

The Leipzig Economic Region

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Introductory remark: This case study is written in the context and according to the guidelines of the EU-financed Eurocap project (www.uni-bamberg.de/sowi/europastudien/eurocap.htm). The second German case is the region of Central Franconia; therefore, many tables and figures refer to these two regions.

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1. Introduction

After the German reunification in 1990, the Leipzig economy had to overcome a two-fold challenge: On the one hand the consequences of a politicised economy had to be overcome (Kornai 1986) – an economy in which businesses were hardly able to act independently and in which the required resources could be procured only by political means. On the other hand already prior to the Second World War, the traditional industrial region of Saxony was in need of a fundamental structural change (Bramke 1998). With respect to both these challenges the former, decades-long preserved economic and business structures could no longer be adapted on an incremental way to the challenges of a knowledge- and service-orientated high-wage economy.

Therefore, after reunification, the Saxon economy had two alternatives. On the one hand, like other post-socialist countries, it could have taken the path of an endogenous transformation to a low-productivity economy. This would have been possible, if the labour costs would have been adjusted to the modest productivity levels of initially approximately one quarter of the West German level. In this case, many firms could possibly have been privatised and restructured. Given the open borders and the integration into the German and European internal market, this option was politically not feasible within the context of a reunified Germany. With regard to the serious backlog in the modernisation of the East German economy, the decision for reunification and for egalitarian living conditions and remuneration levels in eastern and western Germany implicated the radical breakdown of the former socialist economy. In general, combines based in Saxony, such as Gisag, Robotron, Takraf or IFA, already shut down in 1991/92; in the best case scenario a few parts could be continued as small and medium enterprises.

Thereby, since the beginning of the 90s, the Leipzig administrative region had to face the task of building a completely new economic structure. This task is far from a successful completion, as the development of new regional capabilities is a long, path-dependent process: The unemployment rate is still approximately double that of western Germany, whilst the real net output per inhabitant is at 60% of the West German level (2000). However, it is already inappropriate to designate the East German federal states as a German mezzogiorno. In the Leipzig administrative district the density of employment – 450 employed persons per 1000 inhabitants (2000) – is not dramatically below the German average (471 employed persons); it is higher than the density of employment in Lower Saxony (441), Schleswig-Holstein (443) and Rhineland-Palatinate (437) and the other east

German federal states. Many West German and foreign companies have settled in Leipzig and other parts of Saxony – for example Volkswagen in Mosel, Zwickau and Dresden, AMD, Infineon and SAP in Dresden and Porsche and BMW in Leipzig. Approximately 20,000 people work in over 750 micro-electronics companies in „Saxony Valley“ around Dresden (Sueddeutsche Zeitung of 21.11.03); over 700 motor companies with 64,000 employees were counted in the motor supply industry in Saxony (Die Zeit of 13.11.03). The atmosphere of departure in Saxony has been described as follows:

„Whether enterprise managers or ordinary middle-class people – they are almost bursting with optimism and invest like world champions. Their order books are full, the perspective promising. They are expanding and looking for experienced staff urgently. They are full of praise for fixed authorities, busy staff and willing trade unions.“ (Die Zeit of 13.11.03)

Not even the high rate of unemployment can be raised as an objection to the thesis of a successful structural change, as this indicates less a comparatively small number of job offers rather than a comparatively high propensity for employment by women: The labour market participation rate of 72.3% (2000) for women in East Germany is almost 10% higher than in the west (62.7%).

Public transfer payments were a central prerequisite for the relative success of the industrial Tabula-Rasa strategy.¹ These payments stabilised consumer expenditure and the economic branches and companies thereby associated, they facilitated the fundamental renewal of the infrastructure (roads, motorways, airports, schools and colleges, energy supply, flats....) and they also made possible the relocation of West German and other companies to the east. Fixed investments in East Germany in the 90s were way above West German levels. From 1991-1998 in East Germany DM 93.107 were invested per capita (in the west: DM 76.090), of which DM 28.577 was in equipment and DM 64.530 in building (IFO 2001).

However, the East Germans themselves have also made a considerable contribution to this success. Labour costs in East Germany are approximately 23% below the West German average, working hours are longer and the coverage by collective sectoral agreements is considerably lower. Nonetheless the number of unemployed is almost double that of West Germany and many East Germans had to deal with fundamental biographical and vocational ruptures.

Of course the successes of the economic restructuring must be analysed in its context. With the exception of the manufacturing industries, productivity is still far below West

1 The „Halle Institute for Economic Research“ estimates the total amount of these transfers in 2003 – i.e. 14 years after reunification – still to be € 83 billion, i.e. 32% of the east German gross product (IWH-press release 21/2003).

German levels. The main reason for that is possibly the prevalence of small and medium-sized companies, which normally show a lesser productivity rate than large international companies. Following the economic collapse in 1991/92, there still is a very low number of larger international industrial and service companies; the economy is characterised by small and middle-sized companies and public companies and is, to a considerable extent, dependent on external companies. As previously mentioned, the dependence on West German transfer payments is considerable.

This does not come as a surprise. A successful economic region cannot be newly-created within a few years just by public demand. Regional, organisational and technological capabilities develop in much longer, path-dependent processes of productive experiences, training and cooperation. They are the result of a long-standing successful participation in the increasingly global economic, scientific and technological competition. Essential is the path-dependent, incremental development of new technological, scientific and business capabilities. The foundation or relocation of factories is therefore only an element in the gradual development of new regional capabilities.

In the following, the development of new regional capabilities in the Leipzig administrative district is analysed. At first, the concept of regional capabilities will be introduced (2), then follows a description of the historical, politico-administrative and social construction of the Leipzig region (3), subsequently an analysis of the processes in which the industrial capabilities of the region are rebuilt (4). Finally we will analyse the institutional conditions for the successful reconstruction of the Leipzig region (5).

2. Regional capabilities. The theoretical approach

An economic region can be analysed as a societal field which is shaped by the regional companies, regional institutions and identities and individual actors.² The capabilities of a region are anchored in its organizational capabilities (in its companies, its industrial structure and its patterns of specialisation) and in its institutional structure.³ These structures are the „memory“ of a region, the result of path-dependent experiences of cooperation and conflict. These institutional structures have been described by Salais/Storper (1997) as regional orders, as *conventions*, as “taken-for-granted mutually coherent expectations, routines, and practices“. These institutions (or governance structures, conventions or regional orders) are produced or re-produced in an open, but path-dependent way a) by the transaction-cost-minimising network strategies of enterprises, b) by regional public authorities (especially in federal states) and c) by non-governmental actors (for example trade unions, professional and business associations, NGOs or sometimes even individual actors).⁴ The regional governance structures are crucial for the innovative potential of regions and regional firms, because they are regulating the organizational patterns of work, management and innovation, because they are shaping the inter-organisational patterns of cooperation and competition and because they are regulating the relationships between businesses, science, technology, education and politics.

In the following, we will analyse the impact of companies, public authorities and associations on the governance structure of the Leipzig region because it can be assumed that these structures will have a major impact on the competitive strength of this region.

2 “In their most generic guise, such fields are composed of (1) organizations seeking to structure their environments, (2) preexisting rules (i.e., existing institutions) that operate to constrain and enable actors in the arena, and (3) skilled strategic actors who work within organizations to help attain cooperation among disparate groups and interests.” (Fligstein/Stone Sweet 2002: 1211).

3 This refers to the concepts of regional innovation systems which has been defined as follows: “Regional innovation system denotes regional clusters surrounded by ‘supporting’ organisations. Basically, regional innovation system consists of two main types of actors and the interaction between them (...). The first actors are the firms in the main industrial cluster in a region including their support industries. Secondly, an institutional infrastructure must be present, i.e., research and higher education institutes, technology transfer agencies, vocational training organisations, business associations, finance institutions etc., which hold important competence to support regional innovation.” (Asheim/Isaksen 2002: 83) In contrast to the cluster concept – which has been defined as “geographically proximate firms in vertical and horizontal relationships involving a localized enterprise support infrastructure with a shared developmental vision for business growth, based on competition and cooperation in a specific market field“ (Cooke 2002: 121) – the relative importance of supporting institutional structures is estimated to be higher.

4 In an ideal-typical way, Cooke (1998) has opposed these different forms of coordination as grassroots, network and dirigiste structures of governance (Cooke 1998).

3. The boundaries of the „local system“, the „economic identity“, and the „local social identity“

3.1 History

The first documentary evidence of the Fair city of Leipzig was as „urbs libzi“ in the year 1015. In 1165 the status of town was conferred on Leipzig at the same its right to hold markets; no other market could be held within a circumference of 15 km. This was the basis for the development of Leipzig into an influential economic and trading centre. First came the margravate of Meissen, then the Electorate of Saxony and the Kingdom of Saxony, which were ruled by the House of Wettin from 1124-1918. The University of Leipzig was founded in the year 1409. In 1485 the first printing works were opened in Leipzig. In 1497 the city of Leipzig received the emperors privilege to hold a fair – and a few years later also commercial and juridical privileges. Similar to Nuremberg, towards the end of the Middle Ages the city developed into a centre of the European trade network. After the slump as a result of the Reformation and the 30 Years War, Saxony in the 19th Century developed into one of the leading industrial regions in Germany. In the centre stood the textile industry in Voigtland, in the Erz Mountains and in Upper Lusatia. In 1839 the first long-distance railway track was laid between Dresden and Leipzig. In 1871 Saxony joined the Prussian-German Empire, and, in 1918, the last Saxon king renounced the throne.

Bramke (1998:18-19) sums up the history of industrialisation in Saxony as follows:

„The industrial history of Saxony is older than that of the Ruhr area. It began, typically for an old industrial region, with the textile industry, soon expanded and further advanced by the upswing in machinery construction, both of which were promoted by the early development of a railway network. As the stormy upsurge in the Ruhr began, Saxony was already an old industrial region, with a still-dominant textile industry within a multitude of branches never again to be achieved within Germany. Saxony was unable to win back its leading industrial role due to the disadvantages of its location with regard to coal and steel, so there remained only the adaptation of the given conditions and under the utilization of its own advantages. To this there belonged a qualitatively strong finished goods industry with excellent chances in the world market. Saxony had been the No. 1 export Land in Germany until shortly before the Second World War. This had cosmopolitanism for economic and technological innovation as a consequence, which at the time led to the adoption of important trends, without drastic changes having to be made in the basic economic structure. Obviously the capacity for change by adaptation was first lost in the 70s in the general ossification of the GDR (...). The far-reaching decoupling of the concentration processes of industry after the First World War brought competitive

disadvantages for the financially weaker small and medium-sized businesses, which were clearly the dominant force in Saxony until the mid-30s.“

In the course of industrialisation from 1871 to 1933 Saxony became a stronghold of social democracy. In 1938, 12 of the 13 synagogues in Leipzig were destroyed; in 1942 the Jews remaining in Leipzig were deported. In 1989 the Monday demonstration by Leipzig residents triggered the fall of the SED regime.

Over the course of centuries the division of labour in Saxony has developed between the three central cities, which are colloquially described as follows: „That which is produced in Chemnitz, is sold in Leipzig and squandered away in Dresden“. Since the 13th Century Dresden has been a residential city; Leipzig has been a supraregional trading centre since the Middle Ages and, together with Frankfurt, the centre of the German book and publishing trade, whilst Chemnitz, since industrialisation has been dubbed the „Manchester of Saxony“. Today the division of labour within Saxony can be described as follows:

„The area of Chemnitz/Zwickau is of prime importance in providing a heavily industrialised economic structure with the emphasis on vehicle construction and metal-working (e.g. Volkswagen, Sachsenring). Leipzig is the centre-point of the infrastructure of the new German federal states in the area of trade (Leipzig Trade Fair, Leipzig-Halle airport, banking centre) and the polygraphic industry. In and around the Dresden, the capital city of the Land, electrical engineering and microelectronics are concentrated (e.g. Siemens, AMD)“ (Rellecke 1999)

During socialism not only printing machines were produced in Leipzig, but also machine tools, chemical and welding plants, cranes and opencast mining equipment for the local lignite mining industry.

3.2 The Leipzig Region

In the following it will be explained why it is fairly difficult to define the Leipzig region and especially why it is necessary to always see the city in a wider regional context together with the remaining parts of Saxony, Thuringia and Saxony-Anhalt.

Since 1874 there have been various intermediate authorities in Saxony – for example rural areas and administrative districts. On this basis, in 1952 the district of Leipzig was formed following the dissolution of the Land of Saxony. Thereby, the region of Leipzig was, for the first time, an autonomous, albeit very weak, political entity. Today the three administrative districts correspond approximately to the former districts in the GDR (even

when in the GDR a considerable part of the dissolved state of Thuringia was annexed to the Leipzig district). Therefore, it can hardly be stated that the Leipzig region has developed an autonomous economic and socio-cultural identity – even if, for example, the regional crafts association corporation and the regional Chamber of Commerce and Industry are responsible for all the enterprises in the Leipzig administrative district. The reference points for socio-cultural processes of identification are, on the one hand, the city, and on the other the Land of Saxony.

From an economical point of view still further boundaries have to be mentioned. The Ministerial Conference for Territorial Planning have declared the so-called „Saxon triangle“ (Dresden, Halle, Leipzig) a metropolitan region – even if Halle is not part of Saxony but of Saxony-Anhalt. Independently of how this classification has to be assessed,⁵ it rightly points to the proximity of Leipzig and Halle. By car it takes only a 40-minute trip to cover the 45 km between the cities, whilst the capital of Saxony, Dresden, is 115 km (75 mins) from Leipzig. The most important symbols for the cooperation between Halle and Leipzig are the common airport, the Central German Transport Association, to which the cities of Halle and Leipzig, as well as the districts of Delitzsch, Leipziger Land, Merseburg-Querfurt and Saalkreis belong, the Environment Research Centre Halle/Leipzig and the broadcasting station „Mitteldeutscher Rundfunk“ with bases in Leipzig (central transmitter) and Halle (broadcasting studios). Occasionally, Halle and Leipzig have marketed themselves as an integrated „scientific and economic region“ (cf. the corresponding brochure under <http://www.leipzig.de/de/download/business/bro-deu.pdf>; accessed on 12.11.03)

Yet another level of economic identification and coverage - according to most economic actors of the region, the most important one - is the area of Central Germany, composed of Saxony, Saxony-Anhalt and Thuringia.

Most economical actors have already identified the area of Central Germany as a very important factor in the economical development of the region. Some are already starting to work together in networks and cooperations and have established their own interaction platforms. Companies have already realised that clusters cannot survive in such a limited area (geographically and demographically) and in order to reach a critical mass of companies as well as qualified employees (Interview 5) it is necessary to bundle the economic branches in an area as large as Central Germany.

5 Blotevogel (2002:39) here remarks: “In an analytical sense this region cannot be designated a metropolitan region, if one does not wish to overstate this concept.”

The best example for an increasingly dense cluster of companies is the automotive industry. Most of the big German car producers like VW (Zwickau/Mosel, Chemnitz), Porsche (Leipzig), BMW (Leipzig), Opel (Eisenach) or DaimlerChrysler (Kölleda, Leipzig) have settled in the region. The old GDR car producer Sachsenring (Zwickau) or the specialty vehicle producer Multicar (Erfurt) are still producing in the region, many car suppliers have already settled in Central Germany, and it looks like there are going to be more in the future. Because of this development it would be very important for the individual cities and Land governments to work together to create favourable conditions for these companies, so that companies that have already settled in the region do not reconsider their locations decision and companies which are just deciding on new locations find the region attractive. In the Biotech and Life Sciences sector as well important companies and research facilities are scattered around the whole of Central Germany, so that a “cluster” cannot be reduced to only one city or even only one Federal State.

While many companies have already realized that they have to work together in the Central German context in order to gain national and international advantages, politics and the administration have difficulties to give up their parish-pump politics. As a speaker of the Regionenmarketing Mitteldeutschland has pointed out quite appropriately, the city of Leipzig is not in direct competition to Dresden, Halle or Jena but in international competition to China, Poland or Great Britain, so that it would be more beneficial for the cities and the appendant Federal State to work together on a regional level and to assist each other.

Figure 1: Leipzig in Central Germany



Source: Economic report Leipzig 2002/2003: 5.

In many interviews it could be detected that Leipzig feels at a disadvantage in comparison to Dresden, since it is being promoted more intensely due to its status as Land capital. One example that has come up fairly often in the interviews is the fact, that Leipzig does not have a technical university, albeit its regional industry having a great focus on engineering. Hence the relationship between Leipzig and Dresden is not always harmonious. This can be seen for example in the current economic report of the city of Leipzig. (2002/2003) (cf. Figure 2). It

designates itself as „the centre of the Central German economic region and illustrates this

using three concentric circles. The middle circle encompasses two Land capitals (Magdeburg in Saxony-Anhalt, Erfurt in Thuringia), however not Dresden, the capital of Saxony. This should speak for itself.

In order to promote the region of Central Germany towards the inside and the outside and in order to interlink the regional actors (economy, science, politics and administration) the marketing initiative *Regionenmarketing Mitteldeutschland* was established. It is completely financed by companies and is trying to identify the strengths of the region, to promote them, and hence to strengthen the economy of Central Germany.

One thing for sure is, that neither the city of Leipzig, nor the administrative district of Leipzig or the agglomeration area of Halle-Leipzig are relatively independent regions with an independent socio-cultural and economic identity. The economic interconnections between Leipzig and Dresden do not seem to be closer than between other cities that are more than 100 km apart. Even if the economic relations between Halle and Leipzig will probably be closer, it can also be questioned if this already constitutes a common economic region. The supraregional synergies are – with the exception of formerly mentioned public establishments – at present still few. Therefore, in the following, the regional district of Leipzig will be analysed as an economic region *in statu nascendi* – as a region, which, from a political, historical and socio-cultural point of view, has belonged to Saxony for centuries, from an economic point of view, however, has at least the same intense connections Chemnitz and Halle as with Dresden.

4. The industrial and economic structure of the region

Figure 2: The Administrative Districts of Saxony



Source: <http://www.statistik.sachsen.de>

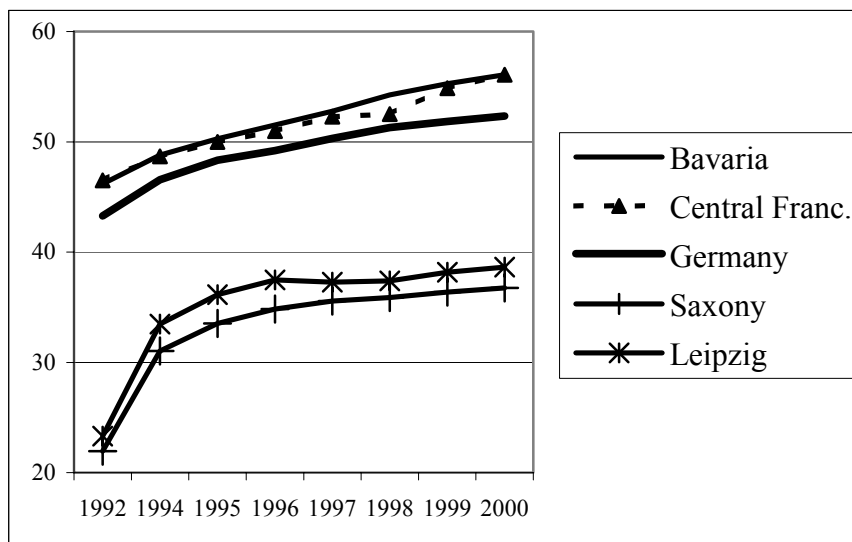
4.1 Facts and Figures

The Leipzig administrative district is, alongside Dresden and Chemnitz, one of the three administrative districts in Saxony. 1,081,145 of the 4.3 million inhabitants of Saxony live in the Leipzig administrative district, of whom 494,795 (46%) live in the city itself and 54 % in the five neighbouring rural districts. Leipzig is therefore larger than Dresden, the capital of Saxony (480,228 inhabitants) and Chemnitz (252,618 inhabitants). However, since 1990, the number of inhabitants in the Leipzig administrative district has fallen by 6.5% points. This indicates on the one hand, that there has been a dramatic fall in the number of births since reunification (1989),⁶ and on the other hand the economically-motivated migration of, in particular, younger people. This fall in population is accompanied by a considerable fall in the number of children attending school, with a high number of empty flats, with the aging of the population, and with the need to redimensionate the infrastructure.

⁶ In 1991 the number of births per female averaged 0.8; in 2001 this had risen to 1.2. These birthrate figures are still far below the levels in the west Germany (1.4) and those rates required to maintain the population at its present levels (2.1). The number of 15-20 year olds in Saxony will fall from 302.093 in 1998 to 138.443 in 2011.

The gross regional product (GDP) per employed person rose dramatically during the first half of the 90s (cf. Figure 3). Above all this was achieved by cutting the number of jobs, which had to be downsized because of the over-capacity employment in the GDR. During the second half of the 90s this rise had however slowed considerably; relative to the national average, Leipzig and Saxony have again fallen back. In the year 2000 the gross domestic product *per employee* in the administrative district of Leipzig has reached 73.8% of the German average. The gross regional product *per inhabitant* in Leipzig is even lower; it is 70.5% of the national level (cf. Table 1).

Figure 3: Gross domestic product in Central Franconia and Leipzig (1000 EUR per employee; 1992 to 2000; at current prices)



Source: Federal Statistical Office, 2002: Data base „Statistik regional“.

The low productivity per inhabitant indicates on the one hand a low productivity per employee (despite longer working hours)⁷, on the other hand to a low employment rate. The employment rate in Leipzig (61.7%) is 4 percent lower than the German average (cf. Table 2).⁸ The number of jobs per 1000 inhabitants in Leipzig is also below the German and Bavarian levels (cf. Table 3). Particularly in the manufacturing industry and in trade the sectoral employment density is considerably lower than in Germany. For the manufacturing industry this can be explained with the crash of the traditional industries after reunification.

⁷ As it was already stated on page 3 the low productivity rate is mainly due to the lack of big multinational companies

The industrial base first needs to be built up now. A similar explanation can be drawn for the trade sector, which after the socialist rule has to be redeveloped again.

Table 1: Gross domestic/regional product at market prices per inhabitant and per employee (1995-2000)

	Germany		Bavaria		Central Franconia		Saxony		Leipzig	
	Per em- ployee	Per in- habitant	Per em- ployee	Per in- habitant	Per em- ployee	Per in- habitant	Per em- ployee	Per in- habitant	Per em- ployee	Per in- habitant
1995	48,331	22,058	104.0%	113.0%	103.4%	114.7%	69.4%	66.4%	74.8%	73.8%
1996	49,200	22,391	104.7%	113.4%	103.6%	114.7%	70.8%	68.2%	76.2%	75.7%
1997	50,301	22,810	104.9%	113.6%	103.9%	114.5%	70.7%	67.7%	74.1%	74.2%
1998	51,299	23,521	105.8%	115.2%	102.4%	115.6%	70.0%	66.7%	72.9%	71.6%
1999	51,845	24,051	106.6%	115.7%	105.8%	116.8%	70.1%	67.1%	73.6%	72.1%
2000	52,330	24,645	107.1%	116.5%	107.2%	118.7%	70.2%	66.1%	73.8%	70.5%

The annual GDP figures for Germany are in Euros per employee or per person, the gross regional product is presented as a % of the German average.

Source: Federal Statistical Office, 2002: Data base „Statistik regional“.

Table 2: Population, labour market and innovation in Central Franconia and Leipzig

	European Union (EU 15)	Germany	Bavaria	Central Franconia	Saxony	Leipzig
Population in 1000, 2000	375,460	82,188	12,187	1,685	4,442	1,094
GDP per capita (PPS 2000, EU15 = 100)	100	106.4	124	126.3	70.4	75
Employment rate (ages 15-64 as % of pop. aged 15-64), 2001; Total	64.3	65.7	71.4	69.3	62.2	61.7
Employment rate (ages 15-64 as % of pop. aged 15-64), 2001; male	73.5	72.6	78.7	75.6	65.5	64.9
Employment rate (ages 15-64 as % of pop. aged 15-64), 2001; female	55.1	58.7	63.9	62.9	58.8	58.4
Unemployment rate (%) Total, 2001	7.6	7.8	4.3	5.2	14	14.3
Long term unemployed, 2001 (% of total unempl.)	42.5	49.6	43.4	46	55	56.8
Unemployment rate (%) female, 2001	8.9	8.1	4.4	5.4	15.7	15.2
Unemployment rate (%) young, 2001	15.1	9.2	4.7	5.3	16.7	16.5
Employment by sector (% of total), 2001 Agriculture	4.1	2.6	3.6	2.9	3.1	2.3
Employment by sector (% of total), 2001 Industry	28.5	32.8	36.2	36.7	33.2	28.7
Employment by sector (% of total), 2001 Services	66.7	64.6	60.3	60.4	63.7	69
Educational attainment of : persons aged 25-59 (% of total), 2001 low	34.2	16.1	18.5	18.6	4.7	5.1
Educational attainment of : persons aged 25-59 (% of total), 2001 medium	43.5	59.7	58.3	56.7	65.2	65.4
Educational attainment of : persons aged 25-59 (% of total), 2001 high	22.3	24.2	23.3	24.7	30.2	29.5
R&D Expenditure in % GDP (1997)	1.85	2.3	2.9 (1999)	2.5	2.2	2.2
High and medium high tech manufacturing (in % of total employment; 2002)	7.4	11.4	14.1	14.1	7.4	5.8
High-tech manufacturing (in % of total employment; 2002)	1.3	1.9	2.4	2.5	1.6	1.4
Knowledge-intensive services (in % of total employment; 2002)	33.3	31.8	30.4	31.1	30.1	34.6
High-Tech-services (in % of total employment; 2002)	3.6	3.3	3.2 (1999)	3.6	2.2 (1999)	3.3
EPO patent applications per million inh., average 98-99-2000	140.1	271.9	440.1	445.5 518 ('01)	81	36.2
High tech patent applications - 2000 per million inhabitants	32 (2001)	49 (2001)		95.18		3.49
Human resources in science and technology (% of population (25-64 years) with 3rd level education; 2000)	12.9% (1997)	22		21		31

High tech Manufacturing: 30 Manufacture of office machinery and computers; 32 Manufacture of radio, television and communication equipment and apparatus; 33 Manufacture of medical precision and optical instruments watches and clocks;

Medium-high tech manufacturing: 24 Manufacture of chemicals and chemical products; 29 Manufacture of machinery and equipment n.e.c.; 31 Manufacture of electrical machinery and apparatus n.e.c.; 34 Manufacture of motor vehicles, trailers and semi-trailers; 35 Manufacture of other transport equipment;

Knowledge-intensive services: 61 Water transport; 62 Air transport; 64 Post and telecommunications; 65 Financial intermediation, except insurance and pension funding; 66 Insurance and pension funding, except compulsory social security; 67 Activities auxiliary to financial intermediation; 70 Real estate activities; 71 Renting of machinery and equipment without operator and of personal and household goods; 72 Computer and related activities; 73 Research and development; 74 Other business activities; 80 Education; 85 Health and social work; 92 Recreational, cultural and sporting activities. Of these sectors, 64, 72 and 73 are considered high tech services.

Source: Strack (2003), European Commission, 2003: Second progress report on economic and social cohesion. Brussels, COM(2003) 34/4; European Commission, 2001b: Regions: Statistical Yearbook 2001. Luxembourg: Office for Official Publications of the EC.

Table 3: Density of employment (Jobs of the respective economic branches per 1000 inhabitants (2000))

	All branches of the economy	Manufacturing industry	Service industries	Wholesale and retail, hotel and restaurants and transport	Financial intermediation (J) Real estate and business activities	Public and private services
Federal Republic of Germany	471	137	322	120	69	133
Bavaria	512	162	331	127	74	130
Central Franconia admin. district	522	163	343	131	88	125
Saxony	444	138	293	103	61	129
Leipzig admin. district	450	118	322	108	77	137

Source: Federal Statistical Office, 2002: Data base „Statistik regional“.

In the last eight years more than 70,000 jobs with obligations to pay social insurance contributions have been lost in the Leipzig administrative district. – more than a sixth of all jobs (cf. Table 4). This has affected especially younger employees; the number of those employed under 35 years of age has fallen by nearly 30%. It can be concluded from an analysis of commuters by the Land labour exchange in Saxony, that above all younger skilled workers (in particular those with A-levels or a college degree) have left the Land (www.arbeitsamt.de/laa_s/inhalt/analysen/index.html; accessed on 20.11.2003).

Table 4: Employees obliged to make social insurance contributions (place of work) in Leipzig and Saxony (1994-2002)

		1994	2002	Development 1994-2002 (in %)
Leipzig	Total	428.783	356.151	-16,9%
	<35 years of age	175.597	123.039	-29,9%
Saxony	Total	1.660.777	1.421.235	-14,4%
	<35 years of age	675.819	485.045	-28,2%

Source: Land Labour Exchange Saxony, 2003: Information from employment market and vocational research, No. 5 / 12.08.2003.

In the year 2000 492,000 people were in employment in the Leipzig administrative district, of which 382,700 were obliged to make social insurance contributions (cf. Tables 5 and 6).

Table 5: Employees in different branches of the economy (2000)

	Germany	Bavaria	Central Franconia	Saxony	Leipzig
Agriculture, forestry and fisheries	2,5%	3,7%	2,8%	2,8%	2,3%
Production industries	29,2%	31,6%	31,3%	31,1%	26,2%
- Manufacturing industry	20,9%	24,4%	25,3%	16,5%	11,6%
Service industries	68,4%	64,7%	65,9%	66,2%	71,5%
• Wholesale and retail, hotel and restaurants and transport	25,4%	24,9%	25,0%	23,3%	24,0%
• Financial intermediation (J) Real estate and business activities	14,8%	14,4%	16,8%	13,7%	17,2%
• Public and private services	28,2 %	25,4%	24,0%	29,2%	30,4%
Total number of employees (in 1000; = 100%)	38.706,0	6.240,50	879	1970	492

Source: Federal Statistical Office, 2002: Data base „Statistik regional“.

Table 6: Employed persons subject to social security at place of work (6/2000)

	Federal Republic of Germany	Bavaria	Administrative District of Central Franconia	Saxony	Leipzig, Administrative District
Agriculture, forestry & fisheries (A, B)	0.1%	0.8%	0.7%	2.6%	2.1%
Mining (C)	0.5%	0.3%	0.3%	0.0%	0.4%
Manufacturing (D)	26.1%	31.5%	31.7%	18.4%	13.1%
Energy and water supply (E)	1.0%	0.9%	1.6%	1.3%	1.6%
Building trades (F)	8.0%	7.5%	6.1%	12.9%	13.8%
Wholesale and retail (G)	15.2%	15.3%	15.5%	13.2%	13.9%
Hotels and restaurants (H)	2.8%	3.2%	2.4%	0.3%	0.3%
Transport and communications (I)	5.4%	4.5%	5.1%	5.9%	0.7%
Financial intermediation (J)	3.8%	4.3%	0.4%	2.5%	3.5%
Real estate and business activities (K)	10.6%	9.8%	11.9%	10.1%	12.5%
Public administration, defence, extraterritorial organisations and bodies (L, Q)	6.4%	5.1%	4.8%	7.7%	7.3%
Education, health and social work, community, social and personal services (M, N, O, P)	18.7%	16.6%	15.7%	22.2%	22.5%
Total (inc. no answers; corresponds to 100%)	27,825,624	4,36,659	643,949	1,526,531	382,723

Source: Federal Statistical Office, 2002: Data base „Statistik regional“.

The percentage of manufacturing trades is about half the Federal average (13.1% compared to 26.1% of those employees obliged to make social insurance contributions). There is a greater representation of crisis-shaken construction trades, public education, social and health services and public administration in Leipzig than in Germany. Also there are more employees active in agriculture and forestry (+ 2%), in energy and water supply (+ 0.6%) and in property and housing (+1.9%) than the German average. All these branches are to a considerable extent dependent on public funds.

Table 7: The development of employees obliged to make social insurance contributions in the Leipzig administrative district (1998-2002)

	Employees 1998 (absolute)	Employees 1998 (in %)	Employees 2002 (absolute)	Employees 2002 (in %)	Development 1998-2002 (in %)
Agriculture, forestry & fisheries (A, B)	8,061	2.1%	7,525	2.1%	-6.6%
Mining (C)	3,047	0.8%	1,900	0.5%	-37.6%
Manufacturing (D)	52,876	13.6%	51,766	14.5%	-2.1%
Energy and water supply (E)	6,488	1.7%	4,670	1.3%	-28.0%
Building trades (F)	64,879	16.7%	35,992	10.1%	-44.5%
Wholesale and retail (G)	54,087	13.9%	50,448	14.1%	-6.7%
Hotels and restaurants (H)	9,810	2.5%	9,879	2.8%	0.7%
Transport and communications (I)	25,881	6.7%	23,956	6.7%	-7.4%
Financial intermediation (J)	11,001	2.8%	10,962	3.1%	-0.4%
Real estate and business activities (K)	43,994	11.3%	47,757	13.4%	8.6%
Public administration, defence, extraterritorial organisations and bodies (L, Q)	28,713	7.4%	25,703	7.2%	-10.5%
Education, health and social work, community, social and personal services (M, N, O, P)	58,285	15.0%	60,183	16.8%	3.3%
Total (inc. no answers; corresponds to 100%)	388,515	100.0%	357,680	100.0%	-7.9%

Source: Land Labour Exchange Saxony, 2003: Information from employment market and vocational research, No. 5 / 12.08.2003.

Over the last few years in particular the number of employees in the construction industry, in mining, in energy and water supply, and in public administration has fallen. Relative to this, the manufacturing industry has gained in significance (cf. Table 7). It seems as if the branches depending on state funding are losing importance whereas other, privately organised branches (especially manufacturing industry and services) are gaining significance. The reason for this could be that the state cannot afford to subsidize unprofitable sectors and the economy is recovering.

Unfortunately though, the structure of the seven Leipzig firms with the largest turnover confirms the picture of an economy, which is determined to a large extent (with the exception of the natural gas company Verbundgas AG and the PC Ware trading firm) by public firms. The city of Leipzig owns around 150 companies, which makes it the largest employer in the region (Interview 1). With that many companies belonging to the municipalities, the city on the one hand creates much additional work, but on the other hand it is doubtful whether - at least in some cases - a public company can be as economically successful as a private one (Interview 1).

Table 8: The 7 Leipzig firms with the largest turnover (2003)

Rank east-Germany and Berlin	Firms (the first figure denotes the rank in the list of 100 firms with the largest turnover in east Germany in 2001)	Branch	Turnover 2002 in Mil. Euro	(2002/2001) in Percent	Employees
3	2 Verbundnetz Gas AG (VNG), Leipzig	Supply	2894	-7,1	689
21	19 Mitteldeutscher Rundfunk (MDR), Leipzig	Media	657	-3,7	2042
28	34 SWL Stadtwerke Leipzig GmbH	Supply	475	6,7	1088
31	41 PC-Ware Information Technologies AG, Leipzig	I-Technology	464	30,0	560
89	84 LWB Leipziger Wohnungs- und Baugesellschaft mbH	Property	166	-4,6	564
92	99 Kommunale Wasserwerke Leipzig GmbH	Supply	158	14,5	575
97	90 Leipziger Verlags- und Druckerei GmbH & Co.KG	Media	148	-5,1	988

Source: Die WELT, 2. Sep 2003.

Table 9: The 11 largest plants and workplaces in the Leipzig labour market office district (excluding public services; 1999)

Company	Location	Employees obliged to make social security contributions
DB Netz AG	Leipzig	1,774
Quelle Schickedanz AG	Leipzig	1,621
Siemens AG	Leipzig	1,537
Allianz Versicherungs AG	Leipzig	1,400
Dresdner Bank AG	Leipzig	995
Mitteldeutsche Braunkohle	Espenhain	820
RWS Dienstleistungen GmbH	Leipzig	802
Bayrische Hypo- und Vereinsbank	Leipzig	681
Buna SOW Leuna	Böhlen	659
Dussmann AG & Co. KG	Leipzig	598
Isolierungen Leipzig GmbH	Leipzig	590

Source : Federal Institution for Labour/Land labour exchange, Saxony, 1999: Structural Report 2000. Dresden.

The largest plants in Leipzig are branch offices of West German companies (cf. Table 9). These are partly extraordinarily knowledge-intensive companies – as for example the technology of the logistics centre of Quelle AG or the Leipzig telephone production by Information and Communication Mobile (over 500 employees), a business branch of Siemens, and the low-voltage switchboard plant in Böhlitz-Ehrenberg (270 employees).

4.2 The Cluster Approach

As previously mentioned, the Leipzig region had to redefine its economical structure after the reunification and had to find new fields of economic activity, respectively readjust old fields

in a manner suiting the market economy. In this context the city has, according to a Leipzig university professor and other regional actors (Interview 8), initially focused on the wrong sectors. In the beginning of the 90s the city tried to establish itself as a media and financial city. Next to already existing centres like Munich, Berlin, Hamburg or Frankfurt/Main this proved to be a very difficult task. The industry – as the carrier of production and company orientated services – was not given too much tribute. Only when it became clear, that the city cannot rely on **only** services, this sector started to be promoted. Here, it was especially the automotive industry as well as other branches of the manufacturing industry. The large companies which were attracted to Leipzig and the surrounding areas built mainly manufacturing facilities (e.g. Siemens, Porsche, BMW etc.)

The five clusters the city is promoting in the region are: (1) Automotive and Supply Industry (2) Media/Communications Technology/IT (3) Health/Biotechnology/Medical Technology/Life Sciences (4) Energy- und Environmental Technology (5) Cross-sectional Technologies and Services – handicrafts, other processing industries, logistics, services and trade, fairs, congresses, tourism and culture combined with the hotel industry. The industry – especially “old” industries like automotive or energy, but new sectors like life science and biotechnology as well have already positioned themselves in other parts of Central Germany. Only to name two Saxon examples: The region Zwickau/Chemnitz, being a traditional automotive region – for example Sachsenring (Trabant), was able to attract more companies belonging to this branch, especially in the supplier sector. Dresden as well has already established itself as a high-tech-region with focus on chip manufacturing and life sciences.

Of course when identifying the clusters the city aligned itself closely to the clusters identified in Central Germany⁹ as a whole. According to a speaker of the city of Leipzig the clusters otherwise would not be feasible to realize, since the companies need space to grow within a cluster and therefore the clusters have to be positioned beyond regional boundaries. When identifying the clusters – as well as with many other regional decisions – the city did not actively include any other regional actors like the unions, the chambers, the companies etc (Interview 1).

It can be seen that the clusters are predominately future-orientated, meaning that the branches first have to develop into a real cluster. In order to further the clusters, the city focused predominately on the attraction of large-scale enterprises (Interview 7). However, it is very important as well to promote the small and medium sized companies in the region and to

⁹ These clusters are (1) Chemical/synthetic material (2) Automotive (3) Biotech/Life Sciences (4) Food stuffs (5) IT (6) Media (7) Energy/Environment

develop a healthy SME sector. Of course this is easier to accomplish, if large companies have already settled in the region, but the smaller companies have to be promoted as well in order for them to be able to develop. Furthermore it was pointed out in an interview (Interview 7), that if the city would focus only on the four¹⁰ already named clusters, then it would simply let the chance pass to build up sectors (e.g. lift engineering) which do not fit the cluster setting. – It is needless to say that the four clusters are very important for the development of the city, but it is also important to state that these are not the only important branches in the region.

Altogether the city is facing a twofold problem; should it disperse its activities after a “watering-can principle” (Interview 9) or should it concentrate explicitly on only a few clusters. At the moment an interim solution is in practice, in which most of the branches, which look as if they could develop in the future, are being promoted.

In the following sections the five clusters are going to be portrayed and their future development chances are going to be examined. After that the deficits of this cluster generation and the Leipzig economy as a whole are going to be discussed

4.2.1 Automotive and Automotive Supply

It is certainly still too soon to speak of an *Automotive and Automotive Supply Cluster* in Leipzig. In Eastern Germany this branch employs over 100,000 people, of which 60,000 workers are employed in Saxony. In this respect the number of employees in the Leipzig motor industry is still too low (2002: 869) – despite the new Porsche works (300 employees). The four VW-works in Saxony, the bus manufacturer NEOPLAN in Plauen and the 450 car suppliers in Saxony are predominately resident outside Leipzig. This will all change however in 2005, with the planned opening of a new BMW-plant of approximately 5,500 employees. In this new plant the BMW 3 Series, which up till now was build in Regensburg - where from 2005 on the new 1 Series will be manufactured - is going to be produced.

In order to get the BMW plant to move to Leipzig the city set everything possible in motion. Additionally the already existing advantages of location created by the state and EU have caused the move of BMW to Leipzig as well. Obviously the location decision of the company depended on many other factors as well. The production of the 3 Series was meant to stay in Europe, in order to be able to work the European market more efficiently. According to the spokesman of the plant the advantages of the Leipzig location are the following: (1) the attractive infrastructure with developed means of communication, (2) the

¹⁰ The fifth “cluster” is merely an agglomeration of different industries.

availability of qualified and flexible employees, (3) an adequate premise with a sufficiently big radius of untilled land around it, (4) no language problems, which inevitably would be the case anywhere abroad, (5) structural promotion of the state and the EU (EU funding was 30% of the investment sum), and (6) last, but not least, the dedication of the city and its administration, which turned out to be very forthcoming - e.g. the building permit for the plant was issued in only eight weeks (Interview 3).

According to the spokesman the proximity to suppliers was not a decisive criterion, since distance does not play an important role any more. Nonetheless one of the reasons why Schwerin was not chosen as plant site was that Leipzig is 400 km nearer to the suppliers in southern Germany. The spokesman assumes as well that in the future, when thinking about new locations, it is more likely that the suppliers are going to consider Leipzig respectively Central Germany.

However, although it is too early to speak of an “automotive cluster” in this region, it looks like companies from the automotive industry are increasingly going to settle in the region. The more so, as there are already numerous foundries and other automotive suppliers (Leipzig centre for synthetic materials, Leipzig gear-wheel works, MIKROSA machine tools, SMB model and machine construction) already situated in the region. As already mentioned the automotive cluster is only possible on a Saxon or Central German level. The “Verbundinitiative Automobilzulieferer Sachsen (AMZ) is for example an institution founded by the Saxon Ministry for Economy and Labour, which is supposed to strengthen the competitive ability of the regional automotive suppliers and the appending service companies and in which around 400 companies are organised at the moment. New markets are supposed to be developed as well as international automotive companies are to be resettled in the region¹¹.

An additional point concerning the automotive sector is the already mentioned foundries in the Leipzig region, which were able to survive after 1989 and which, meanwhile, are fairly successful in their niche markets. Ten of these foundries (amongst others Halberg Guss, Georg Fischer¹²) established a network in 1997, which was initiated by the IG Metall and is under the patronage of the Leipzig regional council.¹³ It cooperates in the safeguarding of the requirements for branch-specific skilled personnel.¹⁴

¹¹ Source: http://www.sachsen.de/de/wu/wirtschaftsfoerderung/netzwerke/autoland/netzwerke_amz.html

¹² In 2002 there were approximately 330 employees in this foundry. This highly-modern company is the only large company remaining from the 6000-employees of the Gisag Combine. It now belongs to a Swiss conglomerate.

¹³ The Leipzig regional council is a mediation agency with a bundling function. It is an administrative authority, which bundles different functions of the administration, so that as many regional actors as

This cooperation was extended more and more in the past few years, so that in the meantime it is not only new personnel that is trained, but also that unemployed people are retrained, employees are trained in other companies of the network to use new machines and a centralised further training can be offered. In the meantime the companies are even working on a joint outwards appearance and branch marketing, as well as on an innovation forum. In Chemnitz a similar network has been formed with which contacts are being held (Interview 8).

Neither the network nor the individual companies have many contacts with the city government (Interview 8). All questions and concerns are dealt with through the Leipzig regional council, which according to the spokesman of the foundry network, is very cooperative and reacts quickly answering questions and helping to deal with administrative approval processes. The situation of the ten foundries seems to be fairly good and the spokesman expects a positive development in the future. As the crucial advantages of the region he sees the geopolitical position, the traditional industrial nucleus, the professional competence of the companies and the employees, and the ability to cope with difficult situations.

One drawback for the whole cluster is that virtually no research and development is done in the region. Whereas the foundries have at least little development departments, the large car companies have solely focused on production and conduct neither research nor development in the region. Even in the future Leipzig will have difficulties attracting automotive research into the city, since the university has hardly any engineering courses to offer. Although the university of applied science has competences in engineering, it is not much compared to the big faculties in Dresden.

4.2.2 Media, IT and Communications Industry

In the city of Leipzig *the media, IT and communications industry* is an important employment area. In August 2002 there were 23,100 employees in this sector obligated to making social insurance contributions and 9,700 free-lance employees – and in fact mostly in printing, newspaper and publishing concerns, in television and films, in information technology and software production, and in advertising and marketing. Particular mention

possible can address the agency with many different appeals. The economy of the region is being strengthened through the systematic promotion of projects and institutions and the constructive search for solutions concerning regional problems (<http://www.rpl.sachsen.de>).

must be made of the television and administration centre of Mitteldeutscher Rundfunk (MDR), the Leipziger Volkszeitung, the Telekom, approximately 40 call centres with 1,300 employees and a large publishing house delivery. Since the summer of 2000 approximately 80 companies in particular those in film and TV production have used the studios and offices of the "Media City Leipzig" near the MDR. Altogether Leipzig lies in second place in the East German Information and Communication (I&C) sector with an employee rate of 2.5% behind Potsdam (4%). Every seventh working person in the city is employed in the I&C or media areas and during the period 1995-99 the turnover of this branch doubled to over DM 6 billion.¹⁵

Leipzig sees itself as media location. According to a speaker of the Media City this is only true to a certain extent. On the one hand the municipality and the Land government have done a lot in order to move an organisation like the MDR to the city, which was followed by the settlement of media companies in the region. Eight private radio and TV stations have settled in the city, the Media City provides production space and studios and has an infrastructure designed to suit the media industry; and last, but not least, the University of Leipzig as well as the University of Applied Science have adapted to this development with courses like for example "media industry"¹⁶. As it was stated by most of the Interviewees, Leipzig has a very distinct cultural scene, which, without question, can be the foundation of a functioning creative milieu.

However, on the other hand the problem Leipzig as a media location is facing, is the competition from other locations as Munich, Berlin, Cologne or Hamburg. Many important people working in the media come to Leipzig for individual projects, but do not chose the city as their permanent headquarters. The location is not (yet) attractive enough; the creative milieu is not distinct enough. However, it is exactly that creative milieu, the presence of other actors from the same field, their communication with each other, the possibility of commissioning and the acquisition of qualified employees, which is a crucial factor in an industry that fast moving, innovative and characterised by rapid change. Therefore it is very important that this industry branch is being furthered, and, according to the above mentioned spokesman of the Media City this can only happen with the help of the Land government and the municipality respectively. The cluster was promoted severely at the beginning and then neglected (Interview 12). This is not sufficient and the sector needs the continued help of the public authorities. The assistance is not limited to financial help, but also includes new

¹⁵ Source: IFO 2003, p.89

projects and the marketing of the branch as well the region. In his opinion a facilitator is missing in the Land government; someone who is familiar with the media industry and is able to advance it purposefully. The dialogue between the city and the Land government, in order to find new concepts and projects and conduct them, seems to be missing as well. The public authorities however are not aware of a problem, since nobody in these institutions is familiar with the media branch (Interview 12).

Given such strong competition within Germany it is going to be very hard to establish Leipzig as a nationally or even internationally acknowledged media location, especially because the prestige of the city is not as distinct as in the other already mentioned cities. A realistic chance for Leipzig is the development of a creative milieu in linkage with the universities of the city. As it was already mentioned the universities are focused very much on humanities, visual arts play an important part in the curriculum of the universities and the field of IT/Media is developing as well. Examples are the University of Music and Theatre (approx. 900 students), the University of Leipzig with its eight humanities and social science faculties (approx. 17,000 students) and the Leipzig University of Applied Science for Technology, Economics and Culture (approx. 5,000 students). With purposeful enhancement a flourishing creative milieu can be developed out of this potential, so that media companies are kept in the city.

4.2.3 Health/Biotechnology/Medical Technology/Life Science

The Cluster *Health/Biotechnology/Medical Technology/Life Science* includes the whole health sector of the city and employs around 20,000 people (including universities, research facilities, clinics and companies). Both of the medical faculties of the University of Leipzig as well as the university clinics enjoy a very good reputation in professional circles. However, the actual poster child is biotechnology. This sector is being promoted massively in the context of the Land government's BioSaxony initiative¹⁷. One of the projects of this initiative is the BioCity in Leipzig, which is supposed to function as an incubator for biotechnology and in which both, companies and research facilities have rented out offices and labs. The centre opened in June 2003 and has an utilisation of 53%. 15,000qm of space are available for private companies, whereas the University got 5,000qm. The proximity

¹⁶ Source: IFO 2003, p.89.

¹⁷ An initiative promoted by the Saxon Land government since 2000, which has the goal to establish Saxony as one of the leading biotechnology clusters. Over 200 Million Euro were put into this initiative and two Biotech-Incubators were erected in Leipzig and Dresden (source: <http://www.biosaxony.de>).

between the university facilities and the companies is supposed to further the interaction between these two actors. Unfortunately this has not yet been the case. The companies show interest in cooperation, but since the university is a very slowly moving institution, no contacts have taken place yet (Interview 2).

As already mentioned the BioCity is part of the BioSaxony project of the Saxon Land government. Cooperation between biotech actors in Leipzig and Dresden or other Saxon locations is encouraged. However, the cooperation over the borders of Saxony is not being promoted systematically. In other parts of Central Germany small biotechnology agglomerations have been established (e.g. Halle, Leuna, Jena), but the cooperation in the whole Central German area is not being explicitly furthered, although a Cluster in such a specialised niche can only develop further in a larger context. A concentration and thus a development of a true cluster can, up till now, only be expected in the Dresden region, since here a relatively extensive research and company environment has developed. Although a small but not to be underestimated biotech community exists in Leipzig, the locations cannot compare itself with the big locations like Berlin or Munich and even within Saxony Dresden has much more to offer when it comes to the development of this sector and the employment it offers. In Leipzig only about 15 companies are linked with biotechnology in a narrow sense, employing approximately 200 people. At the university further employment in the biotechnology sector can be found (the BioCity has six university departments in this branch) and if sufficient financing is found the possibility of a Fraunhofer-Institute being established in Leipzig is given. But altogether the sector is very small. However, biotechnology in Leipzig has apparently specialised in regenerative medicine and has gained a considerable reputation in this field (Interview 2) so that with further promotion it is possible that a niche concentration can be developed.

4.2.4 Energy- and Environmental Technology

The fourth cluster the city is stressing is *Energy- und environmental technology*. This sector was mainly added to the list of branches which are to be promoted because a region in the south of Leipzig was a coal mining area and thus an important economical factor in the former GDR. Through extensive governmental aid this area is trying to be kept functioning so that as many jobs as possible can be saved in the region. At the moment around 21,000 people who are subject to social security are employed in mining, processing industries and energy

and water supply¹⁸. The largest companies in this sector are the public utility company (1,088 employees), the Verbundnetz Gas AG (689 employees), Mibrag – Mitteldeutsche Braunkohlegesellschaft mbH (2,016 employees) and the power plant Lippendorf (405 employees). The whole energy sector is being massively aided by the government, since many jobs are linked to it. However, especially the coal mining and its utilisation in the power plant Lippendorf (built 1999) are highly controversial. The plant is not necessarily forward-looking because of its environmental pollution.¹⁹ This summer a solar power plant is going to be commissioned, which is classified as the biggest in the world. Although relying on government aid as well, it is mainly financed through an investment fund and is a joint project of Shell Solar and Geosol.

State initiated research centres for environment and energy have been established as well. For example the Institute for Energetics and Environment and the Environmental Research Centre Leipzig/Halle have taken up work on the premises of the Science Park Leipzig/Primrosenstraße. The Leipzig University of Applied Science for Technology, Economics and Culture has over 1,000 students and 37 professorships in the areas of electrical engineering, machine and energy engineering.

The task of the Institute for Energetics and Environment is to optimise energy management and environmental technology. It also carries out joint research projects in this area. Additionally it counsels public and private clients in energy and environmental matters. The task of the Environmental Research Centre Leipzig/ Halle is to be the intermediary between application-oriented research and its transfer to the economy (Interview 14). The centre provides the infrastructure for joint projects with companies and is actively involved in technology transfer in the area of environmental research.

Finally it should be mentioned that two international trade fairs on the Leipzig Fair are dealing with the topics of energy respectively environmental technology. Firstly it is the enertec Fair (international trade fair for energy) and secondly it is the parallel TerraTech Fair (international trade fair for environmental technologies and services) which are both taking place every two years and have attracted approx. 20,000 visitors in 2003.

Altogether it is questionable whether this cluster could survive without the massive governmental aid. Although environmental research and the field of regenerative energy are

¹⁸ Source: IHK Leipzig 2003.

¹⁹ The plant Lippendorf has a daily emission of 30.000 t of CO₂. From 2005 on the emission of CO₂ is going to be restricted. The EU has tightened the rules about the CO₂-Emission trade and CO₂ exceeding a certain limit will have to be bought through very expensive certificates (Source: www.tagesschau.de – Pabst, Jens. Eine saubere Zukunft für die Braunkohle).

future orientated and have certainly development potential; most jobs are being found in the mining sector (the coal mining and the power plant). However, only the future will show how this field is going to develop.

4.2.5 Cross-sectional Technologies and Services

The fifth cluster has been named *Cross-sectional technologies and services* (handicrafts, other processing industries, logistics, services and trade, fairs, congresses, tourism and culture combined with the hotel industry) by the city authorities. This “cluster” actually just embraces all branches which were not attributable to any of the other clusters. To name this patchwork of sectors a cluster does not necessarily make sense. The partly very diverse branches cannot really be „clustered“. Clusters bundle competences and through this synergies can be reached, which in this case is not likely. The already mentioned sectors can without question be labelled as cross-sectional technologies and services but their presentation as a cluster is not meaningful.

Nonetheless there are a few important companies belonging to different branches in this “cluster”, which should be mentioned. Following the Quelle Company, the Airport Leipzig/Halle and the Leipzig Fair are going to be described shortly.

The dispatch centre of the Quelle AG in Leipzig is one of the most modern centres of this kind in Germany. The dispatch facilities were built at a cost of DM 1 billion by Siemens and it is operating since 1995. At times (around Christmas) up to 2,500 employees are working there (Interview 13). However, although the company employs so many people and although the head executive of the dispatch centre does not see Leipzig as a location in danger of reallocation at all, the company does not meddle with the economic concerns of the region.²⁰ As it was already mentioned before though, the company employs over 2,000 people and in the secondary and tertiary sector around the centre jobs have been created as well, so that it should be seen as a crucial company in the region.

The Airport Leipzig/Halle employs around 2,000 people and is thus one of the largest employers in the region. This could rise considerably, if the freight service DHL decides to build a logistics centre there. This would mean over 1,000 new jobs. The advantages of the Leipzig/Halle airport are the modern facilities, the available space outside residential areas, the unlimited night air traffic, the proximity to the growing markets in Central Europe, the good connection with trains and roads, the low wages and the high governmental aid. However, the

drawback is that it is fairly far from European centres as the for example the Rhine-Main area. Many packages would have to be shipped to Leipzig by road or train. While the European Union has already given its approval for a 70 million Euro aid, DHL is not going to announce its decision until autumn 2004. With the settlement of DHL and the Quelle dispatch centre two of the largest logistics companies in Europe would have branches in Leipzig. It is not clear though whether this development would have any effect on the SME structure in this sector, leading to more commissions and thus to a better situation for smaller companies.

A third institution is the Leipzig Fair, which in only 14 years after the reunification was able to attract some important national and international fairs. To give two examples: Firstly the Leipzig Book Fair has to be mentioned, which, next to Frankfurt, is one of the two only Book Fairs in Germany and has brought much attention to the city. Secondly the AMI (Auto Mobil International) and the simultaneously conducted professional fair for car parts and accessories (AMITEC) takes place, which are carried out on a yearly basis.²¹ The plan is to establish the fair as future Central European car salon, since Leipzig not only has a very favourable geopolitical location, but also has more favourable conditions for a fair stay than other fair locations in Germany.

When looking at the clusters it stands out that for a city like Leipzig there are quite a few clusters. As it already became clear during the interview with an official of the city of Leipzig, the clusters need to be extended over the regional boundaries, since – especially when looking at so many different sectors - the necessary concentration is not possible to be obtained otherwise. Therefore the cooperation of the cities as well as the administrative districts and the companies is required. Parish-pump politics are out of place here. Unfortunately the development of networks even within the city of Leipzig has not reached as far as it would be wished for. Firstly many companies – especially the ones struggling to survive - are not interested in cooperation and networks. Secondly cooperation between public actors like the chambers, the unions and the municipality are not taking place on a regular or maybe even institutional basis. The CCI often is not informed about city projects until very late (Interview 1). Many projects are being carried out by the individual actors, so that sometimes one issue is worked at from more than one side leading to redundant actions. According to the head executive of a regional institution though, the cooperation within the

²⁰ One exception ist he Agenda 21 (A competence centre for sustainable development).

²¹ Contrary to the IAA in Frankfurt, which only takes place every two years.

city is in general quite good. The regional council seems to play a big role in the establishment of economical networks within the region (e.g. the foundries of the foundry network like to turn first to the regional council when it comes to questions or problems - Interview 8)

Cooperation within the Federal State of Saxony seems to be a bit difficult as well, since regional egotism plays a role and Leipzig feels left behind the state capital Dresden. Nonetheless cooperation between cities is starting to develop and one of the important institutions furthering that is the Foundation for Innovation and Labour (IAS -Stiftung Innovation und Arbeit). This foundation was established in 1997 on a joint initiative of the Land government, the federal government, the unions and the employers' associations. Its goal is to save and preserve jobs and to establish and further networks and cooperation between companies and other regional actors. In the context of this initiative different networks have already been established to deepen the cooperation between companies (e.g. the foundry network, the network for environmental biotechnology etc.). In the past years considerable networks between regional actors have been established (Interview 7). The institution has a very high potential in helping the region develop, since it has been created by most of the relevant regional actors. However, both the companies and the public actors had to restructure themselves after reunification and are still facing big problems and the IAS cannot proceed with its work as fast as necessary.

Especially the cooperation between the different Federal States in Central Germany is fairly difficult. The political institutions have problems here. The connections between the Land governments respectively the cities in different federal states are limited. However, companies are not as reserved. The automotive industry for example has focused on Central German cooperation from the beginning (Interview 3) and biotechnology as well has contacts to actors not settled within the regional boundaries (Interview 2).

Only the future will show, whether large-scale enterprises (the Despatch Centre Quelle, the airport, the Leipzig Fair, the Verbundgas AG, the public utility company,...) will develop into focal companies of the regional cluster and whether biotechnology and energy and environment will indeed be able to be designated as clusters.

It is for certain that post 1991 the regional economy had to be almost completely reconstructed. It is now defined by public companies, private small and medium-sized businesses and by companies belonging to external groups. After the disintegration of the former business and economic structure, the construction industry, public administration and locally-based firms were the first to re-emerge. Following the drop in building investment –

which was crucial for the publicly-financed renewal of the infrastructure – a second phase of the economic renewal of East Germany started with the foundation of new industrial and economic cores – in general with the support of considerable public funds. The resultant clusters in the motor and motor supply industry in West Saxony and in the Leipzig media and IT industries show that these companies may become the crystallization point for new economic competences in industry and services. The extremely high rate of unemployment (cf. Table 10 and Figure 4) shows, however, that the economic process of renewal is in no way yet complete.

5. The institutional structure and the local system of “governance”

In the following, we will describe the institutions, which have facilitated the transformation of the regional economy. We will concentrate on the five basic institutional conditions, which, within the framework of the EUROCAP-project, are regarded as being crucial for the enhancement of regional capabilities: Industrial relations, public welfare, R&D and technology transfer structure, regional patterns of education and qualification and institutions facilitating the access to new markets.

5.1 Industrial relations

The industrial relations in Saxony are characterised by weak trade unions and the extraordinarily high importance of company-wide bargaining processes. The region- and industry-wide collective agreement typical for Germany has an only marginal importance to the smaller firms in Saxony. Whilst in Germany 43.9% of the firms are covered by collective agreements, only approximately one quarter of firms in Saxony are bound by industry-wide agreements. The degree of trade union membership in Saxony is with 23.4% (2001) also far below the German average (33%). During 1991, 1,254,067 people were members of DGB-trade unions, in 2000 there were still 459,429 trade union members in Saxony. In 2002, 412,092 were members of a DGB-trade union. Of these 151,015 were members of the service trade union Verdi and 128,078 of metal workers union IG-Metall. In 2003 the trade unions in Saxony were additionally weakened by IG-Metall's defeat in their struggle for the introduction of a 35-hour week in the east German metal and electronics industry. This loss has led to the deepest crisis yet in the history of IG-Metall

However, the weakness of the trade unions has not yet led to a change of its traditionally cooperative attitude. In the larger companies, in which IG-Metall is still a major factor, it still adopts an extraordinarily cooperative policy:

„Flexibility is the key-word in the search for the secret of east German success. Never mind the fact that workers in the east work 100 hours more per year than their western counterparts: They are also prepared to accept inconvenient working hours. In this way BMW negotiated a „BMW-formula for work“ with the IG-Metall for its Leipzig plant. Their aim was flexible working-hours to increase the usage of the factory and thereby higher productivity. There are flexible weekly working-hours, which can vary between 38 and 44 hours depending on the number of orders, week-ends included.... In the east employees and employers are forming a kind of „community of fate“ (Die ZEIT of 11/13/2003).

In the early 90s when most companies have been under the care of the Treuhand both the management and the trade unions, were trying together to save jobs, but after privatization this task became increasingly the interest of only the unions (Interview 4). When looking at the unemployment rates in the region it was hence a necessity for the trade unions to show willingness to cooperate with companies in order save jobs and according to the trade union spokesman companies are also increasingly realising, that different interests can only be balanced through cooperation.

The unions are as well trying to establish cooperation with other regional actors like the universities, the chambers or the municipalities:

The cooperation with Universities is still yet to be developed but a cooperation centre for science and work is currently being established. Its goal is to benefit from scientific research for the creation and preservation of jobs in the region as well as to let experiences from the economy influence scientific research.

The cooperation with the Chamber of Commerce and Industry (CCI) are mainly limited to vocational training. Together with the chamber the IG Metall was involved in the organisation of a technology day as well. Here they focused mainly on long-term personnel planning.

According to a trade union spokesman the unions mainly work together with the municipalities when it comes to the rescue of businesses in trouble. However, the union spokesman believes that the city is not primarily interested in the number of jobs saved or preserved but in the investment volume gathered. Anyway it can be assumed that every investment entails jobs.

Finally as it has already been mentioned the fairly successful operating Foundation for Innovation and Labour was established with the help of the trade unions.

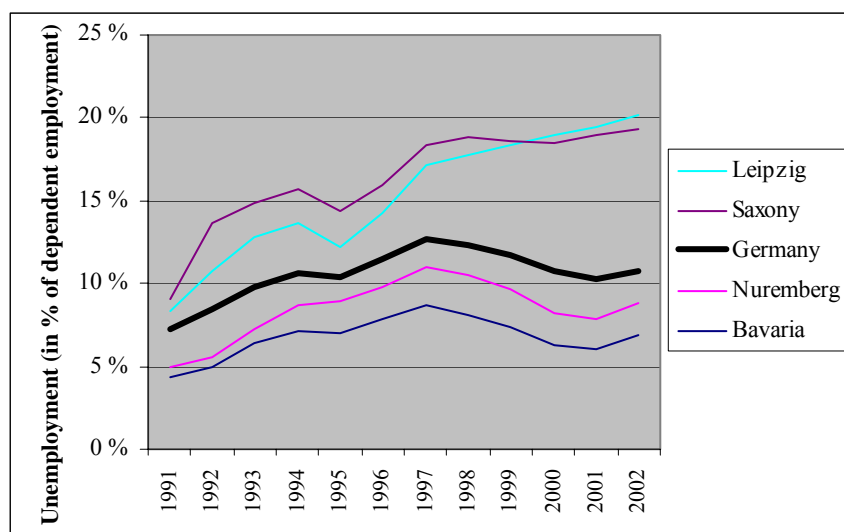
However, altogether it can be said that the trade unions have not played a decisive role in the course of the structural change in industry in Saxony.

5.2 Public welfare

The massive restructuring of the Eastern Germany economy is accompanied by a sharp increase of the regional unemployment rate starting in the early 90s (cf. Figure 4). In Leipzig, this rate is above the Saxon average (cf. Table 10) as well as above the unemployment rate in Chemnitz (18.8% in 2002) and Dresden (15.5% in 2002). Especially for foreigners the unemployment rate is particularly high (cf. Table 10).

The unemployed in Leipzig are – like everywhere else in Germany – supported by unemployment benefit and assistance. Despite the high rate of unemployment (cf. Figure 4 and Table 10) the rate of social assistance in Saxony is not above the national average (cf. Table 11). This is a surprising observation because the ratio of long term unemployed is fairly above the national average (56.8% of the total unemployment; cf. Table 2).

Figure 4: Unemployment rates (in % of dependent civilian labour force) in Nuremberg and Leipzig (1991-2002)



Source: Federal employment office.

Table 10: Unemployment rates in Nuremberg und Leipzig (in %; 2002)

	Germany	Bavaria	Nuremberg	Saxony	Leipzig
Unemployed (in % of all civilian labour force)	9.8	6.0	7.8	17.8	18.6
Unemployed (in % of the dependent labour force)	10.8	6.9	8.8	19.3	20.2
Unemployment rate - men	11.3	7.2	9.3	19.0	21.6
Unemployment rate - women	10.3	6.5	8.2	19.7	18.7
Unemployment rate – those under 25	9.7	6.2	7.2	15.4	17.0
Foreigners	19.1	14.3	20.1	41.1	43.0

Source: Statistics of the Federal Employment Office.

Table 11: Those in receipt of continuous social assistance (2000).

	Those in receipt of continuous subsistence support	Percentage of the population
Federal Republic of Germany	2,693,527	3.3%
Bavaria	214,342	1.8%
Central Franconian administrative district	43,547	2.6%
Saxony	110,989	2.5%
Leipzig administrative district	35,837	3.3%

Source: Federal Statistics Office, 2002: Data base „Statistik regional“.

The Leipzig population has steadily been shrinking since the reunification (cf. Table 12). Especially young individuals and families are increasingly leaving the eastern part of Germany, so that the number of children is sinking as well. With regard to the falling number of children there is an overabundance of available places in kindergartens (cf. Table 13).

Table 12: Population of Saxony and Leipzig

	Saxony	Leipzig
1995	4,575,427	477,422
1996	4,556,229	465,118
1997	4,536,172	452,759
1998	4,506,267	442,742
1999	4,474,951	*490,017
2000	4,442,721	*493,287
2001	4,404,708	*492,963

* Including incorporations of municipalities

Source: Federal Statistics Office, 2002: Data base „Statistik regional“.

Table 13: Day establishments for children (1998)

		Total	Available places, for children in		
			crèches	kindergarten	day nursery
Germany	Available places	3,104,441	166,927	2,486,780	450,734
	Ratio children/places		7.0%	105.2%	12.6%
Bavaria	Available places	417,938	5269	380733	31,936
	Ratio children/places		1.4%	97.4%	5.7%
Cent. Franconia	Available places	6,087	571	54328	5971
	Ratio children/places		1.1%	103.6%	7.9%
Saxony	Available places	228,004	20,866	97,105	110,033
	Ratio children/places		24.1%	134.9%	69.2%
Leipzig	Available places	60,645	6,386	23,279	3,098
	Ratio children/places		30.7%	135.2%	7.9%

Ratio children/places: Children in crèches as % of children up to 3 years old; children in kindergarten as % of children aged 3-6 years; day nursery children as % of children aged 6-10 years.

Children in crèches are those who have not had their third birthday before the end of the previous month; Children in kindergarten are those whose fourth year of life commences in the current month until they go to school; Day nursery children are those of primary school age.

Source: Federal Statistics Office, 2002: Data base „Statistik regional“.

5.3 R&D and technology transfer

Altogether the infrastructure in the academic research and development is quite good. The expenditure on research and development, at 2.2% of the gross regional product, is also close to the German average. However, most of the scientific institutions in Saxony are located in Dresden (21 of 31 and 65% of the employees).²² Nevertheless the Leipzig region presents itself as a city of science and points to, amongst others, the following universities, colleges, institutes and research centres.²³

(1) At the University of Leipzig currently 28,000 students are enrolled and it employs approximately 3.000 people. The focal courses in the eight faculties are humanities, medicine and natural sciences. Engineering is completely missing in the curriculum of the university. (2) The University of Applied Science for Technology, Economic and Culture (approx. 5,000 students) has its focal points with some engineering courses, IT, economics, building, polygraphics and social sciences. Other colleges in Leipzig are (3) the College of Graphics and Book Art (approx. 450 students), (4) the College of Music and Theatre (approx. 900 students), (5) the Leipzig Graduate School of Management (approx 240 students) and (6) the Technical College of German Telekom in Leipzig (approx. 400 students). Altogether almost 37,000 students have been enrolled at the Leipzig colleges for the winter term 2002/2003.

Three Max-Planck-Institutes are located in Leipzig as well. Firstly it is the Max-Planck-Institute for Mathematics in Natural Sciences (approx. 40 staff), secondly the Max-Planck-Institute for Neuropsychological Research (approx. 100 staff) and thirdly the Max-Planck-Institute for Evolutional Anthropology (approx. 200 staff).

In addition to that a number of other research institutes can be found in the area. Only to name a few: The Saxony Academy of Sciences, Leipzig (approx. 100 staff), the Humanistic Centre of the History and Culture of East Central Europe (approx 55 staff), the Institute for Surface Modification (approx. 120 staff), the Institute for Tropospheric Research (approx. 60 staff) and last, but not least the Environmental Research Centre Leipzig/Halle (approx 650 staff). The last named institution has already been mentioned before. Its main task is to function as an intermediary trying to transfer application-oriented research to the economy (Interview 14).

A speciality of Eastern Germany is the research centres formerly belonging to big conglomerates. They are the old R&D departments of the conglomerates and have been

²² Source: IFO 2001 p 74.

²³ Source: supplement to DUZ dated 6. April 2001

outsourced and privatised in the 90s. Some of these centres located in the Leipzig area are the Centre for Synthetic Material, the Institute for the Print Industry, the Institute for Energy and Environment and the Centre for Life Technology. These Centres work closely together with the economy, thus being very application orientated. They are set out to work mostly for small and medium sized companies, not only in their region but on a national level. In the Leipzig region however the client structure has not developed up till now (Interview 5). 10 million Euro aid was given to the centres and it was expected that they would be self sustaining in a short time. Unfortunately this is not the case and it has become increasingly difficult to conduct - especially long-term - research (Interview 6).

What is missing most in the region is the research and development done by large focal companies. None of the big multinational companies settled in Leipzig are doing their R&D in the area. Thus innovation potential can only be build up with growing small and medium sized companies.²⁴ Furthermore it is essential to connect the branches of larger companies with other companies in the region, so that a regional dialogue can develop (Interview 7).

The R&D and technology transfer between institution and the economy has - despite many projects and efforts of the regional actors - yet to develop. Networks mostly have to be rebuilt from scratch, since often old relationships were lost after the reunification. Many research institutions like the Max-Planck-Institutes or the Environmental Research Centre were "transferred" from Western Germany, so that no existing relationships can be used.²⁵ In addition to that the elites of the old industries also had to leave after the fall of the Berlin Wall and a complete restructuring took place in the companies. Therefore the re-emerging of networks is still to take place in the economy as well. Many companies are not even aware of the benefits of cooperation and networking being too busy with staying in business. However this attitude is slowly starting to change and businesses realise that jobs and financial resources can be saved by cooperating (Interview 7). Nonetheless structures have to be build up in order to be able to further processes of networking and technology transfer (Interview 1). In the following some institutions, projects and initiatives to further the cooperation between scientific institutions and companies and in-between companies are going to be pointed out.

Firstly the Foundation for Innovations and Labour has to be mentioned again. This institution is actively trying to establish networks between the regional actors, trying

²⁴ Source: IFO 2001, p 75.

²⁵ Source: IFO 2001, p 72.

primarily to link small and medium sized businesses to scientific institutions, other companies, and the municipalities of the Leipzig administrative district. Beside the often named foundry network - which primarily is based around the training of employees, but also has started to work together in an innovation forum to find solutions for R&D problems the individual companies are not able to solve by themselves - another network being cared for by the IAS is the network environment/biotechnology. This network consists of many different fields and branches. According to the speaker of the IAS this fairly big network is constructed around many different layers of relationships including companies and research institutions alike. At the beginning it was most important to get a certain transparency into these fields. Right now the network is being split up in many smaller and more specialised working groups, in order to make cooperation more efficient (Interview 14).

The Environmental Research Centre is a member of the above mentioned network. The centre provides the infrastructure for joint projects with companies and is actively involved in technology transfer in the area of environmental research. Research in the centre is always done in cooperation with companies. It is mostly smaller companies working with them since large companies have their own R&D departments. The speaker of the Centre points out that this is the modern way of technology transfer. Since companies are involved in the research process from the beginning and are also obliged to amount for 30-40% of the costs, the transfer of the research findings into marketable goods or services of the economy is certainly going to take place, since the companies want their investment paid back. The Centre functions as a mediator between the companies and the individual scientists as well, so that it is ensured that the research stays applicable. Therefore the interviewee is convinced that technology transfer only makes sense on a professional level, with the technology transfer unit being limited to only one sector (like for example environmental research). Only in that way it can be assured that research conducted makes sense for the regional economy.

Thirdly the technology transfer unit of the university is an important regional institution as well. Its main task is to inform the public about research conducted at the university. This is for example done by publishing all research activities in print form as well as on the Internet. The unit is integrated in many regional networks, so that it is up to date with the regional developments. Per year around 400 projects - which are only 10% of all projects - are conducted with the economy. Only 10% of these 400 projects are conducted with the regional economy (Interview 10). The biggest problem here, being the lack of R&D departments of large companies, which are far more likely to have interest in a cooperation with universities. Two other initiatives accompanied by the university are the initiative

Economy meets Science together with the CCI and the network medical technology. The initiative Economy meets Science took place last year for the first time and is going to take place this autumn again. It is a meeting between science and economy representatives where special issues of both concerns are being discussed and relationships being formed. Unfortunately after this second meeting there are no other meetings planned, but the contacts should be established if needed on an individual basis (Interview 1).

Fourthly a number of innovation centres have been established: the BioCity, the MediaCity and the TechnologyCity (Interview 5). The BioCity has fairly good connections with the universities although cooperation between the companies and the university facilities is still to take place. The MediaCity is working together with the university as well. This cooperation is mostly limited to help with students' projects and sponsoring. The TechnologyCity is an innovation centre for companies mainly in the IT business but also in environmental technology and innovative services. As well as the BioCity the TechnologyCity is trying to further new companies and interlink them with research facilities where possible and necessary.

Fifthly a technology transfer project is being conducted on a Central German level in cooperation with the Regionenmarketing Mitteldeutschland e.V. The problem Land governments are often facing is that they put a lot of financial aid into technology transfer but nothing happens. The Regionenmarketing has now taken up the task to enforce the dialogue between science and economy, so that the individual components (know-how, capital and networks) can be combined (Interview 9).

According to most of the interviewees the thing missing most in the research landscape of Leipzig is a technical university. Automotive, energy, the foundries, environmental research and to some extent biotechnology as well, all depend on engineering work. Although some companies are working together with technical universities in Dresden, Chemnitz or Weimar, they cannot reach a high intensity of cooperation due to the spatial distance (Interview 7). Additionally the funding of many state aided projects depends on a university involvement, so that local companies trying to apply for projects like this have difficulties finding the right partner (Interview 6).

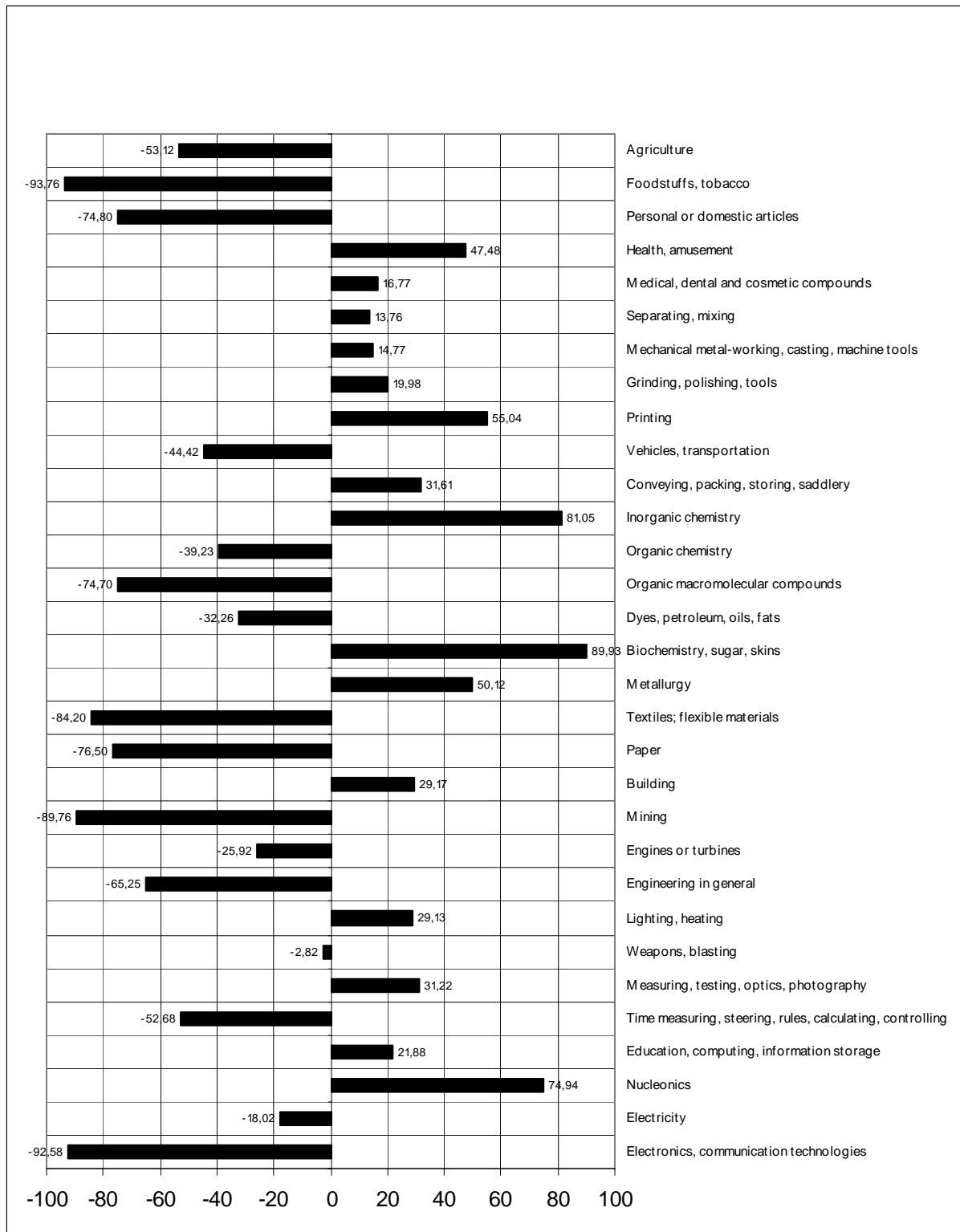
As it has already been mentioned mostly smaller and medium sized companies will have to further the innovation potential in the region. In most other regions in Germany new innovative start-ups are often involved in that. However, in Leipzig the level of foundation

activities is, compared to other East German regions, very low.²⁶ Some reasons for that are the lack of large companies and a technical university where possible founders could come from (Interview 1). Another reason is the bad economical situation and thus the high risk of failure start-ups have to deal with (Interview 9). In order to further foundation activities a few tools are being used. Being an innovation centre the BioCity is one of the institutions trying to change that with active help forming business plans or providing office and lab space (Interview 2). The Regionenmarketing Mitteldeutschland also has an initiative helping young people who are willing to start a company with coaching and introduction to business networks (business angels).

Measured in respect of all output indicators (patents, knowledge and technology-intensive economic branches ...) Leipzig cannot yet be designated a knowledge and technology-based region. In total only 158 patents were submitted to the German patent and brand office in west Saxony in 1998 (in comparison: Industrial region of Central Franconia: 1153 patents; cf. Greif 2000). The patent intensity (Submissions to the European Patent Office) in Leipzig was far below the German average with 36 patents per 1 million inhabitants. There were practically no high-tech patents submitted in Leipzig (cf. Table 14). This can be explained by the peculiarities of the Leipzig economic structure: Patents are submitted mostly by the larger research-intensive industrial companies. In Leipzig the percentage of employees engaged in the manufacture of high-tech products is only about half the German average (5.8% in comparison to 11.4%). The company headquarters and therefore also the critical development and services activities are for the most part located in the west. For smaller companies or even for a research institution like the Environmental Research Centre patents are often too expensive as well as too time consuming (Interview 14). Therefore the possibilities for patent-intensive innovation in Leipzig are structurally less than in other locations. In knowledge-intensive service activities Leipzig is however above both the German and European average.

²⁶ Source: Sternberg/Bergmann 2003.

Figure 5: Leipzig Patent Specialisation 1995 -2000 (in comparison with the German average)



The relative patent share (RPS) for the existing data was calculated according to the following formula: $(RPS_{ij}) = 100 \tanh \ln [(P_{ij} / \sum_j P_{ij}) / (\sum_j P_{ij} / \sum_{ij} P_{ij})]$, with P_{ij} : Number of patents in a country/in a region i in the technological field j .

Source: Own calculation on the basis of Greif (2001).

Table 14: Applications for patents in selected German planning regions

		Stuttgart	Munich	Düsseldorf	Rhine- Main	Leipzig	Industrial region of Central Franconia	Germany
Patent applications	1995	2539	1981	1632	1517	131	998	29690
	2000	3653	3091	1901	1680	140	1267	40374
Percentage of the domestic patent applications	1995	8.6%	6.7%	5.5%	5.1%	0.4%	3.4%	100%
	2000	9.0%	7.7%	4.7%	4.2%	0.3%	3.1%	100%
Patent applications per100.000 inhabitants	1995	98.4	82.9	54.7	56.8	n/a	78.9	36.2
	2000	141.3	129.4	63.7	62.9	12.7	100.2	49.2

Source: Greif (2001).

As it might have become clear during the past few paragraphs a vast number of technology transfer projects and initiatives conducted by all of the many regional actors are in operation. It is not quite clear whether all these projects actually have the desired outcome. It is a beginning, but in time the different actors should come together and work on one joint strategy, not dispersing their energy in too many directions.

5.4 Education, qualifications, skills

The level of education of the inhabitants and those in employment in Saxony and Leipzig is considerably above the federal average (cf. Tables 15 and 16): The percentage of employees without vocational training who are obliged to make social insurance contributions is about 8 percent lower, the percentage of employees with vocational training, with A-levels or higher education is about 4 percent higher. The high rate of unemployment in Leipzig cannot be explained primarily by inadequate qualifications, but by the structural problems the regional economy is facing. A spokesman of the Quelle dispatch centre has pointed out that for work which in Nuremberg is done by unskilled workers can be done by skilled labourers in Leipzig. This is merely a sign for the high number of skilled people who are trying to fight unemployment.

This high regional qualification standard explains partially why a company like BMW does not have any major problems finding employees. Nonetheless it is a challenge to recruit over 5,000 new employees. The basis personnel of 1,500 people have already been recruited. 350 of them were long term unemployed. Over 90% of the workforce for the new plant is recruited from the region and the spokesman of the plant says that it is not harder to find skilled people in Leipzig than anywhere else.

A special agency called POOL was established by the city in order to find employees for BMW and other companies, and to train unemployed, so that their skills fit the regional labour market (Interview 9). According to the CCI, BMW has even created a functioning regional labour market, since it recruits people from other jobs, so that these companies have to look for new employees etc. In cooperation with BMW POOL is trying to close these gaps.

As many interviewees, including BMW, have mentioned it is particularly hard to find qualified engineers, but this is a situation the whole of Germany is facing at the moment. This situation is particularly tiresome in Leipzig since there is no technical university with engineering courses. A spokesman of the Environmental Research Centre stated that “his life would be easier with technical training at the university”. However, the centre is working together with other universities in Braunschweig or Chemnitz in order to level out the regional deficiencies. The strengths of the Leipzig Universities though are as it has already been mentioned the humanities, IT, medicine, natural science and telecommunications (Interview 5).

It is not only engineers who have to be recruited from the national or international labour market, but also employees with managerial experience. For example; whereas the

Environmental Research Centre recruits most of its technical staff from the regional labour market, the scientific management often has to be recruited from further away. Even most of the interviewees during this study were not from Eastern Germany.

With a certain qualifications not being present in the region, the companies have to recruit employees from the national or even international labour market. To attract highly qualified personnel it is important that more than just the salary is good. Equally important are the soft factors. In this respect the quality of life is an often named aspect. The region has good leisure time possibilities, good cultural offerings, and very reasonable living costs. The only problem is tough, that most people not living in the area do not know that. All of the Western Germans living in Leipzig loved the area, but this perception is not shared by everyone; especially not by people who have never been in the area. Therefore one of the tasks of the marketing initiative Mitteldeutschland e.V. is to promote not only the economic qualities of the region, but also the soft facts.

Table 15: Type of training completed by employees subject to social security (total, according to sex and non-Germans; June 2000)

		Employees subject to social security in their place of work (June 2000)			
		Total	male	female	Foreigners
Germany	Without having completed vocational training	18.0%	17.6%	18.4%	41.1%
	With completed vocational training	62.7%	61.9%	63.8%	32.5%
	Having completed studies at a technical college, institute of higher learning or university	8.5%	10.1%	6.4%	4.4%
	Total (including nil returns; 100 %)	27,825,624	15,543,911	12,281,713	1,963,090
Bavaria	Without having completed vocational training	20.2%	18.3%	22.6%	40.3%
	With completed vocational training	62.4%	62.9%	61.8%	34.5%
	Having completed studies at a technical college, institute of higher learning or university	8.1%	10.4%	5.2%	5.0%
	Total (including nil returns, 100 %)	4,364,659	2,448,921	1,915,738	359,809
C. Franconia	Without having completed vocational training	21.1%	18.3%	24.6%	46.7%
	With completed vocational training	61.5%	61.8%	61.2%	29.9%
	Having completed studies at a technical college, institute of higher learning or university	8.7%	11.8%	4.9%	4.5%
	Total (including nil returns, 100 %)	643,949	358,828	285,121	54,967
Saxony	Without having completed vocational training	10.3%	11.1%	9.5%	14.0%
	With completed vocational training	68.9%	68.0%	69.9%	42.1%
	Having completed studies at a technical college, institute of higher learning or university	11.9%	12.2%	11.6%	15.5%
	Total (including nil returns; 100 %)	1,526,531	796,879	729,652	9,993
Leipzig	Without having completed vocational training	10.5%	11.2%	9.7%	15.1%
	With completed vocational training	66.3%	65.2%	6.7%	36.2%
	Having completed studies at a technical college, institute of higher learning or university	12.2%	12.6%	11.8%	13.9%
	Total (including nil returns; 100 %)	382,723	197,029	185,694	3,235

Source: Federal Statistics Office, 2002: Data base „Statistik regional“.

Table 16: Educational schooling: Graduates/school-leavers after final examinations (2000)

	Total (100 %)	Without a school leaving certificate	With a “Hauptschule” school leaving certificate	With a secondary school level I certificate	With general college matriculation requirements (without technical college matriculation requirements)
Federal Republic of Germany	928,038	9.3%	24.8%	40.1%	24.7%
Bavaria	129,858	9.4%	36.3%	34.2%	20.1%
Central Franconian administrative district	17,963	11.1%	37.2%	31.5%	20.2%
Saxony	60,682	12.1%	11.2%	50.8%	26.0%
Leipzig administrative district	14,481	13.4%	11.9%	47.0%	27.7%

Source: Federal Statistics Office, 2002: Data base „Statistik regional“.

However, the most severe problems the region is facing concerning a qualified work force are of demographic nature. More and more qualified young people under the age of 35 are leaving the region; more and more older employees are retiring early. Additionally it seems as though it is going to be increasingly difficult to integrate young people leaving school into

work life due to their (missing) training. On the other side the number of school graduates is going to decrease due to the decrease in the birth rate, so that companies are going to have more and more difficulties finding well-suited apprentices. In the moment many - especially smaller - companies do not acknowledge how important it is to train their own staff. Often they do not have any other choice, but the training rate is not high enough to reproduce the missing qualifications in the future (Interview 7). An example of how smaller companies in particular can react to the need of skilled personnel is the foundry network. These ten companies jointly train their apprentices as well as training unemployed into skilled workers. Hence these companies, unlike many others, have undergone the trouble of the long-term planning of their workforce.

Despite the formerly mentioned development, the unemployment rate is unlikely to decrease. According to a spokesperson of the IAS this is not likely to change in the near future.

5.5 New markets

According to a Chamber of Commerce and Industry official, the export rate of Leipzig is around 19%. This is far below the German average which according to the IFO institute amounts to 29.4%.²⁷ This ratio is bound to change as soon as BMW starts to produce in Leipzig and the ratio is probably going to level with the German average (Interview 5). Already, when looking at the manufacturing industries in Saxony the export rate is 26% (cf. Table 17), with motor, mechanical engineering and chemical industries being the most export orientated ones. The export rates are nonetheless of concern to the regional economy since most small and medium sized companies do not seem to have a high export rate. One of the few exceptions though are the foundries belonging to the foundry network with an export ratio of 25% (Interview 8). The other SME's are being furthered through classical aid programmes of the CCI and the municipalities like joint fair exhibition stands or legal, economical or cultural information about the individual countries. One additional tool is being offered in a Central German context. The CCI of Halle/Dessau organises a Head of exports meeting about every six months, where the companies are able to exchange experiences and ask questions. However, the Eastern German SME's are faced with a severe weakness in equity capital (Interview 7), so that they have problems securing their equity and thus additional risks like, for example, export are not always a feasible option.

²⁷ Source: IFO 2003. p.142

Table 17: Export rates in selected economic branches of the manufacturing industry in Saxony, East and West Germany (in percent; 2000)

Branch of the economy	Free State of Saxony	East Germany (with east Berlin)	West Germany (with west Berlin)
Food industry and tobacco processing	3.9	6.9	12.3
Textile and clothing industry	18.6	20.2	33.4
Paper, publishing & printing industry	19.4	16.4	18.8
Chemical Industry	34.6	32.4	51.2
Manufacture of rubber and plastic goods	14.6	19.8	30.7
Glass, ceramics, processing of stones and earth	10.4	10.4	20.9
Metal production & processing, manufacture of metal products	14.5	17.8	29.6
Mechanical engineering	33.6	27.0	49.4
Production of office machinery, Electro technology, precision mechanics.	26.0	31.0	44.5
Motor construction	53.3	46.8	58.1
Manufacturing industry in total	26.0	22.0	37.7

Source: IFO (2003: 143).

The further development of exports is presumably going to be extremely linked to Central and Eastern Europe, because of the city's geographical location and as a result of the enlargement of the EU. Therefore Leipzig has a realistic chance to expand its exports further. However, the Eastern Enlargement of the European Union has both positive and negative sides to it. On the one side companies can find new markets in the new member states. Although the GDP of Central and Eastern European states is below Western European and in some cases even below the Eastern German level, they are catching up, so that more and more well funded new markets emerge. On the other side though, the new member states are also competitors, especially because their wages are still considerably lower. One could argue that although the wages in Eastern Europe are lower, the productivity rate in Germany is still higher, but for Eastern Germany the productivity rate is as well far below the West German level. This is mostly a consequence of the small and medium sized economical structure; it nonetheless increases the competition even more. Despite this problem Leipzig has positioned itself fairly well. The city has a very good infrastructure and the quality and engagement of the municipality is very much orientated towards attracting new companies - from the West and the East. Only to name two examples; the reasons why Quelle and BMW have moved to Leipzig and not to one of the Eastern European countries are amongst others the lower risk, because of the safer institutional settings and the helpfulness of the city administration and their quickness in dealing with administrative matters (Interviews 3 and 13).

In effect the Eastern Enlargement did take place much earlier than May 2004. The liberalisation of the goods market has already taken place with the association agreements between the EU and the candidates since 1994. However, when looking at the individual branches in the region, they are all fairly differently prepared to deal with the new markets and new competition emerging in the East. According to a study conducted by the section for European and International Cooperation of the city of Leipzig,²⁸ the automotive sector is already facing competition from the new member states but this sector is increasingly profiting from the new markets and has a high number of suppliers in that area. The media industry has concentrated on a cooperation with partners in Central and Eastern Europe, whereas Biotechnology has hardly any contacts, since this sector is not yet well developed in the new member states. According to the above mentioned study the energy sector is actively involved in the CEE countries. Environmental technology on the other hand seems to have difficulties to establish itself on the Eastern European markets. A spokesman of the environment technology network though is confident that Leipzig has good chances on the new markets - e.g. in the sewage sector. Last, but not least, the Fair Leipzig already attracts a great number of Central and East European visitors. Here as well cooperation and competition are likely to take place. For once Central and East European companies are appearing at Leipzig fairs but on the other hand fairs in Eastern European cities can also be an attractive alternative to Leipzig Fairs.

However, because of its low industry density and the predominately small and medium sized company structure without an international orientation Leipzig will probably only medium term profit from the new markets. Further more it will have to concentrate even more on its own potentials and strengths when the EU aid decreases in 2006.

²⁸ Source: www.leipzig.de

6. Conclusion

The manufacturing industry in the Leipzig region, with 14% of all employees, is still of only marginal importance. As opposed to Nuremberg, Leipzig has not to manage a change from an industrial region to a knowledge-based one. It is far more a matter of completely reconstructing new economic and organisational capabilities as hardly one of the larger industrial companies has survived the decline of the socialist economy following reunification.

There are two distinct phases in the development of a new economic structure. In the first half of the 90s, the renewal of the infrastructure was at the centre of attention. In this process a central role was attached to public companies and publicly-financed building investments. This led to an over proportional importance of the construction industry and the public services. Now that a certain degree of saturation has been reached in both areas and public funds are not available to the same extent as in the first half of the 90s, a long-term process of shrinkage in both these structure-defining areas has begun. Arising from publicly-supported investments a productive industrial sector is now developing in East Germany, in whose centre stand producing branches of well-known West German and foreign companies (for example Quelle, Siemens, Telekom, Opel, Infineon, AMD, VW, Porsche and, in future, BMW). The crucial question for Leipzig is, whether these new industrial cores can be used as crystallisation points for suppliers and for advanced, production-related services. The workforce and the training and research capacities for such qualified activities are available in the region.

In conclusion: The relationships of the regional actors are multilayered and in many cases do not have a clear structure. The city has a vast number of competences, branches and “clusters” and has not yet defined a stringent pattern of capabilities and strengths. A cluster embracing economy, science, politics perceived by external actors is still to emerge. Two sectors which have a realistic chance to prosper are medical biotechnology and environmental technology (despite the university being low on engineering). They both serve niche markets and it is possible for them to succeed against national and even international competitors. Another possibility is the automotive industry but this sector does not include research in the area. Despite that, it creates jobs and a considerable service industry could evolve around it including the airport and the fair. Yet another possibility is the media and art sector including the IT services linked to it. Only the future will show what will happen to all of these fields.

In that respect the actions of the regional actors, especially the regional public institutions (city, IAS, trade unions, universities) are crucial. Currently a well functioning company structure has to be established. Whereas it seems that the city is mainly trying to do this with attracting large MNC's. The IAS has its focus on the networks of small and medium sized companies.

The tools used by the regional actors to further the regional economy are vast. Every institution has its own project to further networking, start-ups, innovations etc. The interviewees in the different institutions often had completely different views on how to revitalize the economy. It is not always quite clear, if the regional actors are really working closely together coordinating their actions. It can be supposed that the process of regional cooperation and the development of regional capabilities is still at its beginning.

However, following the decline of the large-scale socialist enterprises, the Leipzig economy is structured around small and medium-sized companies (Institut für Mittelstandsforschung 2003). Complementary to the development of new industrial cores, the economic policy of the Leipzig region is focused on the formation and support of clusters. After the nearly complete destruction of the economic and organizational capabilities grown over centuries, the speed at which the region has developed new organisational and regional competences is surprising. The Leipzig region is basically a radical government driven reorganisation of regional capabilities. The speed, with which it has „reinvented“ itself following reunification, gives occasion to hope, that the fundamental economic and social division of Germany will be gradually reduced over the next decades.

Finally, it can be said that a regional cluster policy, which is based on sufficient governmental funds can definitely help to develop new technological competences within a region. The success of the cluster policy depends to a great deal on how promising the field is estimated to be in the future, on the international competition and on the already existing structure of the cluster. Cluster policy can therefore further strengths and help to decrease weaknesses. Certain structures have to be present though in order to make success more likely.

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