe and emerging policy aspects. Although the factors underpinning European enlargement are fairly unique, the approach adopted here - mixing micro-economic and macro-policy variables - should also be applicable to mapping regional integration in other parts of the world (NAFTA, AFTA, APEC, MERCOSUR).

9. In methodological terms, the research has justified the urgent need to pursue a variety of disciplinary and methodological approaches if we are to be able to fully appreciate the issue of industrial upgrading of regions and countries via industrial networks in a globalized economy. Any methodological imperialism in the sense of dominance of one approach, be it econometrics or case study, or exclusively macro or micro, would seriously impair the understanding of the transformation process in the CEE. Our impression is that non-mainstream approaches have been deficient and we hope that this project clearly shows the need to pursue complementary research methods.

8. Policy implications

This project has highlighted the importance of complementarities that mutually reinforce the effects of factors like firm strategies, national R&D policies, FDI polices, and EU regulations that operate over quite different time scales. In this context, policy must aim to maximize these complementarities but taking into account that many variables in alignment of industrial networks are not under control. From this perspective, policy should have a long-term focus and try to maximize opportunities for alignment to take place. Based on the project results several key ideas have emerged which policy makers in CEEC and the EU should consider.

1. Support for the weakest link!

Our project has shown that large and small domestic firms are the weakest links in industrial network alignment. Hence, there is a strong need to enhance national systems of innovation in CEECs within the EU wide system of innovation. In particular, this relates to support for local and international networking and diffusion activities.

The policy focus which in the past was on transition related issues and today is on the EU accession requirements, has created a situation in which the only industrial policy is FDI policy. The last few years have seen the emergence of an innovation policy but mainly as a normative policy with no mechanisms with any real impact (EC, 2002). Further weakening of national innovation systems will inevitably undermine the prospects for industrial upgrading by any other means than FDI.

2. Two steps forward one step back

EU accession further reduces the prerogatives for decision making for the candidate countries in areas such as Free Economic Zones (FEZ) and tax incentives. It is not yet clear what will be the effects of abolishing export processing or free economic zones (FEZ) for countries such as Hungary and Poland, which have used them with different degrees of success as an instrument for attracting and supporting FDI. Unless EU accession, through further momentum for institutional change, and improved attraction for FDI, can compensate for some of these factors then the net effect may be negative.

FEZ can be considered to be 'second best' institutional solutions. If they are abolished, EU actions should compensate for this reduced policy freedom by enhancing

first-based institutional solutions. Interim outcomes in the course of this process may not always be positive.

3. Window of opportunity: strategic FDI policies and supply chain policies

Vertical industrial policies are a thing of the past. We may expect that the CEECs will increasingly shift their state aid towards horizontal type assistance, which complies with EU regulations. The drawback to horizontal policies such as R&D and innovation is that they have broad objectives, broad target groups and long gestation periods. Examples such as Ireland suggest that there is scope for policies that are market friendly but that target specific areas of FDI and thus have quicker effects. These two policy directions are strategic FDI policy and policies that target and support supply chains.

Most of the CEECs apply so-called 1st generation policies like liberalization of FDI flows. Some CEECs have embarked on 2nd generation policies such as marketing the country as a location and setting up of national investment agencies. The most advanced CEECs have started to entertain, implicitly or explicitly, 3rd generation policies such as targeting foreign investors at the levels of industries and clusters. In order to catch-up CEECs must quickly learn how to implement 2nd and 3rd generation polices.

The policy focus on supply chains is based on the idea that the focus on the nation or the company is much less important than providing support for productive systems such as value chains, clusters and industrial districts (Sharp, 2001). In order to assist industrial upgrading CEECs must increasingly take into account the network character of local and global companies. This has been already been recognized (implicitly or explicitly) through the National Subcontracting programmes (Czech R) and the Hungarian Integrator programme, which aim to integrate domestic firms with foreign firms through supply linkages.

4. EU wide FDI contests

Even after EU accession CEECs will continue to be heavily dependent on FDI for industry upgrading. EU accession will not eliminate the need for competition in attracting FDI. In some ways, this competition may even increase further. Instead of trying to limit competition for FDI between the EU regions the EU should exploit contests for FDI between regions as a mechanism to improve the business environment in the weakest

regions. As Kuznetsov (2002) points out the existing competition has important limiting features in terms of its protagonists and instruments as it is limited to large MNCs and national governments. Instead of implicitly accepting this, the EC should make these contests public 'as an incentive device for private and public actors to come together to develop innovative solutions to improve the investment climate on a sub-national level' (ibid) with matching grants from the EU level. In this way contests could serve as an *incentive device* for local government and domestic firms to engage in meaningful joint actions and reforms; as a *coordination device* to coordinate activities at national and EU level under the umbrella of private-public competitiveness projects; and as a *mechanism to share policy knowledge.*[24]

5. Enhancing coordinating capabilities of national governments

The shift in policy focus towards value chains complicates policy-making, as value chains cannot be fully supported only from the national level. They require multi level governance support at national, regional and EU levels. In addition, from a network alignment perspective the focus on commodity chains is not sufficient as upgrading based on value chains may be related to technology, skills and national innovation systems rather than direct production chains. The main challenge at national level is to coordinate diverse policies with very different life cycles covering very different constituencies (Sharp, 2001). Government capability to integrate policy objectives and actions from the different tiers of government (EU, national, regional) is essential for promoting industrial upgrading through industrial networks.

[24] Based on Kuznetsov (2002)

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