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## **1.2. SLAVEHOLDERS OF THE MODERN AGE OR POWERFUL ALLIES? THE LOCAL INTEGRATION OF LARGE COMPANIES**

### **Summary**

Reindustrialisation is one of the strategic priorities of the European Union. Now more than ever, Europe needs industry and industry needs Europe. The European economy needs to get back to a growth path. This requires coherent and coordinated industrial policies from the Member States (EC, 2010). The question is that how this objective can be achieved and what is the role of large companies in this process. Regarding Central and Eastern Europe, in most countries national economies are catching up in terms of GDP per capita while their specialisation is high in high-innovation intensity sectors and technology-driven industries (EC, 2011). In the region, Hungary is one of the countries where automotive industry has an outstanding and continuously increasing importance. The author's basic hypothesis is that multinational companies, OEM (Original Equipment Manufacturers) and Tier 1 (first level, direct suppliers of OEMs) both, can become strategic allies of local actors in the development path designation process of a specific location, especially in case of mid-size cities. Local integration of these companies is an ongoing process, supporting the shift of these former 'low cost locations' to higher value-added locations. The borderline between the traditional sector of local economy and the exogenous actors is becoming less definite and the subsequent development activities are strengthening the endogenous potential of the area. The objective of the study is to prove the hypothesis by specific examples and to contribute to the definition and better understanding of the success factors and obstacles in this process.

**Keywords:** local integration, large companies, helix models, endogenous development, SMEs

### **Introduction**

According to Friedman, globalisation 3.0 has brought a shift in the drivers of globalisation and created major new challenges for local economic development (Friedman, 2005). The solutions called for an orientation toward ensuring that all participants in a local economy make maximum contributions. The recovery from the global recession means a clear shift from the "traditional" ideas and requires an economy focused on reinventing itself through new technologies, innovations, and renewed commitments to ethical leadership in both the public and private sectors. The competitive advantage of firms in the new economy has been greater specialisation that results in more interdependency with other firms and organisations, inter alia local supplier companies, governments, education institutions and local societies. When

leading-edge firms need specialised skills, they “hire” other companies and form ‘virtual corporations’ to produce one product or service and then recombine with entirely different sets of companies for another product or service. Firms with well-developed networks are flexible, able to identify and select strong suppliers as well as to penetrate new markets. In a networked economy, the skills of suppliers are as important as the skills within the firms (Blakely and Leigh, 2010). This process is very similar to what is called ‘matrix organisation’ in project management literature. Through networking and supplier development multinational companies and SMEs as members of the supplier network can reduce income-, earnings- and spatial inequality in a specific area that are resulted by globalisation. The Internet of Things, Industry 4.0, Smart Specialisation, Open Innovation 2.0, the triple, quadruple, quintuple and N-tuple innovation models are tendencies and approaches that shape our present and future activities. In a national and local context, new economic geography stresses the importance of spatial economics and the necessity of empirical and qualitative research on the meso-level (Krugman, 1998). This study aims to contribute to filling this gap in current knowledge.

## **Methodology**

The author’s basic hypothesis is that multinational companies, OEMs (Original Equipment Manufacturers) and Tier 1 companies (first level, direct suppliers of OEMs) both, can become strategic allies of local actors in the development path designation process of a specific location, especially in case of mid-size, or second-tier cities. They can contribute significantly to the successful and sustainable development of an area. Through the operationalisation of the so-called helix innovation models, their connections with the local economy, society, science, government and natural environment can be captured. Following the presentation of the global, Central European and Hungarian context, the author focuses on the role of multinational companies (MNCs) in the re-industrialisation process and their potential contribution to sustainable local economic development.

As geographical scope, Hungary, as part of the CEE region was identified. When examining the long-term changes in the industrial structures of the Member States of the EU in the period 1999-2007, the European Commission has identified four groups for analytical purposes. These groups of countries have followed different paths toward higher technology or higher skills industries. The groups were identified on the basis of similarities in character and trade trends, although this can still mask substantial differences within each group. Hungary, the Czech Republic, Malta, Poland, Slovakia and Slovenia have achieved a structural change from labour-intensive industries towards technology-driven industries on both production and trade (EC, 2011).

As sectoral focus, automotive industry and both OEM and Tier 1 companies are examined. The author presents three Hungarian case studies from Audi in Győr, Daimler in Kecskemét and Robert Bosch in Miskolc. The following complex set of criteria formed the basis of selection in case of the territorial units and the specific

companies: mid-size (second-tier) cities in the countryside with different geographical and logistic situation, history and traditions (1); different local economic structure and performance, core-periphery status, strong agglomeration (2); the representation of both OEM (Original Equipment Manufacturer) and Tier 1 (direct or first level supplier) companies in the sample (3); sectoral and geographical focus on automotive industry and European companies (4); different stages of the integration process and time horizon (5); prioritised development centres with advanced local economic development capacities (6).

The research has a strong empirical character and is process-oriented. The most recent industrial statistics and reports form the basis for references. As theoretical background, the triple, quadruple, quintuple and N-tuple helix models are addressed, as explanatory models for analysing the knowledge-based economy (Etzkowitz and Leydesdorff, 2000). The innovative nature of the research can be captured in its approach as focusing on the meso-level processes and in its aim to construct a process model on the basis of subsequent steps and milestones as means of verification instead of quantifiable, project level indicators. The author operationalises the helix innovation models in a real-time local environment in order to identify and present the connections of large enterprises with the local, integrative environment. The identified steps and process model of local integration can be tested in other CEE regions and can form the basis of multi-country comparisons and a tool to support smart policy-making. The objective of the study is to prove the basic hypothesis by specific examples and better understand the success factors and obstacles in this process.

### **Global, EU and National Context of the Research**

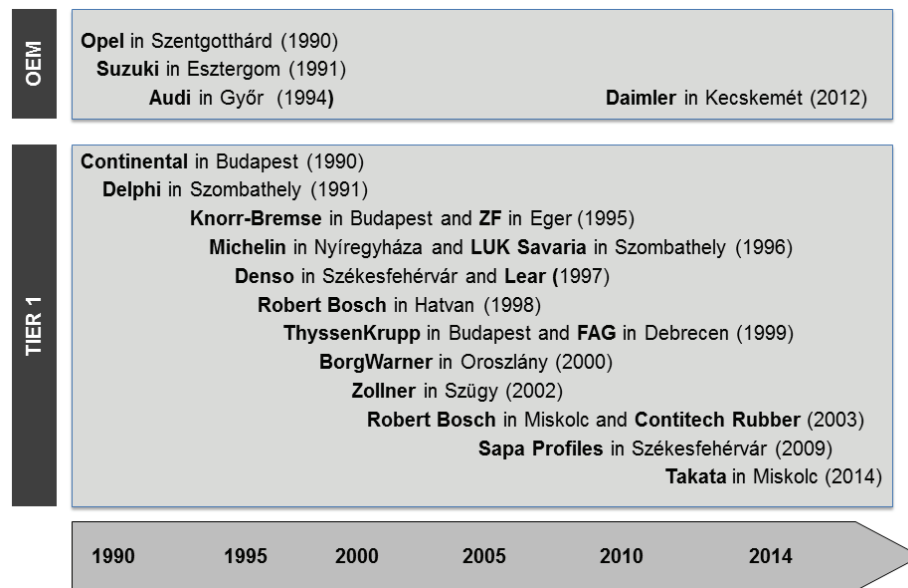
Before entering the examination of the meso-level processes, the understanding of the global, European and national context is of outstanding importance. According to the list of the 500 largest companies globally, two companies in the top 10 belong to automotive industry, Volkswagen (Germany) and Toyota (Japan), ranked 8<sup>th</sup> and 9<sup>th</sup>. There are 4 other sectors in the list, as retail (rank 1); petroleum (rank 2-6); power (rank 7); and commodities (rank 10). The revenue was 261.5 billion USD for Volkswagen and 256.5 billion USD for Toyota based on the fiscal year ended before March 31, 2014 (Fortune, 2014). Another example of global processes is the ASEAN Economic Community (AEC) that is a goal of regional economic integration by 2015 of the Association of Southeast Asian Nations (ASEAN). The key characteristics envisaged in the framework of the cooperation are: (a) a single market and production base, (b) a highly competitive economic region, (c) a region of equitable economic development, and (d) a region fully integrated into the global economy. In short, the AEC will transform ASEAN into a region with free movement of goods, services, investment, skilled labour, and freer flow of capital (ASEAN, 2014). An interesting study points out the changing international patterns in foreign direct investments (FDI) in recent days. According to the World Investment Prospects Survey for 2013-2015, transnational cooperations (TNCs) in the manufacturing sector drove a change in preferences on the mode of entry, with almost half of them stating that brownfield

investments and exports would be highly important in 2015. This change in the internationalization patterns underlying the importance of exports and of existing operations will likely result in rationalization of foreign operations and refocusing of businesses.

Regarding Central Europe, manufacturing sector has been radically transformed in the last 15 years following the transition. Internationally competitive, modern and efficient manufacturing facilities have started their operations and the automotive industry is one of the crucial manufacturing sectors in the Czech Republic, Hungary, Romania, Slovakia and Poland. According to a recent report in Central Europe, 114 companies (23%) in the TOP 500 belong to manufacturing sector and deliver an average growth of 2.9 %. Manufacturing holds the third place among all sectors and the main driver of its growth is the automotive sector. The average revenue growth for the sector was 5.8% in 2014, a significant increase from 1.7% in 2012. The biggest moves were the big jump of Mercedes-Benz Manufacturing in Hungary and Ford Romania. Global car manufacturers and their suppliers continue to invest in the CE region as a lower-cost and high-quality base. “The message is clear: this is one of the most important and fast-growing industries in the region.” (Top 500 in CE, 2014).

Hungary is one of the so-called ‘Detroit East’ countries where automotive industry has an outstanding and continuously increasing importance (Edmondson, 2005). From the early 1990s, several OEMs and connected Tier 1 companies have started their operations in the country. As a good example, Bosch Group has established an automotive electronics plant in Hatvan in 1998, a power tool plant in Miskolc in 2001 and a second plant in Miskolc in the automotive sector in 1994. After 2010, several new investment projects were completed by both the OEMs and their Tier 1 and 2 level suppliers in the country. The level of value-added in automotive industry is continuously increasing in Hungary, employing more than 120,000 people and producing 18 billion EUR revenue (2013). More than 92% of the production volume is exported and the industry reached 23% increase in the production value from 2013 to 2014. According to OECD, the Hungarian economy has finally entered into recovery in 2013 and the relative importance of automotive sector, which accounts for 18% of all exports, has increased because of new investments (OECD, 2013).

Narrowing the scope to the subnational level, regional disparities can be observed in the country as before 2000, the Northern Transdanubia Region (Western and Central Transdanubia NUTS II Regions) was overrepresented while after 2008, the Eastern parts (Borsod-Abaúj-Zemplén and Bács-Kiskun County) have become attractive investment locations (Molnár, 2013). The author’s research underlines this observation and it should be emphasized that in the last ten years the presence of automotive industry in Eastern Hungary is strengthening, with a dynamic increase in the number and volume of new location projects (Figure 1). Based on these facts and tendencies, Hungary and automotive industry as territorial and sectoral focus are good examples in the CEE region for the examination of the potential contribution of large companies to sustainable local economic development.

**Figure 1: Industry Settlement of the Largest Automotive OEM and Tier 1 Companies in Hungary**

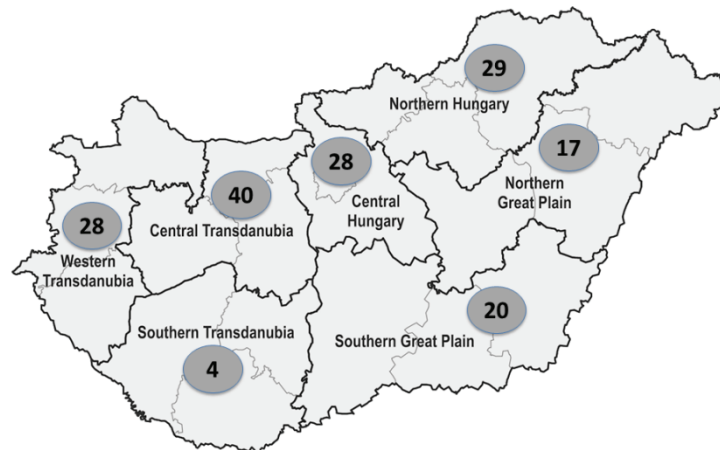
Source: own construction from public data, 2015

### Sectoral Context of the Research

Automotive sector not only brings direct employment and generates wealth but also creates extra wealth and employment in other sectors with a multiplier effect of almost four. Altogether more than 720 companies are working in the automotive sector in Hungary and the industry's share in the GDP is 10%. Regarding the supplier network of OEM and Tier 1 companies in Hungary, there is a clear commitment from the side of large (multinational) companies to increase the proportion of local suppliers in their supplier network. The Hungarian Investment Promotion Agency (HIPA, formerly: HITA 2014) launched a qualified supplier database that has more than 210 registered member companies, mainly SMEs. Large companies as Audi/VW Group, Mercedes, Siemens, Denso, Knorr-Bremse and Continental are also exploiting the database. A representative of BMW has recently called the Hungarian supplier basis an "invisible factory" with almost 10,000 people working in Hungary for the German BMW factory through 54 separate suppliers. The most important, Tier 1 suppliers are Robert Bosch Group, Denso, Knorr-Bremse and Continental. Suppliers can be direct and non-direct suppliers, or productive and non-productive suppliers. The nomenclature changes from company to company. Additionally to direct, product-based suppliers, the author identifies the following areas as cooperation fields: raw materials; transport and logistics; warehousing; public utilities; maintenance and facility management; technological equipment; catering and housing; HR and training; other services including consultancy, design and research and development. The examination of the automotive LQ (location quotient) index strengthens the strong representation and concentration of automotive companies in the Northern Transdanubia Region as

industrial center with three times higher value than the national average (Grósz, 2012). On the other hand, two Eastern Hungarian regions have a continuously increasing data in the last years. In general, it can be stated that the spatial distribution of OEM and supplier companies is not equal as it is illustrated on Figure 2.

**Figure 2: Geographic Concentration of the Biggest Automotive Suppliers in Hungary**



Source: own construction from public data, 2015

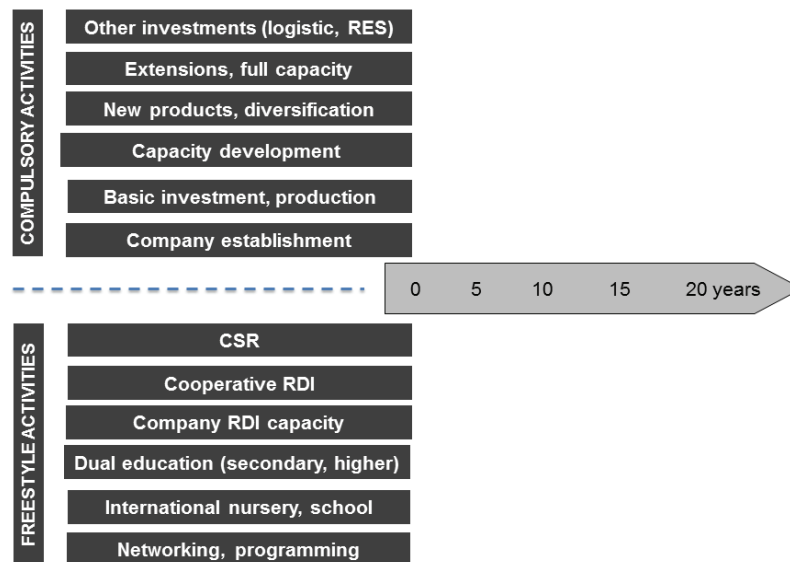
## Results of the Empirical Analysis

According to the author's basic hypothesis, OEMs and Tier 1 companies can contribute significantly to the sustainable development of an area, especially to local economy, through their core (compulsory) and non-core (freestyle) activities. If we assume that local integration is an ongoing process and it can be captured through empirical research, the question is if local integration can be generalized and modelled and if yes, how? The author developed a process-based model with subsequent milestones and with a basic division of the activities into two main groups, the core (compulsory) and non-core (freestyle) activities (Figure 3).

If our aim is to operationalise the helix models, we should first summarize the theoretical background. In case of the triple helix model, the academia-industry-government triangle is examined. The quadruple helix model widens the scope with society as a new dimension, and the quintuple helix model includes the natural environment also. In case of core (compulsory) and non-core (freestyle) activities, a clear connection to the elements of the helix models can be identified. The definition of "core" and "non-core" activities is also important before taking a closer look at the local processes. Business dictionaries generally define core activities as the essential, defining activities of an organisation. These are business functions that are critical and closely related to a firm's strategy, for example production of final goods or services intended for the market/for third parties carried out by the enterprise and yielding income. As additional activities, support business functions or non-core activities can

be defined that are carried out in order to permit or facilitate production of goods or services intended for the market/third parties by the enterprise. Research and development for example is in most cases considered as a support business function.

**Figure 3: Process Model of Local Integration**



Source: own construction from public data, 2015

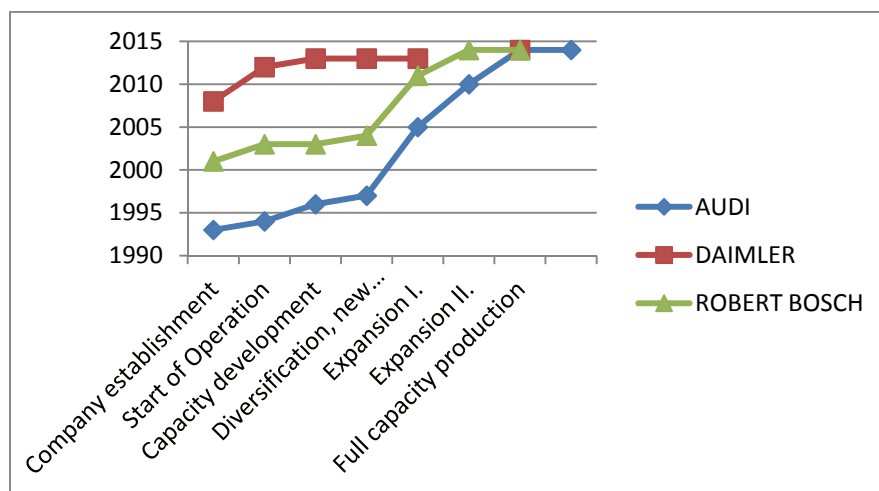
We should differentiate between core activities and core businesses. The literature of outsourcing for example is actively examining recently the shifting emphasis from the outsourcing of parts and components towards strategic outsourcing, where knowledge capabilities can be leveraged through the means of outsourcing (Quinn, 1999). In this article, the author defines core activities as the basic activities directly connected and essential to production. Core activities are normally taking place in every production sites, even in low cost locations. Non-core activities are additional activities, not prerequisites of the production process, such as dual education, research and development and innovation (RDI) capacities and competences, international kindergartens and clustering. These activities do not occur at every production site, but in strategic locations with a potential of a higher value-added.

When selecting the case studies, special emphasis was laid on the different time scale of the companies as the 'early bird' Audi in the 1990ies, the Robert Bosch group in the 2000s and the most recent Daimler starting its operation after 2010. Regarding the core activities the basic construction, the subsequent expansions, the production activities and the continuous technology and capacity development can form the basis of comparison (Figure 4). These activities are conducted in almost all 'low-cost' locations and can form the basis for cooperation with supplier companies, mainly local SMEs. As a specific example, in case of Daimler, there are about 25 suppliers already delivering to the company seated in Hungary. It is important to highlight that during the construction of the new production facility, the ratio of Hungarian companies was 80%. The investment volume was 800 million EUR and the total area exceeds 440

hectares. In the industrial area of Daimler, 10 suppliers can locate in the short term and an additional 35 in the mid-term. As the company forms a production network with the production plant in Rastatt, suppliers can deliver their products directly to Rastatt also. For Audi, the expansions and the new geothermal RES (renewable energy sources) project with an investment volume of almost 27 million EUR are also good examples. The project is executed in cooperation with PannErgy, with Hungarian majority ownership. Audi Hungaria Motor Kft. has almost 100 Hungarian suppliers recently. As regards Robert Bosch group, as Tier 1 level supplier companies, they have a significantly wider regional and local supplier base, due to their situation in the supplier pyramid. They have hundreds of supplier companies in Hungary both directly and indirectly connected to production and the strengthening and widening of local supplier network is a prioritised area in their relocation strategy. If we examine the process in case of the core activities we can observe three main tendencies as (1) the acceleration of the subsequent investment decisions and activities, (2) the continuous and pivotal necessity of a critical mass of hard and soft resources and (3) the increasing importance of greenfield areas and connected logistic infrastructure. As an interesting phenomenon, the use of renewable energies has emerged in one case. There are similar plans in the other two examined cases also, but their realisation is still in question.

As regards the connection to the helix models, the presented core activities are mainly connected to the local economy and local society, while there are some aspects that concern the local and national government and the natural environment.

**Figure 4: Comparison of the Three Case Studies – Compulsory Activities**



Source: own construction from public information and empirical research, 2015

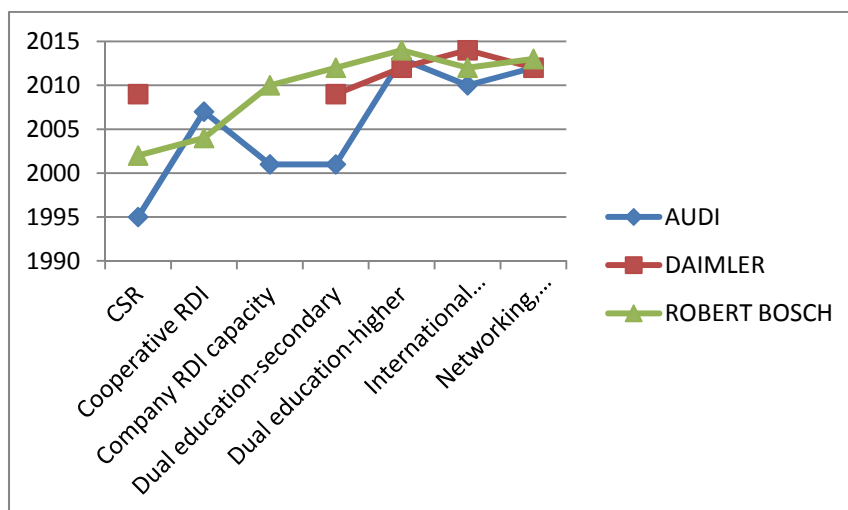
The global economic situation and the dynamics of the market will lead to deep structural changes in the automotive industry, meaning high standards of ecology, safety and comfort. The key factor will be the engineering know-how and this will create the foundations for further development. The establishment of knowledge- and



value-chains are prerequisites of global competitiveness. The non-core activities identified in the current process model contribute significantly to the creation of higher value-added in some strategic locations. Considering the role of local economy, mostly SMEs and suppliers, the strategies and expectations of the OEMs and Tier 1 companies differ from company to company. In some cases, OEMs conduct significant applied research activities and employ a stable and increasing R&D staff additionally to productive workers and administrators, or in their terminus technicus: direct and indirect personnel. OEMs and Tier 1 companies can contribute significantly to the sustainable development of an area, especially to the local economy through their core (compulsory) and non-core (freestyle) activities. As regards the non-core activities, suppliers include service provider companies and other local actors also. The activities presented on Figure 5 contribute to the endogenous development potential of the examined mid-sized cities as joint RDI centres, clustering, dual education and international kindergartens are comparative advantages of a specific area in the global competition. The importance of these “soft” activities has been significantly increased in the recent era following the global economic downturn. From 2010, we can observe a clear priority to dual education at both secondary and higher levels, international kindergartens and schools and strategic programming and clustering activities. Strategic programming activities include cooperation in the elaboration of the Smart Specialisation Strategy (S3) inter alia.

As regards the innovation models, non-core activities are mainly connected to the scientific dimension covering education and RDI also, and to the (local) government and economy, through the establishment of international kindergartens, schools and industrial clusters. Cooperation partners for large companies are the primary and secondary schools, universities, research institutes, governments and authorities, bridge organisations such as chambers of commerce, innovation agencies and cluster management organisations.

**Figure 5: Comparison of the Three Case Studies – Freestyle Activities**



Source: own construction from public information and empirical research, 2015

## Conclusions

As a concluding remark, it can be stated that large companies settled in a specific area and operating on the global market can be strategic allies of local governments and communities and can significantly contribute to the development path designation process. Large companies have started additional activities in the examined meso-level locations compared to “pure” manufacturing that can increase the endogenous development potential of a particular area, for example an international nursery, kindergarten or school, and a dual education centre or a common university department or centre of excellence. These companies are open to cooperation with local actors but the extent to which this potential can be exploited largely depends on the specific local community. There are good practices to be adapted if the decision-makers recognise the importance of local economic development activities. In this case, a wide range of measures can be introduced, and interventions are not narrowed to the construction of new industrial sites for example. On the other hand, several bottlenecks and important barriers can be found in the local economy, more specifically on the supplier level, as the ability to comply with the high level and continuously changing requirements, the inelasticity towards product development, the low level of innovation culture and activities and the low number of suppliers offering complementary services. In order to sustain the positive investment and development tendency in the region, hard infrastructure development is not sufficient any more, more complex interventions should be developed in addition to a critical mass of local resources and a business-friendly local environment. Emphasis should be laid on ‘soft’ factors and the scope of measures could be on dual education and training; life career models; support to housing and commuting and higher quality of life standards.

Large companies should be handled as equal partners in city development actions also and there should be a mind-set change in case of decision-makers and citizens also in order to find areas of mutual interest. This is the key to strategic alliances. In the era of Globalisation 3.0, Industry 4.0 and Open Innovation 2.0, not only companies but also their supplier networks are competing on the global level. Thus, large enterprises can boost the local economy, especially SMEs, as integrator companies. The opportunities for existing and potential supplier companies have widened and increased significantly, though there are some obstacles as the critical mass of resources, long-term availability of skilled workforce in an area and low level innovation potential and openness of SMEs. Support to innovation and investment in education and training throughout the lifecycle are necessary interventions from the policy level.

The limitations of this research are mainly connected to the geographic scope and the number of case studies. Further research questions can be if the identified steps and milestones can be identified in other countries. Is it a general, industry level practice or is it a specific example that occurs in case of particular countries and/or industries. Can the process be generated or accelerated and what kind of interventions and policy level recommendations could be elaborated for the purpose? Is there a difference between domestic and multinational companies with regard to the integration process? Are these positive tendencies sustainable in the long term and what are the next steps in the process?

It can be stated that the examined cases have several similarities and a process model of local integration can be developed on this basis. In most cases, the subsequent steps are the same, while there are also some divergent issues, for example the total absence of RDI activities in case of one OEM company. The process-based qualitative methodology provides a good basis for comparative studies and also for the elaboration of policy interventions. The adaptability of the helix innovation models in local environment was proved and specific actions can be attached to the single elements (dimensions) of the models.

Regarding (re)industrialization and reshoring, the economies of the Detroit East countries constitute a good potential for further industry settlement, whereas the role of mid-size cities should be emphasized. The establishment, location and development of Tier 2 and 3 level companies are achievable targets for national economies and the structure of the supplier network should be further developed and widened with the financial assistance of the European Structural and Investment Funds in the current EU programming period.

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