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## **CENTROPE Regional Development Report 2012**

### **Project Summary and Policy Conclusions**

Peter Huber (Co-ordinator, WIFO), Karol Frank (EU SAV),  
Mihaly Lados (WHRI), Roman Römisch (wiiw),  
Petr Rozmahel (MENDELU)

October 2012

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**October 2012**

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#### Abstract

This report summarises the results of the CENTROPE regional development report project as well as the related literature on regional development in this cross-border region. In particular we propose that cross-border policy initiatives in CENTROPE should focus on fulfilling the following functions: 1. securing and providing information on the activities of and development in other regions, 2. co-ordinating spatial policies at the borders of administrative units, 3. pooling resources and developing own projects in various strands of economic policy to improve competitiveness, and 4. lobbying for common interests of the participating regions. Furthermore, the report also suggests that the focal areas of cross-border co-operation should be structured around 4 priorities: establishing and improving the institutional preconditions for cross-border policy making and cross-border spatial planning, developing CENTROPE into a deeply integrated knowledge region, integrating cross border labour markets, and securing international competitiveness of the CENTROPE region.

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# CENTROPE Regional Development Report

## Project Summary and Policy Conclusions

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# CENTROPE Regional Development Report

## Project Summary and Policy Conclusions

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*Peter Huber (co-ord)*

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### **1. Introduction**

The CENTROPE region is one of the most important cross-border economic areas at the former external border of the EU. The Austrian part is composed of the capital of Vienna, Lower Austria and Burgenland. South Moravia is the only NUTS 3 level region of the Czech part and the Hungarian part includes the regions of Győr-Moson-Sopron and Vas. Finally, the Slovak CENTROPE region is composed of the Bratislava and Trnava regions. According to this definition, the CENTROPE covers a territory of 44.500 km<sup>2</sup> and has around 6.6 million inhabitants. It is also the location of two capital cities (Vienna and Bratislava) as well as the major agglomerations of Győr and Brno.

The region is characterized by large number natural sites of high environmental and potentially also touristic value, many of them located directly at borders. This as well as the high population density, the rapid economic development and the fact that some of the most important sites are located directly between two large capital cities repeatedly give rise to conflicting interest with respect to land use patterns in the region. This repeatedly poses a challenge to cross-border spatial planning and cross-border policy co-ordination. In addition this region has also experienced increased economic integration and cross-border co-operation despite substantial internal disparities in the last decade and - due to its high urbanisation and economic prospects - could develop into one of the most highly integrated economic cross-border areas in the EU once remaining institutional barriers are removed. This has and will continue to further increase the requirements for cross-border policy co-operation.

The aim of the pilot action "CENTROPE regional development report" was to enhance the analytic basis for cross-border policy making in this region and to provide policy advice in the form of three annual development reports and four focus reports. The three annual regional development reports provided a regular update of the economic development in CENTROPE. The four focus reports analysed individual fields relevant for cross-border

activities in the region (spatial integration, technology policy, labour market policy and developments in the service industries – in particular tourism). These were targeted towards making recommendations to institutions and stakeholders in the field of regional development and business promotion, experts and institutions in labour market and employment policies, associations of business and industry, networks of companies, clusters as well as public administrations and political decision-makers of the CENTROPE cities and regions.

The current report which is also the third and last regional development report of this project sets out to summarize the project results and draw final policy conclusions, by means of a strengths-weakness-opportunities-threats (SWOT) analysis of the region which is based both on the existing literature as well as on the project results. In the next chapter we summarize project results while in chapter 3 we then outline some of the major policy conclusions that can be drawn from this project and the relevant literature. Section 4 finally summarizes the current study.

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## 2. Project Summary: A SWOT Analysis

### 2.1. Macro-Economic Development

A first very robust and striking result highlighted by almost every study written on the CENTROPE in the last decade (see Krajasits et al., 2003, Palme and Feldkircher, 2003,) and in many of the reports of the CENTROPE regional development project (Rozmahel et al 2011, Frank et al 2012) is that the region as whole has a well developed and rapidly growing economy that – in contrast to the expectations of many analysts - has also proven to be rather resilient during the economic crisis of 2008. This observation already applies to the national level of analysis: While the CENTROPE countries were harder hit by the crisis than the EU 27, the recent economic problems in the European Union have been mainly focused on the Southern European countries which share a similar level of economic development as the new member states of the CENTROPE, but have proven to be much less competitive and resilient. The only exception to this rule is Hungary, where high budget deficits and large private sector debts denominated in Euro have led to a severe austerity program and slow growth in the last years.

On a regional level this strong economic development of the region becomes even more compelling. Average economic growth was substantially higher than in the EU average throughout the last decade and exceeded the EU average by 0.5 percentage points in the period since the crisis (2009 to 2011). Thus despite substantially lower growth rates relative to the period 2004 to 2008 the growth performance of the region remained favourable even in times of crisis. This development is also expected to continue in the future since current projections expect growth in CENTROPE to exceed that in the EU27 in the next years. According to Cambridge Econometrics GVA is expected to increase by 2.3% in 2012 in the CENTROPE aggregate and by 2.4% in the two subsequent years. Therefore over the next three years a cumulated growth advantage of 0.1 percentage points over the EU 27-average is expected. Similarly, employment is expected to grow by 0.8% next year and by 1.1% in the subsequent two years in CENTROPE and therefore at an about equal rate as the EU average.

The economic and financial crisis was, however, also associated with a decline in labour productivity growth as measured by GDP at market prices per person employed. In pre-crisis period (2004 to 2008) labour productivity in CENTROPE region grew by 3.5% in

average. In the period 2008–2011 labour productivity growth slowed down to 0.5% in average. Thus growth patterns in CENTROPE moved from a more intensive to a more extensive growth since 2008. From a policy perspective this thus raises the issue of how – in the light of the still existing productivity gap to the EU27 average – a more intensive growth path can be re-established in this region in the future.

**Table 2.1: Strengths and Weaknesses: Macro-economic Development**

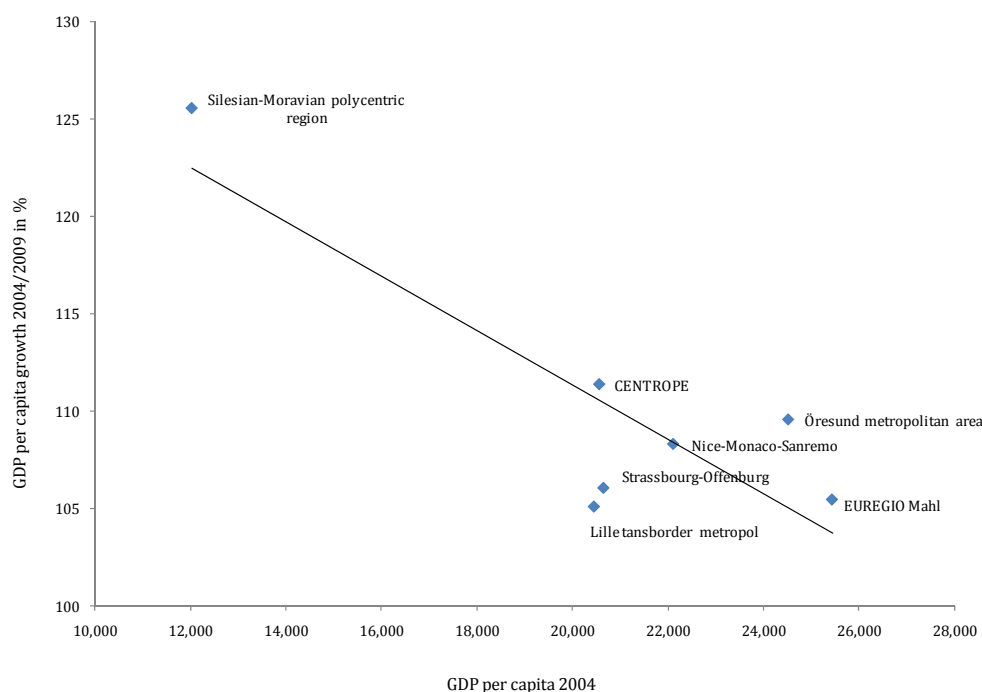
Strengths	Weaknesses
Stable institutional environment	Rapidly rising labour shortages in high skilled occupations in times of high growth
Stable macro-economic environment	Divergent macro-economic developments in individual parts of the CENTROPE
High level of economic growth	Large regional disparities in terms of all indicators
Low unemployment and High employment rates in aggregate	
High growth region also among urban cross-border regions	
Opportunities	Threats
Resilience to crisis has strengthened comparative advantage over other medium wage economies	Signs of weaker productivity growth in recent years may erode competitive advantage
Sound macro-economic policies strengthen attractiveness of region	Macro-economic challenges in parts of the region
	Increasing competition from other (cross-border) regions

Economic crisis also negatively influenced the development on labour markets. Most of the CENTROPE regions experienced rising unemployment rates in the last years. Yet, the average unemployment rate reported by EUROSTAT in 2010 in CENTROPE reached 7.8% which was 1.8 percentage points below the EU27 average of 9.6% but also by 2.8 percentage points higher than the record low level of 2008. From a comparative perspective CENTROPE is therefore a region with low unemployment rates in the EU. There is, however, some indication of some weaknesses with respect to the structure of employment and unemployment. In particular in the phases of high economic growth before 2008 the region has repeatedly experienced labour shortages in individual labour market segments in times of still rather high unemployment. A fact that – in combination with very low employment rates among the less skilled in the Czech, Slovak and

Hungarian parts of CENTROPE (see below) - suggests a substantial mismatch between the skills of the unemployed and the skills required in the newly created jobs.

Despite this the overall favourable macro-economic development also applies to the region in comparison to other cross-border metropolitan regions. In terms of GDP per capita at purchasing power parities CENTROPE is a region with clearly above average GDP per capita levels and growth rates. The CENTROPE was the cross-border poly-centric region with the fourth highest GDP per capita level in 2009 and the second largest GDP per capita growth rate in the period from 2004 to 2009 among the 7 larger cross-border poly-centric regions that are comparable to the CENTROPE

**Figure 2.1: Growth of GDP per capita at purchasing power parities of original and larger cross-border polycentric urban regions in the EU27**

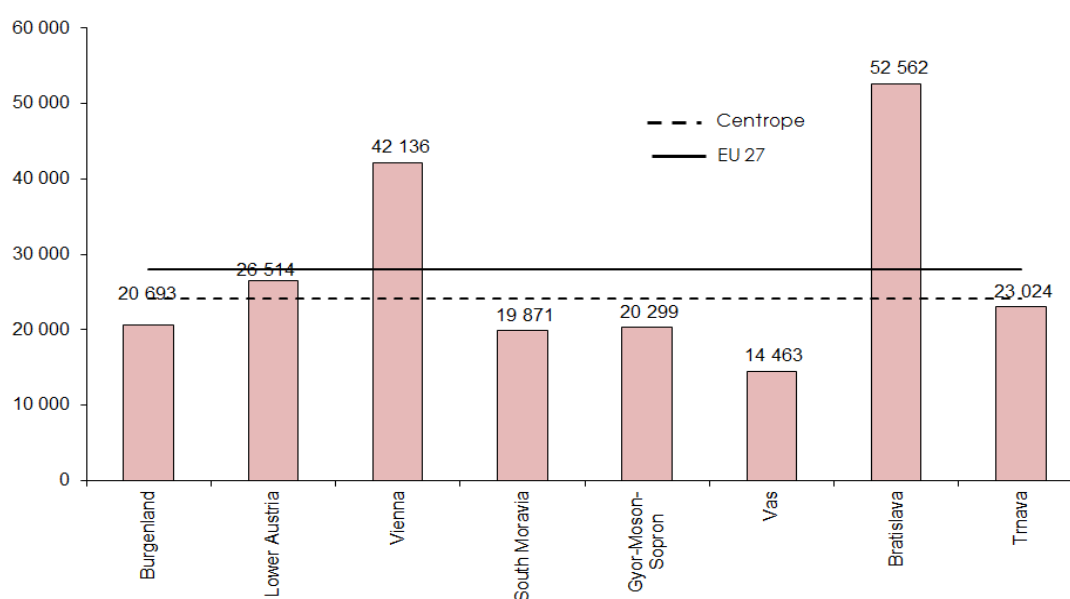


Source: Eurostat, own calculations.

The CENTROPE region therefore combines a high growth rate with a high level of GDP per capita. This can also be seen in Figure 2.1 where we plot the GDP growth rate of the poly-centric cross-border regions (defined in Huber, 2011 in the context of the CENTROPE regional development report project) in the time period from 2004 to 2011 against the GDP

per capita at purchasing power of these regions. As can be seen from this plot the CENTROPE is located above the regression line between these two variables (which is marked by the negatively sloped line running through the diagram). Relative to its initial GDP per capita level, therefore, CENTROPE has been growing more rapidly than could be expected from an average poly-centric cross-border region in the EU27.

**Figure 2.2: GDP per capita 2011 at PPS by NUTS 3 regions in the CENTROPE (preliminary forecast)**



Source: Eurostat, Cambridge Econometrics, own calculations.

This favourable macro-economic development is, however, accompanied by rather different levels of economic development in the different parts of the region. The recent economic development of regional GDP per capita in CENTROPE suggests that - due to the legacies of the communist regimes - one of the main dividing lines within the region still is the division between the Czech Republic, Hungary and Slovakia and Austria: While in the Austrian parts per capita GDP approaches or exceeds the EU average in all CENTROPE regions but Burgenland, all of the CENTROPE regions in the new member states - except for Bratislava - still qualify for objective one status; their GDP per capita is much below the EU-27 average.

In addition a second important differentiation characterizing the CENTROPE is that between urban centres and rural or industrial regions. For instance the capital city of Bratislava (according to preliminary estimates) in 2011 could claim a per-capita-GDP that was higher than that of all the Austrian regions and was also above the EU-average by over 70%.

This line of differentiation has also become more important in recent years, while the division line between Austrian and the Czech, Hungarian and Slovak regions in CENTROPE is becoming increasingly blurred. To exemplify – in the year 2000 the difference in GDP levels between Bratislava and the city of Vienna was € 14.500 to the favour of Vienna, while the difference between the richest and the poorest new member state region amounted to € 10.700. By 2011 (see Figure 2.2) this relationship had changed fundamentally. GDP per capita in Bratislava was by more than € 10.000 higher than in Vienna and by over € 29.000 higher than in the poorest new member state region.

## 2.2. Demography & Location

The region is also marked by a number of locational and demographic advantages. In particular in terms of geography the region is located on a number of important transport routes between Northern and Southern as well as between Eastern and Western Europe and as already pointed out by Palme and Feldkircher (2003) is also located at the intersection between the European regions with high market potential in the EU's core and the still rapidly growing economies of Eastern Europe.

In part these comparative advantages are, however, not yet fully realized in the region. For instance in terms of the transport infrastructure a project report from the CENTROPE infrastructure needs assessment tool (INAT – Arge CENTROPE, 2011) - while in general stating that CENTROPE is a region with a satisfactory provision of transport infrastructure - also finds that the realization of existing transport infrastructure development plans has been rather slow and that according to existing forecasts (see: INAT – Arge CENTROPE, 2011) by 2025 capacity problems will exist in the road network joining Vienna to Brno, Bratislava and Trnava and in large parts of the Hungarian road network in CENTROPE. Furthermore, this report also acknowledges the slow development of the major European rail connections (TEN-corridors) that pass the CENTROPE and criticizes the lacking co-ordination of regional governments in developing a joint position on these corridors. The report also states that in general joint traffic information systems that cover the entire

territory of CENTROPE as well as different kinds of transport, do not exist, which suggests that lacking co-ordination in infrastructure development is still a weakness in the region.

**Table 2.2: Strengths and Weaknesses: Location and Population Growth**

Strengths	Weaknesses
Close to regions with high market access	Threat of declining labour force in the absence of appropriate policy measures
Vicinity to fast growing Eastern European markets	Remaining weaknesses in the infrastructure network
Many sites of environmental and potentially also touristic value	Low level of co-ordination in traffic and infrastructure planning and development policy
High level of internationality in population in urban centres	Already existing capacity problems in transport infrastructure near large urban centres,
Highly developed telecommunication infrastructure and high standards technical infrastructure	Large differences in laws and institutions governing regional development
High quality of nature, environment and life	Large disparities in infrastructure and environmental standards
Opportunities	Threats
Location on important European transport routes	Slow realization of existing infrastructure investment plans
Slow predicted population decline in a European comparison and dynamic population growth in urban centres	Expected transport infrastructure problems in particular in north-south connections
	Many languages and sometimes missing cross-border competence may impede on cross-border spatial planning and policies

An earlier study by Krajasits, Neuteufl and Steiner (2003), while also pointing to some deficiencies in transport infrastructure development in the region, however, also concludes that CENTROPE in general has a highly developed telecommunication infrastructure and high standards in terms of technical infrastructure as well as a high quality of nature, environment and life. At the same time this study, however, also notes the large disparities in environmental and infrastructure standards as well as the important institutional differences between individual CENTROPE-regions.

In terms of demographic trends (analyzed in Frank et al., 2012), by contrast, the region has shown rather moderate changes in the last decade, with a still increasing population in almost all CENTROPE regions with the exception of Vas. From 2001 to 2010 the population of CENTROPE increased by 288,219 persons. A closer look at the structure of this population change suggests rather varied demographic developments in individual



regions. Compared with 2001, the highest increase of population by 9.2% has been recorded in Vienna. Bratislava region was the second best performing region in terms of population growth with 4.9% followed by Lower Austria with 4.4% and Győr-Moson-Sopron with 3.3%. Thus – in contrast to many other European regions and despite repeated phases of labour shortage - population decline does not seem to have been a limiting factor on economic growth in most CENTROPE regions.

Ageing of the population – as in most other EU27 regions – is an ubiquitous phenomenon in CENTROPE, however. The old-age-dependency ratio (i.e. the ratio of the number persons older than economically active age (aged 65 and over), relative to the working age population) has grown in almost all of the CENTROPE regions (with exceptions of Vienna and Lower Austria), with particularly strong increases in the Czech, Hungarian and Slovak parts and in the more peripheral regions of the Austrian CENTROPE (e.g. Waldviertel). In addition the rapid increase in population of Vienna but also the more modest growth in the Slovak and Czech CENTROPE was primarily driven by in-migration, with migration in these parts of CENTROPE (in particular Bratislava region) often coming from other parts of the country and Vienna also experiencing substantial inflows of migrants from abroad. While ethnic diversity of the population is rising in almost all CENTROPE regions, the only region which has substantial challenges to face from integrating a large foreign born labour force therefore is Vienna.

Finally, population projections suggest a general trend towards ageing in all CENTROPE countries. The share of economically inactive population, especially the elderly people, will rise substantially, while the number of young people will reduce until 2030. This will, however, occur at a regionally rather differentiated pace. The available regional population projections suggest that total population in CENTROPE will continue to increase by somewhere between 1% to 5% depending on the forecast. The active aged population (i.e. population in the age between 15-64) will, however, reduce by somewhere between 3% to 4% in the next two decades, with these declines being most pronounced in the Slovak CENTROPE and a further increase being expected only in Vienna, Lower Austria and potentially Győr-Moson-Sopron. Based on these forecasts Frank et al. (2012) demonstrate that a shortage of labour can be prevented by an increase of the activity rate by about 3 to 4 percentage points for the CENTROPE in average and an increase of less than 6 percentage points in most regions. The obvious policy challenge therefore is to secure such increases in the active population.

**Table 2.3: Regional population forecasts for 2025 according to trend extrapolation and national studies**

	2010			
	Total	0-14	15-64	65+
South Moravia	1,154,654	162,565	805,399	186,690
Győr-Moson Sopron	449,967	64,851	314,083	71,033
Vas	257,688	34,559	179,314	43,815
Burgenland	284,897	37,907	191,331	55,659
Lower Austria	1,611,981	238,809	1,071,877	301,295
Vienna	1,714,142	244,259	1,180,946	288,937
Bratislava	628,686	84,274	463,486	80,926
Trnava	563,081	77,799	414,068	71,214
CENTROPE	6,665,096	945,023	4,620,504	1,099,569
	2025			
South Moravia*	1,133,290	140,559	746,646	246,086
Győr-Moson Sopron*	473,658	64,623	316,897	92,138
Vas*	245,498	27,174	165,256	53,067
Burgenland**	299,159	37,865	187,169	74,125
Lower Austria**	1,743,872	253,944	1,103,705	386,223
Vienna**	1,848,510	277,232	1,223,929	347,349
Bratislava***	557,642	60,478	402,808	132,517
Trnava***	426,762	53,402	288,922	84,438
CENTROPE	6,763,219	918,609	4,421,817	1,422,794
	In % of 2010			
South Moravia	98.1	86.5	92.7	131.8
Győr-Moson Sopron	105.3	99.6	100.9	129.7
Vas	95.3	78.6	92.2	121.1
Burgenland	105.0	99.9	97.8	133.2
Lower Austria	108.2	106.3	103.0	128.2
Vienna	107.8	113.5	103.6	120.2
Bratislava	88.7	71.8	86.9	163.8
Trnava	75.8	68.6	69.8	118.6
CENTROPE	101.0	97.0	95.7	129.0

Source: EUROSTAT \* based on extrapolation of previous population growth trends by age group and gender, \*\* based on forecasts by the Austrian statistical office, \*\*\* based on forecasts by infostat.

### 2.3. Integration in the international Division of Labour

The CENTROPE region according to the results of the regional development report project (Römisch et al., 2011) is also distinct from many other regions in Europe by a deep integration into the world and EU economy. Despite variations among individual regions in terms of inward FDI, migration and also trade, CENTROPE as an aggregate has an intensity of integration above or at least similar to the EU average in terms of all these cross-border flows, although large parts of the region in the new member states started

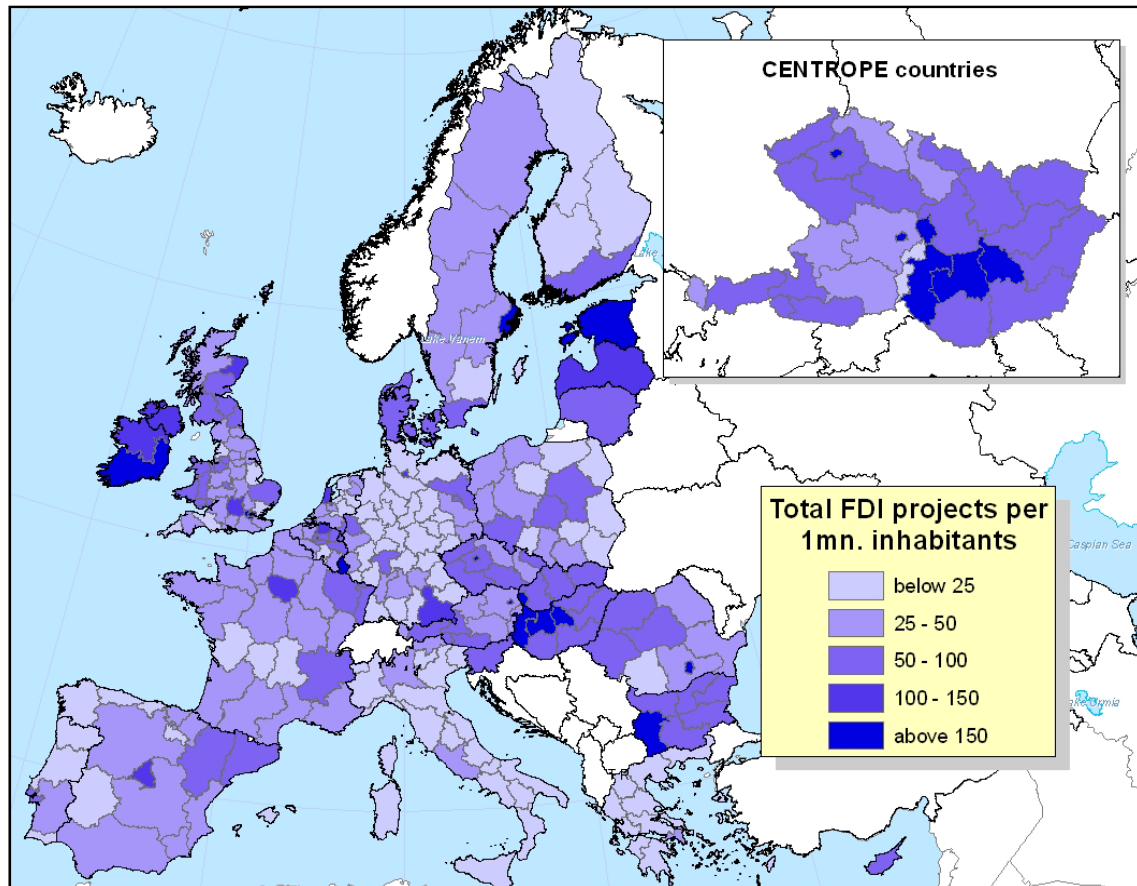
integrating into the European economy only two decades ago. CENTROPE as a conglomeration of many small open regional economies therefore stands to profit more than proportionately from continued European integration, while potential disintegration of the EU or the Euro zone could impact negatively on the economic potential of the region.

**Table 2.4: Strengths and Weaknesses: Spatial integration**

Strengths	Weaknesses
One of the most attractive locations for FDI in Europe (with Vienna and Bratislava attracting service FDI and many other regions high and medium tech manufacturing FDI)	Low and often rather hierarchical degree of internal integration and
Strong integration in the world economy in terms of trade	Low cross-border labour mobility
Revealed comparative advantage in medium high and medium low skilled manufactured goods	High risk of brain drain
	Low co-ordination of institutional support for cross-border enterprise network formation through cluster policies
Opportunities	Threats
Regions of CENTROPE as small open economies could profit disproportionately from continued European integration	Disintegration of Europe will negatively impact on growth prospects of the region
High accessibility to non-EU Eastern markets	Relocation of individual large FDI could impede on regional development

Regional economic integration – i.e. among CENTROPE regions - is much less advanced, however, and follows a clear hierarchical pattern of co-operation that is often found in centre-periphery patterns rather than the more equitable patterns that might be expected in poly-centric spaces characterised by a multitude of urban agglomerations. For instance with respect to foreign direct investments comparing CENTROPE to other EU regions in terms of FDI inflows per capita many of the CENTROPE regions are amongst the most attractive FDI destinations in the European Union. This applies especially to Bratislava, Győr-Moson-Sopron and Vienna. In an EU-wide comparison of 261 NUTS-2 regions Bratislava was the top location for FDI with 282.4 FDI projects per 1 million inhabitants over the period from 2003 to early 2010 and Vienna still is ranked 13<sup>th</sup>. Furthermore Tranava, Győr-Moson-Sopron and South Moravia are in the first quarter of the EU-27 NUTS 3 regions and only Lower Austria and Burgenland are not amongst the EU-27's top destinations for inward FDI.

Figure 2.3: FDI projects in the EU-27 regions, projects per 1mn. Inhabitants, 2003 to



March 2010

Source: fdimarkets.com, own calculations.

This exceptional attractiveness for FDI is based on a strong position in high and medium-high technology intensive manufacturing industries (231 projects out of 981 in total from 2003 to early 2010) and a clear regional differentiation of comparative advantages with the vast majority of service related FDI projects going into the two capital cities Bratislava and Vienna and most manufacturing FDI projects, - regardless whether they referred to high or low technology intensive industries, - going to the less urbanised but highly industrialised Czech, Hungarian and Slovak regions of CENTROPE, (i.e. to Trnava, Győr-Moson-Sopron and to South Moravia ).

Internal integration is, however, less strongly pronounced and structurally quite hierarchical. Although Austria is the third most important investor in the CENTROPE, FDI from the Czech Republic, Hungary or Slovakia to other CENTROPE regions is much rarer. The only significant investments undertaken are those by the Czech Republic, which in total has established 15 FDI projects in CENTROPE, with majority of these projects in the Bratislava region.

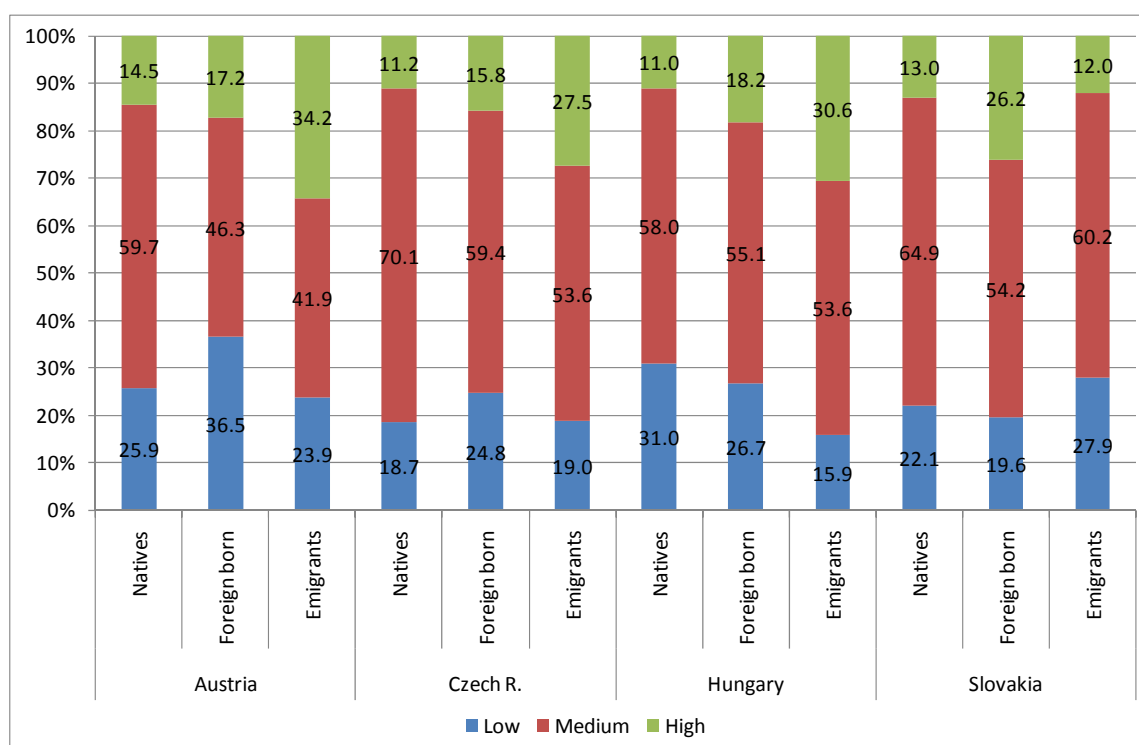
These findings are also corroborated by a large scale enterprise survey analysed in Römisch et al. (2011) on the co-operation activities in the CENTROPE-region. Also according to these data CENTROPE is a highly open region in terms of export and international co-operation activities. Furthermore, also according to these data, deep integration into European and world markets is more important than co-operation within the CENTROPE for the majority of enterprises in CENTROPE. Finally, these results are also consistent with earlier studies of Tödting and Tripl (2007) that, using national data, note the hierarchical nature of FDI in the region but also point out that a co-ordinated institutional support for cross-border enterprise co-operation (such as e.g. through cross-border clustering) is still in its infancy in CENTROPE, while as shown for instance by Tripl and Lundquist (2009) in a comparative study on CENTROPE and the Öresund region such initiatives do exist in other cross-border regions.

Similarly, patterns of foreign trade suggest that CENTROPE consists on the one hand of a large number regions that are highly export oriented, (South Moravia, Győr-Moson-Sopron and Trnava) and on the other hand of regions with less activity in foreign trade, either because they are more services oriented regions like Bratislava or Vienna or less industrialised and slightly more agricultural like Burgenland. In total, the trading patterns and the extent of foreign trade have a direct relation to the amount and type of FDI the CENTROPE regions received. All three export-oriented regions received predominantly FDI in the manufacturing sector so that overall foreign trade of the CENTROPE regions – corresponding to FDI flows - is mainly with medium high and medium low skilled manufactured goods. Győr-Moson Sopron also exports a considerable amount of high technology intensive goods.

Finally, also migration and commuting flows which were only liberalized on 1<sup>st</sup> May 2011 point to a deep integration of the region into the world and European economy but weaker internal linkages. CENTROPE is characterised by an average openness towards foreigners moving to the region, due to the high share of foreign born residing in the

Austrian part. In total 8.1% of the total working age population residing in CENTROPE was born abroad. This is only slightly lower than the 8.6% average of the EU countries. CENTROPE is, however, also rather weakly internally linked in terms of labour migration. Only around 1.2% of the population residing in one of the NUTS2 regions of CENTROPE was born in a different CENTROPE-country than they resided in and in total 1.8% of the employed in one of the NUTS2 regions of CENTROPE commuted across borders in 2009. Despite the recent liberalization of migration as a result of which an estimates 17.000 citizens of CENTROPE countries took up work in the Austrian CENTROPE, these shares have not increased substantially since then (Frank et al. 2012, Huber and Böhs 2012, 2012a).

**Figure 2.4: Education structure of immigrants, emigrants and natives in CENTROPE**



Source: ELFS (2007), own calculations Note: Emigration based on country data.

One of the worrying findings of the CENTROPE regional development report project is, however, the high potential for brain drain in the region. Although the share of tertiary educated among the migrants to the CENTROPE is higher than among natives, among all

foreign born residing in the EU27 the CENTROPE tends to get a below average share of tertiary educated (Figure 2.4). In addition also the share of highly educated among the emigrants from the CENTROPE countries is almost twice as high as among immigrants in all parts of CENTROPE but the Slovak part. This thus suggests that in terms of the worldwide competition for talent CENTROPE is marked by low competitiveness only.

#### **2.4. Economic Structure and Structural Change**

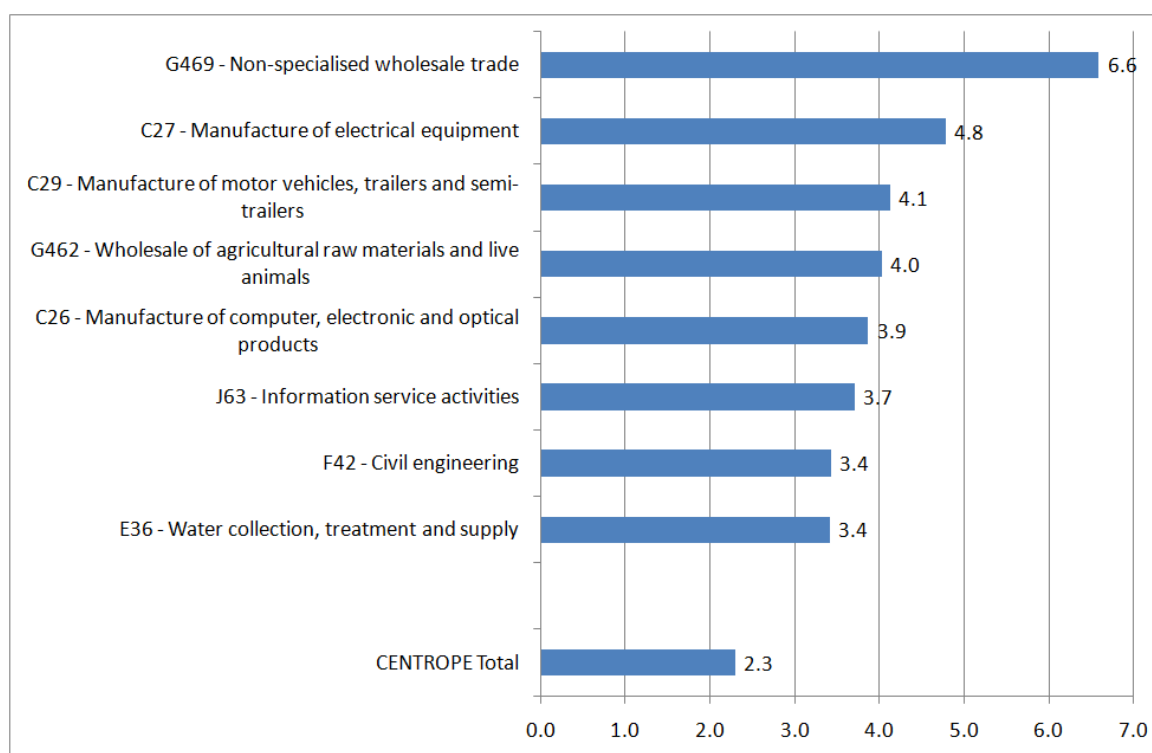
One area in which strong differences persist in the Czech, Hungarian and Slovak parts of CENTROPE and the Austrian part is that of economic structure (see Rozmahel, 2011, Frank et al., 2012a but also Huber and Mayerhofer, 2006). Focusing on the sector employment and gross value added (GVA) shares in agriculture, industry and services in the NUTS 3 regions of CENTROPE the structure of CENTROPE as a whole does not differ dramatically from the EU27 average. The shares of agriculture and industry in GVA are both slightly higher in CENTROPE than in the EU27 average and the share of services are lower.

This suggests a low level of specialization of CENTROPE. This is also confirmed by data from the structural business statistics which are, however, available only for the year 2009. Also according to this data, CENTROPE in aggregate is a rather diversified region. Only eight sectors of the region have a localization coefficient exceeding 1.5 (i.e. their share in the regions' industry specific employment relative to the EU exceeds the share of the CENTROPE in EU wide employment by a factor of more than 1.5). Of these branches 2 (Non-specialized wholesale trade and wholesale trade of agricultural raw materials and live animals) belong to wholesale trade. This specialization reflects the location of a number of larger cities and in particular two capital cities, where many import export firms reside, in this region. In addition also the high localization of water collection, treatment and supply is due to the high urbanization of the region. These areas of specialization are therefore, owed more to the regions' geography rather than reflecting a revealed comparative advantage.

Among the five other sectors three (manufacture of electrical equipment, manufacture of motor vehicles, trailers and semi-trailers and manufacture of computer, electronical and optical products) are manufacturing branches. These specializations reflect the comparative advantage of regions such as CENTROPE – which are located at the rim between the EU-core and high growth markets - in ancillary supplier industries such as the

automobile, electronics and electronic industries (see Palme and Feldkircher, 2006). In particular automobile production – due to some major foreign direct investments - has seen a rapid increase in localization in the last decades, and is regionally rather broad based in CENTROPE with Bratislava region, Trnava region, Győr-Moson-Sopron and Lower Austria showing a noticeable localization of this industry on their territory. This industry thus seems to be a primary candidate for integrating cross-border enterprise networks into the larger worldwide networks of the industry and could be a focus of policy initiatives. The electrical equipments and computer electronic and optical products industries by contrast are heavily localized in South Moravia and Trnava region (electrical equipments) or Győr-Moson-Sopron and Trnava (computer electronic and optical products industries), so that here no such ubiquitous production structures exist as in the automobile industries.

**Figure 2.5: Share of EU wide employment in NACE 2 digit branches with coefficient of localization 1.5 or higher (i.e. 3.4% of EU wide employment or more)**



Source: Eurostat Structural business Statistics, Note: Values indicate the share of employment in the respective industry in % of EU wide employment in this industry.



**Table 2.5: Strengths and Weaknesses: Economic Structure**

Strengths	Weaknesses
Emerging specialization in automobile sector and ancillary industries	In general few areas of strong specialization
Highly diversified (with mostly a focus on manufacturing)	Low share of high level business services (except for capital cities)
Capital cities provide a location for high level business services	Few signs of functional specialization of regions
Large differences among regions provide potential to use different comparative advantages of individual regions and organize enterprise networks on a relatively small territory	
Rapid structural change to service oriented sectors	
Rapid catching up of productivity levels within sectors (in particular in manufacturing)	
Strong industrial base	
Opportunities	Threats
Some potential for cross border clustering	Rapid structural change may increase labour market problems
Potential to allow for internationalization on a relatively small territory (in particular for SMEs)	Lack of regional specialization may lead to overemphasis of competition among locations

The final two sectors (civil engineering and information service activities) are advanced producer services sectors and are mostly localized in the capital cities of Vienna and Bratislava. These sectors therefore also highlight the potentials for cross-border co-operation in the business service sector among the capital cities of CENTROPE. But as instance pointed out by Mayerhofer, Fritz and Platsch (2007) there are also potentials for both sector and functional specialization among these two cities as well as between these cities and their environs. According Mayerhofer, Fritz and Platsch (2007) Vienna has a comparative advantage in the financial services sector and Bratislava shows advantages in areas such as logistics. The obvious potentials for cross-border functional specialization between the capital cities of the regions and their environs (in the form of e.g. cross-border commuting) also seem to have been little utilized in the past, although some anecdotal evidence of such a specialisation exists with respect to the environs of Bratislava located in Austria or Hungary (see: Rozmahel et al 2011).

In consequence already Kraijasits, Neuteufl and Steiner (2003) notice the potential of CENTROPE for cross border clustering and functional specialization, but also criticise the slow progress made in both these respects. Furthermore this study as well as Frank et al. (2012a) also documents the low share of business services located outside the urban centres of CENTROPE.

Aside from this there are also many other regional differentiations in terms of industrial structure. Thus for instance Huber and Mayerhofer (2006) based on a cluster analysis of EU27 regions find that in a European comparison most of the CENTROPE NUTS III regions of the Czech Republic, Hungary and Slovakia belong to a group of regions that are characterized by a high level of industrial employment, while many of the Austrian CENTROPE regions belong to a group of what they call “mainstream” regions (that have a just above average share of industrial and a slightly below share of service employment), while the capital cities Vienna and Bratislava region as well as some of the Vienna environs regions belong to the group of service oriented regions

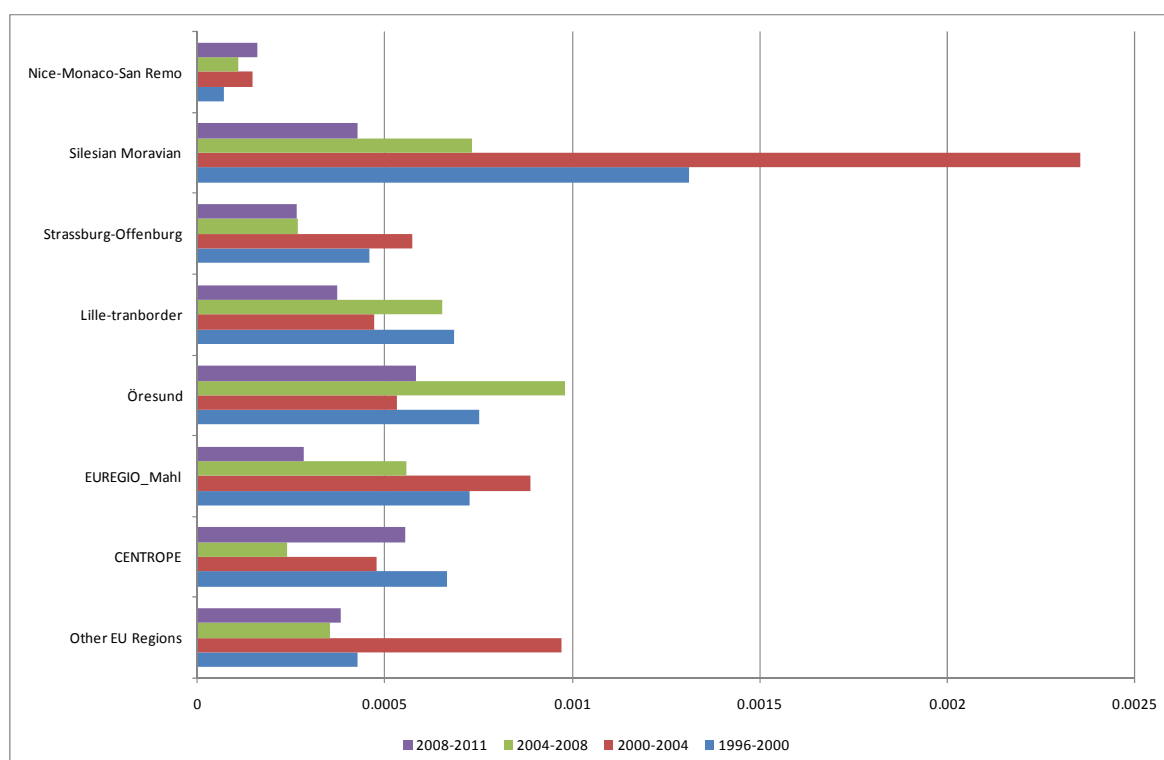
These findings are also corroborated by more recent data from the CENTROPE regional development report project (see Rozmahel et al., 2011 and Frank et al., 2012). With the exception of Bratislava, the share of industry in GVA and employment is higher in the CENTROPE regions of the Czech Republic, Hungary, and Slovakia than in the Austrian part of CENTROPE. Among the Austrian CENTROPE regions the share of industry in employment and GVA is comparable to that of the less heavily industrialized among the Czech, Hungarian and Slovak CENTROPE regions (such as Vas) only in Lower Austria, which is considered an industrial region in the Austrian context. In addition, in most of the more heavily industrialized regions within CENTROPE (such as Trnava, South Moravia and Győr-Moson-Sopron and Vas) the share of industry in GVA exceeds the 40% level.

The exception to this rule is Bratislava, which (as its “twin city” Vienna) has a high share of services in both GVA and employment (and a low shares in both agriculture and industry). Still, tertiarisation is less advanced in Bratislava compared to Vienna, with the difference in the share of service employment accounting for over 5 percentage points. In addition, some of the CENTROPE regions (Burgenland and Vas) have a slightly higher share of agriculture in GVA and employment.

While therefore there are still important structural differences between the regions of CENTROPE, the last decades have also been marked by substantial structural change. For instance when considering the development of the real GVA in the six broad economic sectors Frank et al (2012) find that over the period from 1996 to 2008 CENTROPE was marked by an above average decline of the share of construction as well as distributive and non-market services in total real GVA, while the share of manufacturing and financial intermediation in total GVA increased more rapidly in CENTROPE than in most other cross-border metropolitan regions. In terms of employment the share of distributive

services and financial services increased by more than in most other cross-border metropolitan regions, while the share of construction (which increased in many other cross-border metropolitan areas) as well as of agriculture and manufacturing shrunk by more than average.

**Figure 2.6: Index of structural change (turbulence index) in CENTROPE and other cross-border metropolitan regions for the period 1996 to 2008**



Source: Cambridge Econometrics; Note: Turbulence index =half the sum of squares of changes in sector shares over a time period. It ranges between 1 and 0, with zero indicating no structural change and 1 indicating complete structural change.

Furthermore as shown in Figure 2.6 (which shows the turbulence index<sup>1</sup> as an overall measure of structural change for the cross-border metropolitan regions) structural change was also pronounced in CENTROPE in the periods from 1996 to 2000 and from 2004 to

<sup>1</sup> This index is defined as half the sum of squares of changes in sector shares over a time period. It ranges between 1 and 0, with zero indicating no structural change and 1 indicating complete structural change.

2008 in comparison to other polycentric metropolitan regions in Europe and even more so since the crisis, when CENTROPE had the highest turbulence index among all cross-border metropolitan regions.

## 2.5. Human capital and education

An appraisal of the education system in CENTROPE (conducted by Rozmahel et al., 2012), by contrast, suggests that the CENTROPE's university system – despite an obvious lack of world class universities - is definitely an advantage of CENTROPE relative to other EU regions. There are more university level students per inhabitant in this region than in the EU-average (almost 5% of the CENTROPE population as opposed to 4% of the EU's population studies at universities), student numbers have also increased more rapidly in CENTROPE (by 30%) than in the EU 27 (by 7%) average in the last decade and the region has increasingly assumed over-regional importance as a centre of university education. Furthermore, also the share of doctoral students in the population is higher than in the EU 27-average (0.3% in CENTROPE as opposed to 0.1% in the EU 27-average) and aside from a specialization in teacher training, humanities and languages, there is also a weaker specialization in sciences, mathematics and engineering.

Trends in the number of students in the school system, by contrast, are influenced by a number of countervailing influences such as demographic developments, trends towards attaining higher levels of education and a changed perception of the role of early childhood education in the society in general, so that here neither strengths nor weaknesses can be determined.

Other parts of the education system in CENTROPE, however, show a clear disadvantage relative to the EU 27. This applies in particular to life-long learning, where participation is still very low in the Czech, Hungarian and Slovak parts of CENTROPE and some way from the most advanced countries in Europe throughout CENTROPE. In CENTROPE in 2010 only 8.3% of the population older than 25 and younger than 65 years took part in some form of formal training, while in the EU 27 the percentage was 9.1% and in some of the most advanced European economies (e.g. Finland and Sweden) more than 20% of the population were involved in such activities.

This below average share of life-long learning activities is primarily due to a low participation in the Czech, Hungarian and Slovak parts of CENTROPE. In Austria between 9.9% (in Burgenland) and 17.4% (in Vienna) of the population took part in life-long learning

activities, in the Czech, Hungarian and Slovak parts of the region this share reached only 6.0% in the Czech CENTROPE and Bratislava and was below the 3% both in the rest of the Slovak and in the Hungarian parts. This therefore suggests substantial room for improvement in terms of implementation of lifelong learning strategies. Joint initiatives to increase participation in life-long learning could therefore present another area of co-operation in CENTROPE.

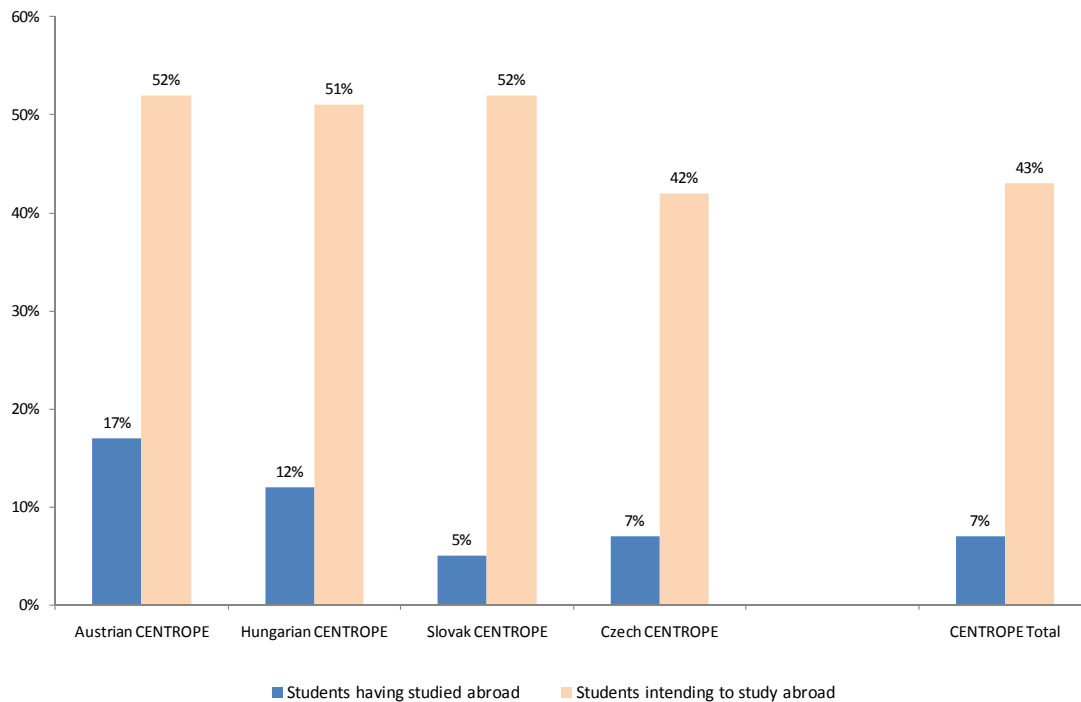
**Table 2.6: Strengths and Weaknesses: Education System**

Strengths	Weaknesses
Well developed university system (many students and higher education institutions)	Few tertiary education institutions of world repute
Rapid increases in overall student numbers as well as in international student numbers	Low participation rates of lifelong learning
High mobility intentions among CENTROPE Students	Low reputation of CENTROPE universities among potentially mobile students
High share of intermediary educated and well-qualified manual workers	Low share of tertiary educated workforce
Opportunities	Threats
High potential for resource pooling in education (in particular for tertiary education)	Lack of repute of education institutions may impede cross-border development inter regional co-operation initiatives
High potential in applied research and engineering skills	Preferences for co-operating with Universities in English speaking countries or providing full English programs
Active involvement of regional authorities in supporting local universities and research project	

Furthermore, a questionnaire conducted among 3.775 students in the CENTROPE to gauge the potentials of student mobility in the region showed that most of students participating had not studied abroad yet. In total only 7% of the interviewed stated that they had stayed abroad before, with Austrian and Hungarian students having studied abroad more often than Czech and Slovak students (Figure 2.7). On the other hand side, almost half of the respondents (43%) stated that they had serious plans to study abroad in the future, with only Czech students being noticeably less willing to study abroad. This implies a high potential of mobility of the CENTROPE students. The most preferred countries for such a stay abroad, however, are the UK, Germany, Finland, France and the US. Among CENTROPE students other CENTROPE countries are less attractive. Only 16.6% of the interviewed students in the Austrian CENTROPE, 15.8% of the students in the Slovak CENTROPE and 10.5% of the students in the Czech CENTROPE could imagine studying in another CENTROPE country. The only region where students are more prone to study in other CENTROPE countries is the Hungarian CENTROPE where 38.1% of the

interviewed can imagine studying in Austria, 11.9% in Slovakia, and 7.1% in the Czech Republic.

**Figure 2.7: Past and intended student mobility in CENTROPE (% of positive responses)**



Source: MENDELU Student Survey, 2011.

While increasing expertise, improving language skills and the possibility to make new international contacts were the most frequently stated reasons for studying abroad, the respondents also often stated that the CENTROPE was unattractive for them because they preferred to study in an English speaking country (between 32% and 49% of the students) because the students expected a low prestige or bad quality of the university (between 29% and 44% of the students) or because they preferred destinations further away (between 12% and 40%). Only few students (between 2% and 7%) had problems with lacking exchange programs or bilateral agreements on student exchange in CENTROPE.

Summarising therefore the questionnaire results suggest that choosing the CENTROPE region as a target destination for study stays abroad crucially depends on prestige of and awareness for CENTROPE universities and the possibility to study in English there. In this respect the results therefore are compatible with those of Rechnitzer and Smaho (2007), who analyse co-operation activities between Austrian and Hungarian universities in CENTROPE and find that most universities prefer co-operation with more prestigious partners in Anglo-Saxon countries.

**Table 2.7: Reason for not choosing CENTROPE as a place of study (positive responses in %, multiple answers possible)**

	Austrian	Slovak	Czech	Hungarian
	CENTROPE			
<b>I prefer studying in English-speaking countries</b>	31.6	47.4	48.5	42.9
<b>I do not consider the regions' universities to be well known and prestigious enough</b>	22.8	19.3	18.2	14.3
<b>I do not consider the regions' universities to be of high enough quality</b>	21.0	19.3	18.1	14.3
<b>Non-existence of bilateral agreement between chosen university</b>	7.0	1.8	5.0	4.8
<b>I prefer studying in a location further away from home</b>	14.0	33.3	40.0	11.9

Source: MENDELU Student Survey, 2011.

In terms of the education structure of its workforce CENTROPE in general is characterized by a highly qualified workforce that has its strongholds in the secondary and upper secondary education levels. In particular in the regions of the Czech Republic and Slovakia (with the exception of Bratislava region) more than 70% of the workforce has a completed secondary education. The share of population with a tertiary education is, however, below the European average in all regions but Bratislava region. In this region over a third of the workforce has completed tertiary education. The second region with a high share of tertiary educated workforce is Vienna, where over a quarter of the workforce has tertiary education. High shares of the workforce with only a completed primary education (of over 15%) by contrast can be found in Burgenland and in Vienna. In particular in the later region this is due to a substantial immigration of low skilled workers from abroad. In terms of the education structure of the workforce CENTROPE's relative comparative advantages in general are thus rooted in a strong orientation on medium skilled human capital segments, which is also reflected in its' strong industrial base.

**Table 2.8: Education Structure in CENTROPE and the NUTS 2-regions of CENTROPE by gender (2010, in %)**

	Pre-primary, primary and lower secondary education	Upper secondary and post-secondary non-tertiary education	First and second stage of tertiary education
	Total		
<b>EU 27</b>	23.7	48.6	27.7
<b>CENTROPE Total</b>	10.2	69.5	20.4
<b>Southeast</b>	5.1	76.6	18.4
<b>West Transdanubia</b>	13.1	69.6	17.2
<b>Burgenland</b>	16.5	67.9	15.5
<b>Lower Austria</b>	14.7	67.5	17.8
<b>Vienna</b>	16.6	55.9	27.5
<b>Bratislava region</b>	4.2	60.6	35.2
<b>Western Slovakia</b>	4.7	80.5	14.7
	Male		
<b>EU 27</b>	25.3	49.5	25.3
<b>CENTROPE Total</b>	8.7	71.4	19.9
<b>Southeast</b>	3.4	77.2	19.4
<b>West Transdanubia</b>	11.8	74.0	14.2
<b>Burgenland</b>	13.8	69.5	16.7
<b>Lower Austria</b>	12.4	67.4	20.2
<b>Vienna</b>	15.5	57.1	27.4
<b>Bratislava region</b>	4.5	62.8	32.7
<b>Western Slovakia</b>	3.9	83.8	12.3
	Female		
<b>EU 27</b>	21.7	47.6	30.6
<b>CENTROPE Total</b>	11.9	67.2	20.9
<b>Southeast</b>	7.2	75.7	17.0
<b>West Transdanubia</b>	14.7	64.4	20.9
<b>Burgenland</b>	19.9	66.0	14.1
<b>Lower Austria</b>	17.3	67.6	15.0
<b>Vienna</b>	17.9	54.6	27.5
<b>Bratislava region</b>	3.9	58.2	37.8
<b>Western Slovakia</b>	5.8	76.5	17.8

Source: EUROSTAT.

## 2.6. Research and Development

The regional innovation system, which was analysed in the framework of the regional development report project by Csizmandia et al (2012), by contrast, highlights the vast heterogeneity among different parts of CENTROPE. Thus even only comparing the institutional factors governing the national innovation systems within CENTROPE the substantial differences between Austria, the Czech Republic, Hungary and Slovakia are obvious. These differences also lead substantial differences in the structures of the central (governmental) institutions for R&D and innovation, co-ordination between regions and in the level of planning of both national and regional innovation systems.



**Table 2.9: Strengths and Weaknesses: Innovation System**

Strengths	Weaknesses
Above EU27 average share of human resources in Science and Technology and of Researchers	Strong heterogeneity in regional innovation and R&D capacities
High shares of patents invented in the region	Low level of co-operation in patenting within the region (in particular for applied research)
High integration of patenting into international networks	Low level of financing of R&D in most regions
Location of a large number of research institutions	Weak linkages to the university and education system
	Large functional distance between regions
	Few research institutions of international reputation
	Low number of patent applicants in the region
Opportunities	Threats
High potential for co-operation among universities and in enterprise research	Not very stable political environment in some countries, may impinge on development of region
Ambitious development projects in individual regions (e.g. Brno) may increase R&D research base of region substantially	Hubs of the innovation systems often located outside CENTROPE

This heterogeneity also applies in terms of technological capacity. Again this is already evident at the national level: According to the Innovation Union Scoreboard 2010 the overall innovation performance of CENTROPE-countries is very different. Austria is considered to be a so called 'innovation follower' among the EU 27 countries and is ranked on 7<sup>th</sup> position in the EU. The Czech Republic (17<sup>th</sup>), Hungary (21<sup>st</sup>) and Slovakia (23<sup>rd</sup>), by contrast, are only considered to be 'moderate innovators' with a significantly lower position in the ranking. At the same time also changes in technological capacity among CENTROPE countries – although indicating a catching up with respect to some indicators – have been very heterogeneous, with in particular Hungary and Slovakia showing a weaker performance and Austria and the Czech Republic a better one.

When moving to the regional level this heterogeneity in CENTROPE is increased by the dominant position of the capital cities of Bratislava and Vienna, and also the city of Brno. The capital cities obviously play quite a different role in their respective national innovation systems and in average host between 40% to 50% of CENTROPE's research personnel and also of the researchers, while the remaining regions make up for a share of less than 5% each, only.

**Table 2.10: Fact Sheet – Technology, R&D and Innovation in CENTROPE and the EU**

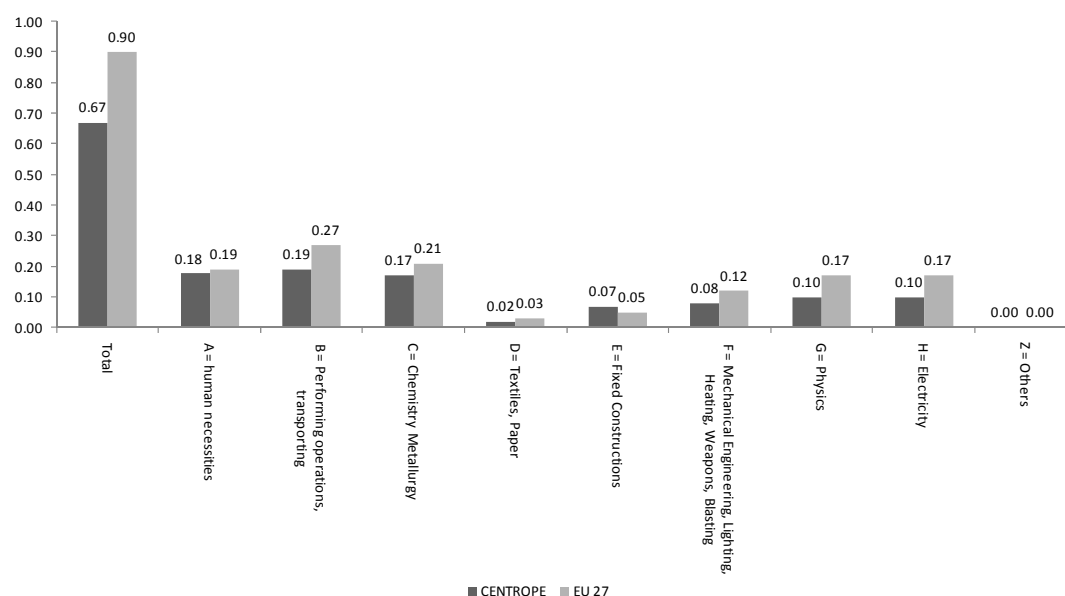
	CENTROPE	EU
<b>General Expenditure on R&amp;D (GERD)</b>		
Total GERD – million EUR (2009)	4,098	236,638
Total GERD as % of GDP (2009)	2.17	2.01
Total GERD, EUR per inhabitant (2009)	470.0	473.6
Total GERD in business enterprise sector as % of GDP (2009)	1.30	1.24
Share of business enterprise sector in the total GERD (2009)	59.9	61.7
<b>Research Personnel</b>		
R&D personnel – head count (2009)	80,116	3,643,115
R&D personnel as percent of active population (2009)	1.31	1.09
Share of business enterprise sector in the total number of R&D personals (2009)	36.5	42.1
<b>Students</b>		
Number of students in tertiary education (2009)	451,431	19,470,362
Ratio of students in tertiary education (2009)	24.27	18.10
Person aged 25-64 with tertiary education (2010)	20.9	25.9
<b>High Tech and knowledge Intensive Industry Employment</b>		
Employment in (HTC) high-technology and knowledge-intensive sectors (2009)	180,902	8,089,974
Ratio of HTC employment in all of the NACE activities (2009)	4.80	3.73
Employment in (KIS) knowledge-intensive sectors (2009)	120,291	5,689,692
Ratio of KIS employment in all of the NACE activities in % (2009)	3.20	2.62
Share of KIS in all HTC employment (2009)	0.67	0.70
<b>Human Resource in Science and Technology</b>		
Number of human resources in science and technology (HRST) – thousand (2010)	1,854	106,634
Human resource as % of active population (2010)	37.6	38.4

Source: EUROSTAT - Regional science and technology statistics (reg\_sct), Statistical Yearbook of the Jihomoravský Region 2010, Yearbook of science and technology in the Slovak Republic 2010, Research and development 2009 - Hungary (Hungarian Central Statistical Office).

Despite this heterogeneity - and thanks to the two capital cities - CENTROPE in aggregate, however, performs above EU 27 average with respect to many measures of human resources devoted to research and development. Here with respect to each of the indicators in table 2.10 CENTROPE is around or a little bit above the EU 27 countries' average and the regional inequalities are also lower in this dimension. In the Hungarian and Slovak CENTROPE most of the R&D personnel is working in the higher education sector, while in the Austrian CENTROPE, and mainly in Burgenland and Lower Austria most of the research personnel works in the business enterprise sector, while the number of researchers in the business and enterprise sector is very low in most the Czech, Hungarian and Slovak CENTROPE regions (Csizmandia, 2012). Furthermore, CENTROPE in aggregate has a share of R&D personnel in total employment which is higher than in the EU average. Similarly, the average proportion of employment in high-tech manufacturing (HTC) and high-tech knowledge intensive services (KIS) is approximately 4.8% relative to 3.7% in the EU.

Another common feature shared by almost all of the CENTROPE-regions (except for Vienna) is, however, the relatively low spending on R&D. Thus when total general R&D expenditure (GERD) as a % of GDP is considered Vienna is the only region with an above EU-average share among the CENTROPE-regions (and is thus the solely responsible for the above average share in the regions average) and despite an average growth rate of total intramural R&D expenditures (in % of GDP) of 11% in CENTROPE between 2000 and 2007– which was substantially higher than in the EU 27 – these growth rates of total R&D expenditures in the individual regions vary widely. Funding thus is definitely a weak point in the system of R&D and innovation of CENTROPE.

**Figure 2.8: Patents per 1,000 inhabitants in CENTROPE regions according to location of applicants**

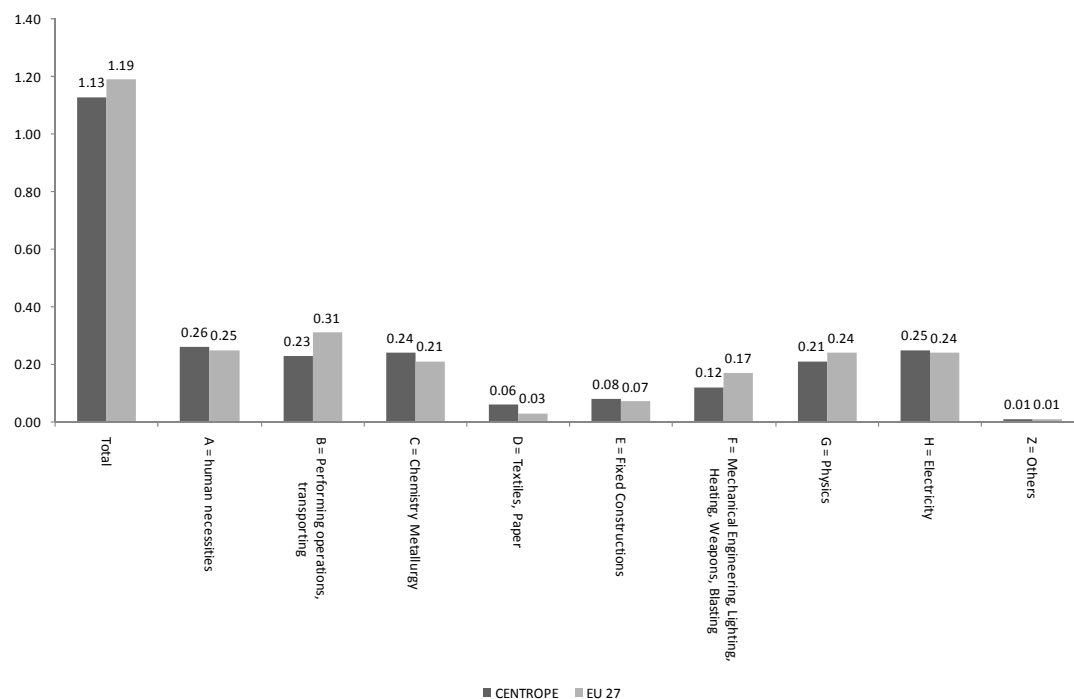


Source: OECD Regpat Patent statistics, own calculations.

Aside from being characterized by a number of input and output indicators regional innovation systems are, however, also marked by a number of links and relationships between individual actors (inventors, firms and institutions conducting research) that are potentially located in different regions. Thus Csizmandia et al (2012) also analyse European patent data to find out how CENTROPE and its individual sub-regions are

integrated into international and European inventor, applicant and inventor-applicant networks (i.e. the extent of external integration into different types of patenting relationships). Analysing this data from the angle of applicants (or owners of patents), as is also the case in official patenting statistics from EUROSTAT, as well as from the point of view inventors (or actual creators of patents) from the CENTROPE-region, they find that these two views provide rather different results:

**Figure 2.9: Patents per 1000 inhabitants in CENTROPE-regions according to location of inventors**



Source: OECD Regpat Patent statistics, own calculations.

- Focusing on patent applicants suggests that the CENTROPE as an aggregate is a region with substantially lower patenting than other regions, has fallen behind in terms of patent applications relative to other EU-regions in the last decade and has a revealed comparative advantage in patenting in only a few technology fields (see Figure 2.8). Furthermore from this perspective in CENTROPE EPO patents are strongly concentrated in Vienna.

- By contrast, when considering inventor data CENTROPE emerges as a region, which in aggregate patents about as much as other regions of the EU, has substantially caught up in terms of patenting activities relative to other EU-regions in the last decade and has a revealed comparative advantage in patenting in most technology fields (Figure 2.9).

Taken together these results therefore suggest that CENTROPE is a region where there are a lot of producers of patents (i.e. inventors) but only few owners (i.e. applicants). This thus reflects the structure of the region as a central location of FDI's in Europe. These foreign direct investors obviously often perform research leading to patents in CENTROPE, but register their patents elsewhere.

With respect to cross-border co-operation in patent applications Csizmandia et al (2012) find that – despite frequent co-operation with partners in other EU27 countries - this is rather rare within CENTROPE both for applicants as well as inventors. In particular here co-operation between the Austrian CENTROPE and the other parts of CENTROPE is clearly below the levels that could be expected of a deeply integrated cross-border region. In particular:

- Cross-border co-operation among patent applicants is limited to applicants located in the Czech, Hungarian and Slovak-parts of CENTROPE. In terms of patent co-application Austrian partners never co-operated with a partner located in another CENTROPE-region outside Austria in the eight years from 2000 to 2008.
- Similarly co-inventor networks among CENTROPE-partners also largely by pass the Austrian CENTROPE, while there is slightly more evidence of cross-border co-operation among partners from the Czech, Hungarian and Slovak parts of CENTROPE. Aside from this co-inventor networks are also in general more international in the Czech, Hungarian and Slovak regions of CENTROPE than in the Austrian parts.
- Furthermore, applicants of patents invented in CENTROPE located outside CENTROPE are often located in the EU 27. Many of the patents invented in CENTROPE are therefore registered by applicants residing in one of the EU 27 countries, which are also the main source countries for foreign direct investments in CENTROPE.

This study therefore extends and augments a number of further studies on the cross-border innovation system in CENTROPE. In this literature Lundqvist and Trippl (2009) also

notice the vast differences in R&D and innovation resource endowments in the region as well as the substantial heterogeneity in many other aspects. They argue that this points to a substantial functional distance between different parts of the region, which complicates endeavours to co-operate. Furthermore Lundqvist and Tripl (2009) just as Csizmandia et al. (2012) argue that the institutional environment for R&D and innovation policy is still not very stable in some parts of CENTROPE, with only the Austrian and the Czech parts having developed a long term approach to R&D and innovation policies so far.

By contrast a recent study by OAR and CONVELOP (2010) analyzes co-operation activities in the CENTROPE in the 7<sup>th</sup> framework programme projects by using methods of social network analysis and concludes that co-operation in this area is well developed. Furthermore, this study finds that in terms of absolute size ICT and health networks seem to be the largest in CENTROPE, while in terms of relative specialisation (i.e. in terms of shares of total EU research in the area) also networks in the fields of environment, transport and social sciences and humanities are important.

The difference in results between our analysis of patenting networks and the results with respect to participation in the 7<sup>th</sup> framework programme is due to two differences in approach between these studies. First, OAR and CONVELOP (2010) also include the capital cities of Prague and Budapest in their analysis. This results in a greater network density since many important hubs of the identified network are located in Prague and Budapest, which are not considered in Csizmandia et al (2012). The important policy relevant result here is therefore that many of the important research hubs in the R&D networks of CENTROPE are located in the capital cities of the respective countries and thus outside CENTROPE at least for Hungary and the Czech Republic.

These differences alone, however, are not enough to fully explain the differences in results. A further reason seems to lie in the nature of the networks analyzed. While OAR and CONVELOP (2010) look at 7<sup>th</sup> framework programme participation, which is focused strongly on universities and basic research institutions, and for which funding is conditional on co-operation, Csizmandia et al (2012) look at patenting, which is strongly focused on enterprises and applied research and for which cross-border co-operation is not a precondition. It thus also seems that cross border applied research networks are still less developed than basic research networks and that deep integration is found primarily in programs, where co-operation is a precondition for funding.

## 2.7. Labour Markets

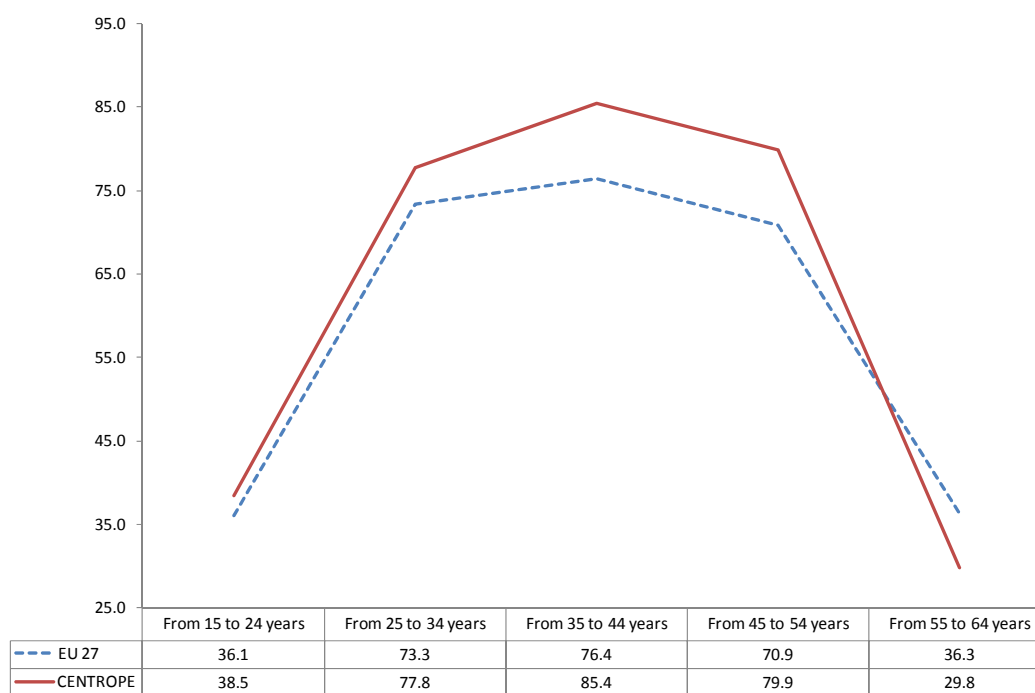
As already stressed in the beginning of this study, even a first glance at the main macro-economic aggregate labour market indicators suggests that CENTROPE is a region with a more favourable labour market situation than the EU 27 in average. The unemployment rate of the region as a whole has been continuously below the EU 27 average in each and every year since the year 2000, with the lead of CENTROPE amounting to 2.2 percentage points in the average of the last decade. Also most of the regions of CENTROPE are privileged in terms of unemployment rates relative to their respective countries. Similar evidence also applies to employment growth and employment rates: Since 2005 employment (i.e. the year after EU-accession of Hungary, Slovakia and the Czech Republic) grew more rapidly (declined by less) than the EU-average in CENTROPE in all years except for 2006 and the cumulative employment growth advantage of CENTROPE over the EU 27 amounted to 1.2 percentage points since 2004. In addition also employment rates are by 4.3 percentage points higher in the CENTROPE aggregate than in the EU-average. Krajasits, Neuteufl and Steiner (2003) also note the high stability of most employment relationships in the region that is due to the predominantly industrial workplaces in many parts of CENTROPE.

One common problem shared by almost all regions of CENTROPE, however, is the low employment rates of the elder (i.e. persons in the age of 55 to 64 years). While employment rates are higher (by between 2 to 9 percentage points) in the CENTROPE average than in the EU 27 average for all age and gender groups, they are consistently lower (by 6.5 percentage points in average) for the elder (55 to 64 year olds). Furthermore this stylized fact applies to all regions of CENTROPE and both genders (although it is more pronounced with females). From a policy perspective this implies that joint cross-border initiatives in the area of active labour market policy and training to increase the employment chances of the elder may be an area for cross-border co-operation.

A second shared problem is the high unemployment rate of the low skilled in particular in the Czech, Hungarian and Slovak parts of CENTROPE. Despite low unemployment rates in aggregate, the unemployment rates of the low skilled in CENTROPE reach to over 15% in some regions and in particular in these parts of CENTROPE. Skill gradients in unemployment rates (the difference between the unemployment rate of the high skilled and low skilled) are substantially higher than in the EU 27 average. This implies that unemployment problems are disproportionately strongly concentrated among low skilled in

CENTROPE. Policies directed at retraining and qualifying the low skilled are therefore of high importance, when it comes to combating unemployment in the region.

**Figure 2.10: Employment rates by age groups in CENTROPE (2010, in %)**



Source: EUROSTAT.

**Table 2.11: Strengths and Weaknesses: Labour Market**

Strengths	Weaknesses
Low unemployment and high employment rates	Low participation rates of the elder
High level of personnel stability	High skill gradients in unemployment and employment rates
	High regional mismatch due to lacking cross border mobility
Opportunities	Threats
Higher mobility could contribute to a reduction in unemployment rates	High long-term unemployment relative to low unemployment in some regions bears risk of de-qualification of the unemployed

Evidence also suggests that both skill and regional mismatch contribute substantially to unemployment in the region. In particular the regional mismatch component to



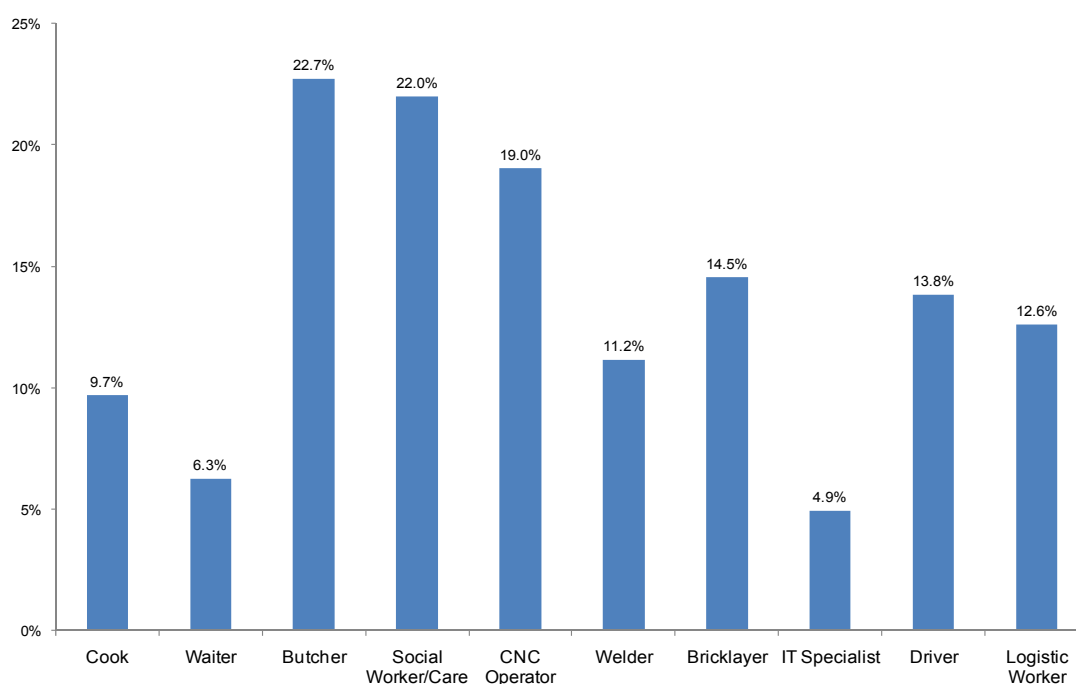
unemployment is a sign of lacking (cross-border) mobility, which could be combated by programs to increase cross-border mobility. In the CENTROPE regional development report project Rozmahel et al (2012) were able to quantify the spatial mismatch component of unemployment for 10 selected occupational groups by using the labour market monitoring tool in CENTROPE.

**Table 2.12: Unemployment rates by education groups CENTROPE and EU 27 (2010, in %)**

	EU 27	CENTROPE Total
<b>Pre-primary, primary and lower secondary education</b>	15.8	15.3
<b>Upper secondary and post-secondary non-tertiary education</b>	9.0	8.0
<b>First and second stage of tertiary education</b>	5.4	3.4

Source: EUROSTAT.

**Figure 2.11: Share of unemployment in selected occupations due to regional mismatch of unemployed and vacancies (in %)**



Source: CENTROPE Office Czech Republic, Labour market monitoring tool. Note table reports averages over quarters for 2010 and 2011.

This analysis showed that there is a relatively high heterogeneity regarding distribution of labour supply and labour demand across CENTROPE and that in the average of the years 2010 and 2011 – depending on the occupation considered – between 5.5% (for IT specialists) and 24.6% (CNC operators) of the unemployment in CENTROPE could be mediated away if workers were perfectly mobile in the region. Although such perfect mobility is clearly an unrealistic assumption, this high and persistent regional mismatch unemployment in CENTROPE within closely defined occupations provides some indication of the costs of barriers mobility and the potential gains that could arise if internal migration and commuting (and thus labour mobility) could be increased in CENTROPE.

Furthermore, the average mismatch rates over the years 2010 and 2011 suggest that this regional mismatch unemployment accounts for more than 20% of unemployment for butchers and social workers and for between 10% to 20% of all unemployment for cooks, welders, bricklayers, drivers and logistics workers. This therefore underlines the importance of increasing cross-border mobility not only for highly skilled workers, but also for persons with intermediate apprentice level qualifications

## **2.8. Service Industries (knowledge intensive services and tourism)**

Finally as shown by Frank et al (2012a) aside from the industrial sectors also the service sector (in particular advanced knowledge intensive business services and tourism) is an important sector for regional development in CENTROPE. With respect to the development of this sector, however, there is an evident split within the CENTROPE, with strongly service oriented urban regions and the less urbanized rest of CENTROPE. The highest level of tertiarisation is reached by the urban regions, Vienna with a share of service industries in employment of more than 85 % and Bratislava region with value of 79.8 %. In contrast to these advanced urban regions, a relatively low share of service sector employment (less than 60 %) applies to Vas and Trnava region, while in all other regions of CENTROPE the service sector contributes between 60% and 70% to total employment.

The capital cities of Vienna and Bratislava region also have the highest shares of employment in advanced technology intensive services like information and communication, financial intermediation and real estate activities and business services. In the case of business services (professional, scientific and technical activities; and administrative and support service activities), there is high variation within CENTROPE.

The shares of employment in business services range from 15.8% in Vienna to 4.4% in Trnava region. In addition a mapping of sector concentration (conducted by Frank et al. 2012a) showed that:

- In South Moravia, there are three high point service branches: accommodation and food service activities, financial and insurance activities and arts, entertainment and recreation and other service activities.
- In service industries Burgenland is strongly specialized on the branches of public utilities. Only public administration and defence; compulsory social security – and to a much lesser degree - accommodation and food services and arts showed a higher concentration in the service industries. Other than that also the construction sector is important in this region.
- In Lower Austria a high concentration is apparent in labour intensive and some non-market services, but in general this region is specialised on manufacturing.
- Vienna as a typical urban region has a high concentration of the service sector. In particular in information and communication, real estate and business services.

**Table 2.13: Strengths and Weaknesses: knowledge intensive services and tourism**

Strengths	Weaknesses
Capital cities provide a location for high level business services	Low share of high level business services outside large cities
Natural preconditions to provide for a variety of tourism types	Lower quality of current tourism offers in some regions
location close to key markets in terms of both levels as well as growth in tourism demand	Heterogeneity in the provision of infrastructure and suprastructure for tourism
	different views on importance of development of various tourism types
Opportunities	Threats
development of cross-border tourism products (joint marketing activities, global brand, information and know-how exchange)	weak willingness of actors in tourism to cooperate
higher competitiveness in the global market	little financial/personal resources for cross-border tourism and service development
Synergy effects from cooperation (economic growth, employment, investment, etc.)	Increased competition from more distant destinations in tourism

- Győr-Moson-Sopron attains a moderate concentration in accommodation and food service activities and arts, entertainment and recreation.
- Vas has a rather diverse sector structure in services so that none of the service sectors attains a high concentration.

- In Bratislava region the financial sector and branches of business services (real estate activities; professional, scientific and technical activities plus administrative and support service activities) are particularly concentrated.

This therefore suggest that co-operation in the development of knowledge intensive business service industries could be an interesting topic for co-operation among the large cities of the region (Bratislava, Brno, Vienna), while in most of the other CENTROPE regions the low level of development of these service industries represents a weakness for cross border co-operation. Here the common issue is therefore how to further develop these services on the territories of these regions.

In the regions outside the capital cities co-operation in tourism therefore seems to be more relevant. As argued by Frank et al (2012a) in the context of the CENTROPE regional development report project this industry is an important economic activity with significant direct, indirect as well as induced impacts in CENTROPE. It has been shown to contribute to employment and economic growth as well as to development and socioeconomic integration in rural and underdeveloped areas.

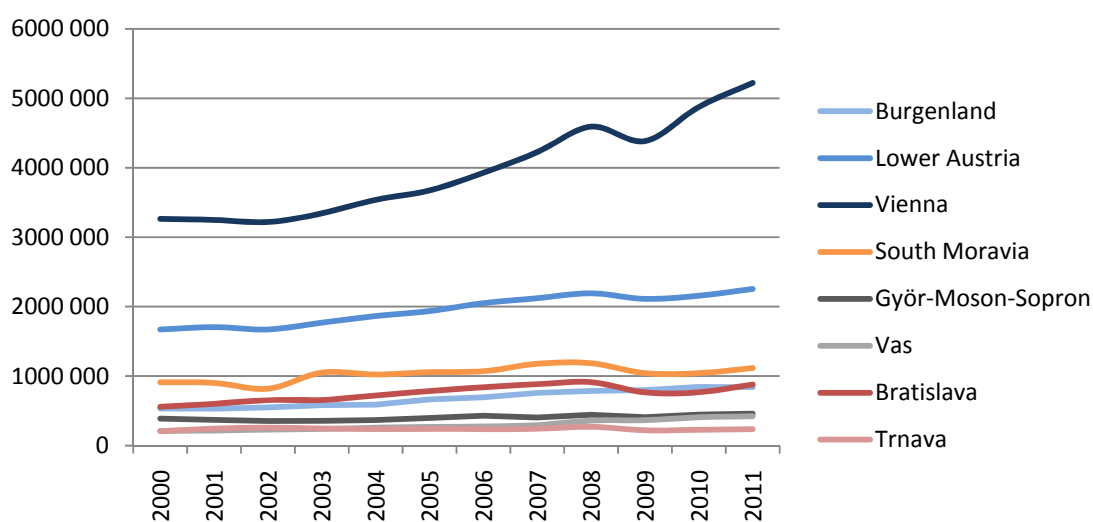
In this industry CENTROPE has a range of attractive places and events to offer for both private and business trips, for short as well as longer stays, for visitors who prefer history, culture, wellness and spa, natural landscapes, sports tourism, gastronomy and wine tourism, entertainment or shopping. Organizing meetings and conferences is typical for both capital cities in CENTROPE (Vienna and Bratislava) as well as for Brno as the second largest city in the Czech Republic. Although tourism plays an important role in all parts of CENTROPE, the data analysis confirms the leading position of Vienna and other Austrian provinces.

Over the last decade the CENTROPE region has recorded a continued increase of accommodation capacities in tourism as measured by the number of establishments, bedrooms and bed places. This was driven mainly by a strong increase in capacities in both capital cities. Intensity of tourism supply calculated as the number of bed places per 1000 inhabitants reached a value of 35 in CENTROPE in 2010 with Burgenland noticeably above the CENTROPE average.

As a result of the global financial crisis, however, arrivals of tourists to CENTROPE and the nights they spent in their destination suffered a strong slowdown in 2009. The number of visitors rose again in the next year, in particular in Vienna. Recovery also continued in

2011, when 11.4 million tourists visited the CENTROPE region, among them more than 4.8 million domestic tourists and almost 6.6 million international visitors. This is approximately by 50 % more than at the beginning of the new millennium. In general the medium-term perspectives of tourism development therefore seem to be intact and unaltered by the economic crisis in CENTROPE.

**Figure 2.12: Development of arrivals in tourist accommodation establishments in CENTROPE**



Source: National statistical offices.

As in all indicators analyzed in the CENTROPE regional development report there are, however, also important quantitative and qualitative differences in tourism development. Vienna has the share of more than 40% in both arrivals and nights spent in the CENTROPE region followed by Lower Austria with more than 20%. In the number of arrivals of domestic tourists in CENTROPE Lower Austria with almost 30% is the leader followed by Vienna (24%), while in the number of arrivals of foreign visitors Vienna recorded almost two-thirds share in 2011. At the same time, non-residents accounted for 80% of total nights spent in Vienna. Furthermore, the capitals of Vienna and Bratislava as well as the city of Brno are the centres of city and meetings, incentives, conferences and events (MICE) tourism in the region, while in Trnava, the Hungarian CENTROPE Burgenland and Lower Austria spa and wellness tourism is an important part of tourism.

This difference also impacts on many of the indicators of tourism in the region such as average duration of stay and others.

Over the last decade –following international tourism trends – also a gradual shortening of average nights spent by visitors can be found in the CENTROPE total. The average duration of stay reached 2.4 days in 2011 compared with 2.9 days in 2000. Tourism intensity calculated as the number of overnight stays in collective tourist accommodation establishments divided by the resident population has been relatively stable in the CENTROPE region since 2000, reaching the level of 4 overnight stay per inhabitant. Only Burgenland, Vienna and Vas exceeded the CENTROPE average in this indicator in 2010. Considering the number of visitors in spas, the most attractive regions of CENTROPE include Vas, Lower Austria and Trnava.

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### 3. Policy Options

#### 3.1. Gains, limits and preconditions for cross-border region development

In general CENTROPE is therefore a cross-border region that has shown substantial growth and high resilience to economic crises, and may be considered one of the most attractive locations for FDI in the EU. Despite a good economic development in aggregate, the region – due to its size - is, however, also marked by large internal functional and economic disparities. From a policy perspective this thus raises the issue of what can be expected from cross-border co-operation in such a region.

From a theoretical perspective Klatt and Hermann (2011) based on a series of case studies of EUREGIOs analyze the principal motivations and impediments to cross-border co-operation in the EU. They state that – aside from the motivation to secure funds from EU-regional policies - the most important motivating factors for such co-operations are the differences between regions that (provided information) allow agents to reap benefits from trade. “Business co-operate if there are new market opportunities. A cross-border labour market becomes interesting for workers, if there are incentives such as higher salaries or better career opportunities...” (Klatt and Hermann, 2011, p 79). A second reason is the wish of certain actors in some border regions to ease their often peripheral situation. Finally, a third motive for co-operation often mentioned is the possibility for joint lobbying vis-a-vis supra-national organizations (such as the EU) through increased bargaining power.

Bufon and Markjelj (2010), by contrast, list the advantages of regional cross-border co-operations. They see these advantages in the role of cross-border co-operation in facilitating contacts, providing information, stimulating exchange of experience, contributing to solving everyday problems at the regional level, enhancing competitiveness and mitigating the effects of a peripheral status, enabling the harmonization of development plans, spatial planning and nature protection, increasing recognisability of border regions and also providing for improved possibilities of vertical co-operation with NGO's and/or firms.

Both these views therefore highlight the role of cross-border co-operation in a) securing information on the activities of and development in other regions b) co-ordinating spatial

policies at the borders of administrative units c) pooling resources and developing own projects in various strands of economic policy to improve competitiveness and d) lobbying for common interests of the participating regions. From a practical point of view this therefore suggests that any cross-border co-operation should focus on issues related to these functions of cross-border co-operation. Furthermore, this also suggests that the focal areas of cross-border co-operation should be areas where barriers to mobility, lack of mutual information and lack of co-ordination among regional actors may be deemed to impact most severely. Such areas could be spatial planning, support of innovation and education and potentially SME and labour market policy, where such policies address the reduction of barriers to mobility (see Lepik, 2009).<sup>2</sup>

### 3.1.1. Limits of cross-border policies

A number of authors (e.g. Perkmann, 2003, Katt and Herrman, 2011 and Lepik, 2009) also dwell on and exemplify the constraints and limits under which most cross-border policy co-operation occurs. Among these contributions according to Perkmann (2003) legal considerations are the most important. In particular since sub-national regions on the one hand are no subjects of international law and on the other hand are also tied in their competences by their respective national constitutions and laws, which provide them only limited competencies, cross-border co-operation among subnational public authorities is severely limited by the fact that such authorities a) cannot make any legally binding agreements under international law and b) often lack legal competencies to influence certain policies due to intra-national legal stipulations. Perkmann (2003) therefore finds that cross-border co-operation between sub-national authorities is most likely to occur and be successful among regions of states, where regional authorities have large autonomy.

Katt and Hermann (2011) again based on a series of case studies state that actors also usually see laws and legal ordinances as the key administrative barriers to co-operation and language barriers as the most important cultural barrier. In addition to this, persons involved in managing cross-border co-operations, however, also often lament a lack of continuity of the agents involved in co-operation while according to most interviews differences in administrative systems – which are also sometimes mentioned - can usually

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<sup>2</sup> In this respect Lepik (2009) argues that the partner structure in cross-border co-operation should follow these topics by including partners from the public sector, the business community and the educational establishments at the local, regional and national level. A structure she refers to as the triple helix co-operation structure.



be overcome as regional authorities become more acquainted to the neighbouring countries' way of running affairs.

Again from a practical perspective this implies that realistically cross-border co-operation is likely to yield the highest returns if it applies to fields of activity which are under control of regional governments or where primarily the information securing and lobbying functions of regional policies are addressed. Thus according to Katt and Herrman (2011) cross-border co-operations (in his case Euroregions) are not primarily policy entrepreneurs but mediators and informants (i.e. they only rarely act as policy makers themselves, but rather inform and co-ordinate activities of policy makers in the respective territories).

Lepik (2009), by contrast, based on interviews among 78 cross-border co-operation agreements finds that the major impediments to success of cross-border co-operation as mentioned by the managers of these co-operations are: insufficient support and trust from national institutions, inability to recruit and train qualified staff, limited organizational capacity, insufficient funding and lack of international co-operation.

Finally, Novy and Coimbra de Souza (2008) in a very critical case study of the CENTROPE and the ABC region in Brazil state that "the main feature [of cross-border co-operation] is the idea of co-operating to eradicate internal borders of local governments in order to create a territory that can better compete internationally" (Novy and Coimbra de Souza 2008 p21), in their conclusions they point to an additional limitation this approach will provide: "But as the regions are mainly built for capital, they fail to build a regional identity..." (Novy and Coimbra de Souza 2008 p22). Thus at least as long as the focus on economic integration is retained, cross-border co-operation activities are unlikely to contribute to cross-border identity building.<sup>3</sup> This therefore suggests that cross-border co-operation activities should stress their mediator and information functions, need to consciously build support of regional authorities and include a fair amount of bottom-up grass root projects oriented to day to day problems of citizens in order to also contribute to regional identity building.

Aside from this there is also some literature that analyses the determinants of success of cross-border co-operations. In this Perkmann (2007) in a comparative case study argues that the most successful cross-border co-operations, are those that have a) managed to

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<sup>3</sup> See also Coimbra Swiatek (2011) for an empirical analysis of the governance issues involved in the construction of CENTROPE and the various contradictions and challenges arising from this construction.

establish permanent or at least long run structures rather than being solely based on projects b) secured diverse sources of funding (i.e. are not solely dependent on EU funds) c) have established themselves as important players within the overall context of cross-border policy.

### **3.2. Key priorities and possible activities**

Based on this short review of the literature as well as the specific conditions of CENTROPE discussed in the last chapter we would therefore argue that strategies for the future development of CENTROPE should involve first of all both elements that are explicitly devoted to organizational development of cross-border policy institutions as well as a number of topical priorities which - aside from focusing on increasing competitiveness – should also be strongly oriented around removing barriers to mobility, providing information and solving day to day problems of people working in the regions. In particular the future development of CENTROPE could be focused on four topical themes, summarized under the following headings:

1. Establishing and improving the institutional preconditions for cross-border policy making and cross-border spatial planning – This area should be explicitly devoted to consciously developing the CENTROPE institutional structure into a permanent organization that has access to own financial resources outside EU funds as well as providing and developing the necessary infrastructure for effective and efficient cross-border spatial planning and policy and to building a regional identity.
2. Developing CENTROPE into a deeply integrated knowledge region – Under this heading aside from the support for research and development activities, the central aim should be to make CENTROPE a deeply integrated, open region in which there are no barriers to student, researcher and labour mobility and which is embedded in the global knowledge economy through a continuous process of brain exchange rather than of brain drain.
3. Integrating cross border labour markets – This priority could be directly geared to solving the everyday problems of persons working in the region. In particular it could focus on removing barriers to mobility and information deficits for persons willing to work in other countries of the region, helping cross-border commuters and on exchanging experiences in active and passive labour market policies. The central objective would be to ensure friction free and fair cross-border labour market mobility.

4. Securing international competitiveness of the CENTROPE region as a whole – Here the focus should on the one hand – due to the specifics of the region - be on securing and developing the regions' position as a location for FDI, since as has been shown in the CENTROPE regional development report project FDIs are of major importance for the CENTROPE region. On the other hand a central focus could, however, be also placed on the support of cross-border SME networks, because a large literature documents the special problems SMEs have in internalization of their activities and in cross-border network establishment; the development of co-operations in tourism, since this a classical field of cross-border co-operation, and the strengthening of the export base in knowledge intensive and tradable services, since most CENTROPE countries have only low exports of such services.

Importantly under all of these headings – to secure a high interest in the participating regions - the primary objective should be on augmenting and strengthening national strategies through utilizing synergies that can be realized through cross-border co-operation. The primary instruments used to achieve these goals would probably have to be the provision of information and mediation of the regional actors, although in some selected areas – provided financial resources – also own instruments could be developed.

### **3.2.1. Development of the institutional preconditions for cross-border policy making and cross-border spatial planning**

#### **Revising existing strategies and visions guiding cross-border spatial planning and cross-border policy**

Thus for instance under the first priority an important task would be to evaluate whether the existing strategic planning document “CENTROPE – Vision 2015” still reflects the current strategic objectives of the individual regions participating in the CENTROPE project and to update this strategy wherever necessary. A central task in this endeavour would be to identify how this vision relates to existing policy initiatives in individual regions and how a strategy for the CENTROPE region can contribute to the individual aims of the partner regions.

In this respect for instance the various stock taking parts of the individual focus reports provided in the CENTROPE regional development report, which took stock of existing national strategies and policies in individual CENTROPE countries and regions showed a surprising coherence in the overall policy objectives in almost all policy fields. At the same

time, however, they also document the bewildering heterogeneity with respect to the institutional set-up in which the policies are conducted in individual countries and the large heterogeneity in the instruments used and funds devoted to them. These results of the CENTROPE regional development report project could therefore be used to identify a) the common policy objectives b) the potential contributions of cross-border policy to these objectives and c) the feasible set of instruments that could be used in an updated version of a basic strategic development document in CENTROPE which could then focus on a longer time horizon (i.e. 2020 or 2025). Ideally also such a document would be broadly discussed in the participating regions as well as legitimised by some form of democratic decision taking of regional authorities to secure a maximum commitment of policy makers to such a vision.

#### **Building a more permanent organisational framework, co-ordinated with other cross-border initiatives and with own financial resources**

Aside from updating the current version of the CENTROPE vision a perhaps even more pressing need is to move the current CENTROPE co-operation, which is based on a succession of projects, to a more permanent and lasting level of co-operation. In a number of interviews conducted with cross-border policy makers in the CENTROPE regional development report project, the stake-holders lamented the “stop-and-go” or “two-steps-forth-one-step-back” nature of cross-border policy development that has been made necessary by the succession of projects through which CENTROPE has been developed so far. According to some partners this has led to a situation that once developed partnership structures in one project tend to disintegrate with the project end and have to re-established at high costs (often with other partners) once the follow up project starts. The result of this is lacking continuity in relationships, strategies and policies and also a duplication of results.

One possible solution would be to create a more stable structure for the CENTROPE region in the form of a central co-ordination institution. This could be modelled after the secretariats or councils that have been created in many other cross-border regions (e.g. the Öresund committee or the secretariats in most Euregios). Furthermore - also following the examples of some of the most advanced cross-border regions – this institution could be financed (e.g. through regular contributions of the member regions) and controlled by the partner regions and could be responsible for a) implementing the shared vision b) co-ordinating various strands of cross-border policy, c) generating individual projects financed

through EU or other sources and d) mediating between various policy actors through individual workgroups (see Perkmann, 2005 and 2007 for a description of cross-border policy institutions in other cross-border regions) and thus could supervise and co-ordinate all activities suggested below.

Clearly for such a structure to become operative also a definition of the CENTROPE relative to other cross-border institutions operating on the CENTROPE's territory (such as the various Euregios - EuRegio West/Nyugat Pannonia, Euregio Silva Norticaor, Euregio Waldviertel, Euregio Dunaj Vltava, – existing in the region) would be necessary. Ideally such an organisation could then operate with a planning horizon of a decade or more (rather than just a few years as currently) and would be well-embedded in the networks of cross-border policy actors in the region.

#### **Improving the institutional situation for cross-border spatial planning**

Clearly the process of developing such an institution is challenging and may not be feasible immediately. Yet, irrespective of its creation, increased and more permanent institutions are of primary importance in particular in the field of spatial planning since, as repeatedly highlighted in the CENTROPE regional development report project, the process of convergence is likely to change the spatial configuration of the region which in conjunction with the high population density in many parts of the region, its rapid economic growth as well as the many natural sites of high environmental value, is bound to give rise to conflicting interests with respect to land use patterns.

Initiatives to encourage and co-ordinate transparent and open processes of cross-border spatial planning are therefore of high importance in the future in CENTROPE. In this respect establishing a permanent working group or consultation mechanisms in order to improve the current situation with respect to spatial planning could provide for an alternative to an own secretariat. This institution could on the one hand serve the goal of mutual information of partners with respect to spatial planning initiatives. It could, however, also serve as a location where joint interests of partner regions (e.g. for infrastructure development or EU initiatives such as the TEN-initiative) could be formulated.

### Improve tools to monitor cross-border economic development as a basis for evidence based policy making

Irrespective of its' concrete form, such an institution would, however, also have to face the serious data constraints existing in cross-border policy formulation and evaluation. The lack of reliable and comparable data at a regional and even more so at a local level is currently one of the most severe impediments to any attempt at implementing and evaluating cross-border policy. Currently, data availability from (comparable) Eurostat sources is restricted to rather aggregate indicators that often lack the (sector and regional) detail necessary for spatial planning processes, and certain indicators (e.g. land use patterns, housing and land prices, etc.) are available only for very few regions and even when available suffer from a lack of comparability. Thus any initiative at creating cross-border spatial planning institutions or mechanisms should go hand in hand with data development initiatives.

**Table 3.1: Potential activities of CENTROPE in the fields of spatial planning and identity building**

Function	Objective	Examples of concrete policies
<b>Co-ordination &amp; Mediation</b>	Update current vision for CENTROPE Development	- Create Vision 2025
	Create permanent institution to govern CENTROPE projects	- Establishment of permanent working group on cross-border spatial planning
<b>Information</b>	Provide information on cross-border spatial planning activities	- Regular work groups
	Improve cross-border monitoring tools	- Further develop existing labour market monitoring tools Develop similar tools in other areas - Commission studies - Continue and expand existing co-operations as in CENTROPE Map project
	Provide information of cultural or tourist events in CENTROPE	- Use existing infrastructure (such as CENTROPE homepage or Newsletter)
<b>Lobbying</b>	Develop joint positions with respect to important European infrastructure projects	- Create position and arguments with respect to TEN networks
	Lobby for more rapid realization of infrastructure development plans	- Create joint position vis-à-vis national governments
<b>Pooling resources &amp; creating own projects</b>	Create visibility of CENTROPE and increase awareness for cross-border nature of the region at cultural events of regional or local importance	- Create instrument to co-sponsor such events - Create a "small cultural project fund"

Designing data sources that are both recent and comparable enough to be useful for operative decisions therefore remains to be a major challenge in CENTROPE. Initiatives that are currently attempting to design such data (such as for instance the labour market monitoring tool used in the current project, or the CENTROPE map project), however, show that such data tools can in principle be developed. Such initiatives should therefore be continued and expanded (ideally with the participation of competent partners such as the Statistical Offices or the public employment service organizations) both within the already existing fields as well as in new fields of policy making. The objective here should be that CENTROPE in 5 years will be in a situation where all policies undertaken can be evaluated at the hands of reliable and comparable data at an appropriate level of disaggregation.

#### **Set concrete actions in infrastructure development**

Aside from these internal organization development priorities, CENTROPE should, however, also deliver concrete results to the population at large as well as to regional policy makers. In this respect based on the case study literature on other cross-border co-operations, we would argue that the natural starting points for such topical themes in cross-border co-operation are those where barriers to cross-border mobility can be removed or where cross-border information and co-ordination is particularly relevant or where day to day problems arising from cross-border mobility can be alleviated through a cross-border approach.

One of the more operative tasks of a permanent working group or a consultation mechanism on spatial planning could therefore be in infrastructure development. As outlined by the CENTROPE infrastructure needs assessment tool (INAT, 2011) this institution could

1. Secure information of regional actors on infrastructure development plans in individual regions.
2. Provide information on transport infrastructure in the region for the general public.
3. Co-ordinate and prepare the establishment of a CENTROPE transport association.
4. Develop a shared position of the CENTROPE regions with respect to and lobby for the development of TEN networks vis a vis the EU and the more rapid completion

of existing infrastructure development projects vis a vis the various national governments.

### **Building a cross-border identity**

Finally, hand in hand with institutional development, CENTROPE actors should also invest more resources to build public support for cross-border policies and a regional identity. This in our opinion is also of economic importance since on many occasions actors in the region refer to “borders-in-our-head” (i.e. various - actual or perceived – differences in culture between different regions) as a major impediment to cross-border co-operation. So that – even leaving the more idealistic goal of region building aside – according to these experts lacking regional identity is also preventing mutually beneficial exchange and thus has concrete economic costs.

Although clearly issues of identity building are currently not at the heart the CENTROPE project, probably a cost effective and efficient way to at least partly contribute to the goal of creating a cross-border identity is to use existing regional and local events (e.g. exhibitions, conferences and festivals) to build awareness for the cross-border nature of the region. For instance on such events information on the CENTROPE could be provided or contributions from other countries of the region could be sponsored. Alternatively also a small project fund for cross-border events could be created. Irrespective of the concrete form of realisation the objective of these activities would be to highlight the cross-border nature of the regions to the population at large in all aspects of daily life.

### **3.2.2. Developing CENTROPE into a deeply integrated knowledge region**

Next to establishing a more permanent and a broader spectrum for co-operation, CENTROPE should, however, continue to focus on co-ordinating cross-border policies of economic content in a number of particularly relevant policy fields. As argued above these should focus on topics where barriers to cross-border mobility can be removed or where cross-border information and co-ordination is particularly relevant or where day to day problems arising from cross-border mobility can be alleviated through a cross-border approach.

### **Developing co-operation activities among universities**

From this perspective, measures to foster the knowledge economy - aside from being an important determinant of future comparative advantages in this region - could be an



important element of a broader cross-border development strategy. CENTROPE disposes of some important preconditions to be a strong pole of knowledge economy development in Central Europe. The capital cities of Vienna and Bratislava and also Brno are large university cities and important hubs of knowledge and research. With a total of 58 institutions providing tertiary education CENTROPE and a total of almost 423.000 students in tertiary education, the CENTROPE hosts 2.2% of the student population residing in the EU 27, although its share of the overall population is only 1.6%. Thus the many students and universities of the region represent a valuable but still underutilized resource for regional development. In this respect cross-border initiatives to foster co-operation among universities and research institutions, remove barriers to researcher mobility and increase student mobility as well as increasing the involvement of regional authorities and key businesses in university development could be an important element of future activities for cross-border policies in particular for the large university cities in the region.

**Table 3.2: Potential activities of CENTROPE in developing the cross-border university system**

Function	Objective	Examples of concrete policies
<b>Co-ordination &amp; Mediation</b>	Initiate development of modular cross-border curricula for university degrees	- virtual CENTROPE university
	Contribute to Co-ordination of financial resources for national student mobility grants	- CENTROPE working group on cross-border student and researcher mobility
	Contribute to co-ordinating research grants among CENTROPE regions and countries	- CENTROPE working group on cross-border research policy
	Co-ordinate consultancy services for research projects	- Create a set of CENTROPE contact points for European research programs (using existing national contact points)
<b>Information</b>	Provide information for students in CENTROPE	- Compile regular CENTROPE student guide
	Provide information for researchers in CENTROPE	- Compile guide of top research locations in CENTROPE
	Increase attractiveness of CENTROPE for students from abroad	- Information on English language study programs in CENTROPE
<b>Lobbying</b>	Lobby for European funding of research where CENTROPE has comparative advantage	- e.g. in ICT, health, environment, transport related research as well as in social sciences and humanities
<b>Pooling resources &amp; creating own projects</b>	Provide incentives for researcher mobility	- Organize CENTROPE lectures by internationally reputed scientists
	Increase visibility of CENTROPE as research location	- Generate workshop, seminar or conference series on topics of relevance for CENTROPE
	Support integration of CENTROPE researchers	- Generate own funds for research projects conducted by CENTROPE partnerships

In this respect for instance CENTROPE could aim at:

1. Increasing student mobility within the region – by providing information (e.g. through an internet home page or an annual publication) for students on available places of education in CENTROPE and sources of financial support for study stays abroad in the CENTROPE, by organizing joint education trade and job fairs, joint workshop series and conferences, organising student competitions or by providing own financial resources or co-ordinating financial resources of regional governments for student mobility (such as scholarships and research fellowships for student mobility).
2. Co-ordinating national and regional policies aiming to increase the attractiveness of CENTROPE universities for students and researchers from abroad - which according to our results could imply a pooling of resources to create critical masses, securing the mutual recognition of degrees among CENTROPE universities and lobbying for increasing the share of English language courses taught at universities.
3. Providing incentives for researcher mobility – through for instance mobility grants or special CENTROPE professorships through which foreign professors with international repute could be asked to teach a course at different universities in CENTROPE (e.g. in Brno, Bratislava and Vienna) within a short time period.
4. Supporting the integration of CENTROPE researchers into international research networks, and coordinating cross-border provision of consultancy for EU research projects - here aside of the usual tools for finding research partners provided by many national agencies, one additional service developed in CENTROPE could for instance be that the research support institutions (such as the various contact points for the 7<sup>th</sup> framework program, which are usually located in national capitals) of one country also provide consultancy services to researchers from other CENTROPE countries, thereby improving the accessibility of such services for researchers in the CENTROPE
5. Developing own measures for improving the visibility of CENTROPE as a research area – through the organization or financial support of workshops and conferences devoted to issues of relevance for the CENTROPE region, or by providing additional research grants for cross-border basic research for teams of researchers originating in CENTROPE.
6. Co-ordinating the development joint curricula in certain fields – while other cross-border regions such as the Öresund region (through the Ösresund University) have

founded universities of their own (see Lundqvist and Trippl, 2010), the high density of universities in CENTROPE would suggest that some fields of study could be organized in the form of cross-border study programs in CENTROPE. Here one idea could be to create a virtual “CENTROPE University” which combines educational offers from different universities of CENTROPE to new degrees. The idea would be that for instance students in one region could obtain certain degrees by combining educational offers at the university in their home region, with others provided only in other regions. This measure would thus also contribute to making higher education more accessible to the citizens of CENTROPE.<sup>4</sup>

7. Lobbying for basic research funds for cross-border basic research at the European and national level – here lobbying could in particular focus on areas in the social sciences and humanities that are particularly relevant for cross-border policy as well as on areas of other sciences in which CENTROPE has a comparative advantage (which according to existing studies are in ICT, health, environment, transport related research as well as in social sciences and humanities.)

### **Improving research and innovation capacities in the enterprise sphere**

The available evidence also suggests that – aside from little co-operation among universities - CENTROPE is also far from a coherent and integrated cross-border innovation system in more applied research. Much rather the emergence of such a system is in its infancy. At the same time the R&D and innovation sectors – as often documented in the literature - are also sectors where information on potential partners and co-operations is notoriously scarce and where there are also many impediments to mobility. Thus co-ordination of R&D policies and information on the potentials for R&D co-operations are standard fields, where cross border co-operation can contribute to increased competitiveness of cross-border regions.

In addition R&D and innovation activities are also very resource intensive and often require specialised research infrastructure. From a policy perspective, this implies that R&D and innovation policies could profit substantially from the pooling of such specialised infrastructure where this is available. Cross-border co-operation in the R&D field therefore

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<sup>4</sup> Similar attempts could be made in the field of adult education (or life-long learning) given that a number of tertiary education institutions in CENTROPE (such as the universities of applied sciences in Austria) have acquired substantial expertise in this field in recent years (see below).

is likely to be most beneficial to the individual regions if strongly focuses on the potential to increase the regional resource base through resource pooling and also puts a strong emphasis on reducing barriers to mobility in the region. At the same time, however, the rather differentiated starting conditions of individual regions in the field of R&D suggests that such policies may also require a slightly different focus on individual sub-systems of the innovation system, in individual regions. Thus for instance in the more industrial regions outside capital cities applied research may be the most important area of co-operation, while in the large university cities also a strong focus should be put on basic research.

### Co-ordination of cluster policies

One area in which the nuclei of co-operation could develop may be cluster policies. Each of the CENTROPE-regions has a number of clusters operating in the region and the CENTROPE regional development report project has identified nearly 50 such clusters on the territory of CENTROPE, which are often focused on rather similar industries and follow comparable objectives. Increasing cross-border co-operation among clusters, however, is not without challenge. Here in particular experiences in Austria have shown that even integrating clusters of different regions within one country can be a time consuming endeavour, given their differences in organisational structure and objectives. It is to be expected that in a cross-border context such co-operation is likely to be even more challenging.

Despite the challenges, however, a number of attempts at building cross-border clusters or at least co-operations among clusters (e.g. CITT) in CENTROPE and quite a few EU-wide projects for experience exchange among clusters exist (see Isogna, Wilhelm and Borek, 2010 for an overview). Furthermore Skalman and Zingmark (2010) and the European Cluster Initiative (2009) provide case study findings on a series of cross-border clustering initiatives.<sup>5</sup> They suggest that while such initiatives often focus on exchange of experience only, the cross-border clusters that were considered to be most successful by participants were those where a) joint initiatives for marketing in new markets were developed b) new contacts (in particular between universities and enterprises) were established and c) cluster managers learnt new techniques and strategies.

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<sup>5</sup> Among these contributions in particular Skalman and Zingmark (2010) provide valuable insights with respect to the factors that contribute or inhibit success of such cross-border clusters.

This would imply that CENTROPE actors could support such cross-border clustering activities by:

1. Providing information on potential co-operation partners in the region – Here CENTROPE initiatives could consist providing for possibilities of establishing first contacts among cluster managers (e.g. through industry specific conferences and workshops), and developing and providing tools for initiating cross-border cluster co-operation.

**Table 3.3: Potential activities of CENTROPE in developing cross-border clusters and enterprise research**

Function	Objective	Examples of concrete policies
<b>Cluster Support</b>		
<b>Co-ordination &amp; Mediation</b>	Contribute to co-ordination of national cluster support programs	- CENTROPE cluster observatory - Guide on regional cluster support policies
<b>Information</b>	Providing information on clusters and potential partners for cluster enterprises in CENTROPE	- Organize partner workshops - Provide studies on individual clusters
<b>Lobbying</b>	Lobby for support of cross-border cluster support programs at national and EU level	
<b>Pooling resources &amp; creating own projects</b>	Creating Infrastructure for cross-border cluster co-operation	- Commission studies on topics typically affine to cross-border cluster creation (e.g. market research) for individual clusters
	Establishment of human resource base for clusters	- Organize cross-border best practice exchanges - Organize training for cluster management (CENTROPE cluster management academy)
<b>Enterprise research</b>		
<b>Co-ordination &amp; Mediation</b>	Co-ordination and consultancy in developing innovation policy governance	- exchange of best practices - benchmarking
	Increasing sustainability of existing co-operations	- provide list of established co-operation
<b>Information</b>	Building awareness for cross-border co-operation	- providing journal, newsletters, internet fora, participation in fares, organizing own events - building an own research database
<b>Pooling resources &amp; creating own projects</b>	Providing financial incentives for cross-border R&D co-operation	- Continue existing cross-border research voucher scheme - Provide financial funds for preparation of EU projects

2. Create infrastructure for cluster co-operation - by for instance conducting cross-border studies devoted to market research and legislation for individual cross-border cluster initiatives and initiating and developing of individual (topically focused) co-operation projects for individual clusters. In addition also CENTROPE actors could initiate

research on institutional preconditions for cross-border cluster co-operation on the request of individual clusters.

3. Informing about and co-ordination of national and regional cluster support programs – In addition also CENTROPE actors could use their information function for providing information on cluster support programs available in individual CENTROPE regions. This could be achieved by compiling a guide to cluster support subsidies available in individual CENTROPE regions or alternatively by creating a CENTROPE cross-border cluster observatory, in which recent developments in the CENTROPE clusters are analyzed and reported on.
4. Contributing to establishment of a human resource base for clusters – by on the one hand providing opportunities for experience exchange and training of cluster managers, facilitators and policy makers (e.g. through organising a CENTROPE cluster management academy) and on the other hand facilitating for cross-border exchange of human resources (for instance by organising internships and summer jobs for students of one CENTROPE country in firms in a cluster of another country.)

#### **Increasing collaborative enterprise research**

A further potential starting point for cross-border initiatives in the R&D and innovation field could also be cross-border innovation and patenting networks. Here in particular the limited co-operation among of the Austrian and Czech, Hungarian and Slovak CENTROPE-regions is rather surprising, also since this lack of internal co-operation is accompanied by a relatively strong cooperation with international and EU partners. – Depending on the form of co-operation and region considered between 10% and 20% of all co-operation partners for patenting network coming from other EU-regions.

Thus one aim of CENTROPE co-operation strategies could be to increase not only the numbers of inventors in the region but also the number of patent applicants through a pooling of resources achieved by increasing co-operation in the region. This strategy could be also of interest for the regions outside the large university centres among the EU. Furthermore the results of the CENTROPE regional development report and of the related literature on R&D networks in the region suggest that such a strategy may be of particular interest in the fields of ICT, health, environment, transport related research as well as in social sciences and humanities where the CENTROPE as an aggregate has a comparative advantage in patenting activities in a European comparison already.

The following instruments could be used for this objective:

- Financial incentives – Although funds earmarked for cross-border R&D and innovation co-operation are unlikely to become very large in the near future, given that national governments are mostly interested in financing their respective national innovation systems, existing initiatives (such as for instance the cross-border research voucher scheme developed and implemented in the CENTROPE-project<sup>6</sup>) could be continued and a higher leverage for such activities could be achieved through financing the preparation of larger cross-border projects in the large EU – programs (such as the 7<sup>th</sup> framework program).
- Awareness building and information generation – In this field a large number of activities can be conceived. Thus for instance Kavas (2008) and Hartmann (2008) list the provision of journals, newsletters, internet fora, the participation in fairs, the organization of own events and study visits as well as attempts at building own research databases as the activities that have been followed in other cross-border projects but also in parts of CENTROPE.
- Co-ordination and consultancy in developing innovation policy governance – Furthermore CENTROPE actors could also help in developing innovation policy governance by organizing the exchange of best practice and/or – given sufficient advances in data development activities - benchmarking individual regions relative to the EU27 averages.
- Increasing the sustainability of existing cross-border R&D co-operations – Finally, as pointed out by ÖAR and CONVELOP (2010) also increasing the sustainability and prolongation of existing cross-border R&D and innovation co-operations should be a focus of economic policy. In this respect CENTROPE could be useful in generating information about such successful co-operations and thus providing information as to which actors could be addressed by such policies.

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<sup>6</sup> Under this scheme firms that want to develop applied research projects for innovation can receive a subsidized voucher for conducting this research in collaboration with a university located in another CENTROPE country of the region.

### **Co-operation in areas of education outside tertiary education**

Furthermore, also the mobility of students at all levels of education should be continued to be supported. While here similar instruments as those for the tertiary level education can be used, requirements may differ in particular when vocational and apprentice schools are considered. Focusing on pupils, who do not want to continue studying at universities education of other languages than English – particularly of neighbouring countries – should not be neglected. Here CENTROPE actors could be helpful in providing ideas for bilingual cross-border curricula in which for example also certain topics of the common territory (e.g. the common history) could be explored. Apart from this support for cross-border excursions and educational trips, cross-border scholarships financially supported by regional and municipality authorities can be used to make such activities more attractive.

In addition, the low rates of participation in life-long learning in many of the regions of CENTROPE suggest that also co-operation of providers of training (such as schools and adult training institutions, that are often organised in the form of non-profit organisations or are supported by public funds in the region), could be a focus in cross-border policy. Here the experiences made by the set of learning region strategies developed and implemented in the framework of the Austrian program for rural development could be used to design similar, more local activities in a cross-border context. The results of this program in general suggest that a better co-ordination of the providers of education in a region (schools, adult education institutions), in fields such as the co-ordination of opening and training times, joint awareness building measures, provide low cost possibilities to increase the uptake of training measures by the population.

Finally, given that a number of tertiary education institutions such as the Austrian Universities of Applied Sciences have acquired substantial expertise in adult education in recent years. In parallel to establishing a virtual “CENTROPE University” also a virtual CENTROPE adult education university could be established which similar to the university combines educational offers from different CENTROPE universities to new degrees and thus contributes to making adult education more accessible to the citizens of CENTROPE.



**Table 3.4: Potential activities of CENTROPE in supporting co-operation in other areas of the education system**

Function	Objective	Examples of concrete policies
<b>Co-ordination &amp; Mediation</b>	Improve mutual recognition of degrees in CENTROPE	- Create a joint education validation centre
	Contribute to Co-ordination of financial resources for national student mobility grants	- create working groups on the topic
	Initiate development of modular cross-border curricula for university degrees	- virtual CENTROPE adult education university
<b>Information</b>	Provide information for pupils in CENTROPE	Compile regular CENTROPE school guide
	Provide information on school partnerships in CENTROPE	- Establish a school partnership tool
<b>Pooling resources &amp; creating own projects</b>	Co-ordinate and initiate a series of cross-border learning region programs (at a micro-region level)	- initiate local cross-border learning region program

### 3.2.3. Integrating regional labour markets

The central part of labour market policies to which cross-border labour market co-operation can contribute, by contrast, is to increase cross-border labour mobility. Here CENTROPE is faced with three closely related policy challenges: The first of these is to increase internal mobility. Aside from institutional restrictions on cross-border labour mobility on the Austrian labour market, which have hampered cross-border labour mobility in the past, evidence suggests that cross-border worker mobility is also hampered by difficulties of mutual skill recognition (due to different educational systems), risks of over-qualified employment and difficulties in gaining information and that lacking mobility contributes substantially to mismatch unemployment.

#### **Strengthen existing initiatives to ease cross-border labour mobility and improve cross-border placement activities**

This suggests that, as a first policy measure, existing initiatives aimed at improving the comparability and cross-border transferability of qualifications, improving language training as well as providing information on labour market possibilities for workers should be strengthened, with the aim of making the CENTROPE as a whole an integrated labour market.

One aspect in this endeavour is to strengthen the role and credibility of public employment services (PES) in cross-border labour market placements, since only a small number of

persons wishing to look for work abroad consider using the services of the PES when searching for an employer across borders. Current systems of cross-border labour placement such as EURES are often criticised for being rather slow and excessively bureaucratic by those looking for work in other countries. This suggests that more flexible and less bureaucratic forms of cross-border placement through co-operation of regional public employment services (such as in the EURES Pannonia project –see Csizmandia et al., 2008) should be considered.

**Table 3.5: Potential activities of CENTROPE in cross-border labour market policy**

Function	Objective	Examples of concrete policies
<b>Co-ordination &amp; Mediation</b>	Provide support for co-ordinating cross-border placement activities	- Organize workshops and initiate individual projects - develop cross-border employment pacts
	Improve mutual recognition of degrees in CENTROPE	- Create a joint education validation centre
	Provide support for best practice exchanges in active labour market policy (focusing on target groups of elderly, less educated, long-term unemployed) and services to enterprises	- Organize workshops - Provide best practice guides - Organize exchange of experts
<b>Information</b>	Co-ordinate services provided for migrants	- Organize exchange of experience among welcome centres etc.
	Provide Information on working conditions in CENTROPE regions	- Through information brochure and training initiatives among PES case officers
	Initiate projects to consult and support cross-border workers	- Through projects like the IGR at the Austrian – Hungarian border
	Provide information on qualifications provided in vocational training in different countries	- Through brochures and projects - CENTROPE agency on recognition of vocational skills
	Use emigrants as resources for integrating CENTROPE into international networks	- CENTROPE ex-patriots network - Inform potential returnees of labour market conditions
	Inform potential (high-skilled) migrants to the region	- provide list of English language schools & services for migrants in region
	<b>Pooling resources &amp; creating own projects</b>	Initiate selected projects for target groups of common interest
Develop joint supplementary training programs		- For example cross-border training on demand measures by active labour market policy in case of FDIs

Furthermore anecdotal evidence and a number of interviews that we have conducted in the course of the current project with regional PES organisations suggest that such cross-border placement activities are currently hampered by a long list of practical problems:

Very often methods of data exchange and administrative procedures still have to be devised before a more intensive co-operation in placement activities can be achieved. Therefore CENTROPE actors should actively continue to improve and develop tools that can be used for cross-border placement activities.

In addition also some problems arise on account of subtle differences in education systems, which lead to some uncertainty, as to whether a particular person is qualified for a position in another country. This applies in particular to vocational education, where it is not always clear whether persons with the same formal education also have received similar contents of training. Aar berg (2007) suggests that joint validation centres for vocational education or skills could help in overcoming problems in mutual skills recognition and joint training activities for case officers at the public employment services (PES), could help in easing cross-border placement.

Among the top priorities in this field providing information on the qualification associated with different vocational degrees and degrees in intermediary education levels in the individual countries and the co-ordination of placement services should feature prominently. However, also areas such as services provided to enterprises by PES organizations could be explored for their potential in cross-border co-operation. The goal here should be to have a system of mutually accepted vocational occupations and an integrated labour market management system in place within a three year time period

### **Encourage and establish systems of temporary and circular migration**

Policy could, however, also focus on establishing and strengthening existing channels for circular and temporary migration outside the PES system, with the aim of changing the current patterns of uni-directional labour mobility that often result in brain drain to patterns that resemble more bilateral relationships based on brain exchange. In this respect, CENTROPE actors could attempt to address issues reported as impediments or motivations for mobility. Interview results of the CENTROPE regional development report project suggest that aside from lacking language knowledge, which can be influenced by education policy, the most important impediments to migration are caused by non-pecuniary costs of emigration (such as the fear to lose contact to friends and family) or are often due to factors deeply rooted in the mentality and attitudes of people (such as the feeling of being at home at the current place of residence) and that the motives for migration (aside from pecuniary motives) are also strongly influenced by the desire to gain

novel experiences. This suggests that the willingness to migrate or commute can primarily be influenced by building a regional identity (see above).

The CENTROPE regional development report project, however, also established that those willing to move say that the advantage of mobility within CENTROPE is that it does not involve large distances (and thus reduces the risk of e.g. losing friends and family), while the disadvantage is often seen in the few opportunities to learn in the region. One central instrument to achieve increased internal mobility could therefore be to focus strongly on increasing the human capital content of migration, for example by providing or coordinating cross-border apprenticeship programs or internships (see EBCIL, 2011 for a best practice catalogue of cross-border internships and Aarberg (2007) for similar suggestions for the Öresund region).

Furthermore, CENTROPE actors could also act to encourage projects that aim to consult cross-border workers on their rights and duties in the receiving countries as is currently done in the IGR project at the Austrian – Hungarian border.

#### **Improve competitiveness of CENTROPE in the international competition for talent**

A further policy challenge is to increase the competitiveness of CENTROPE in the worldwide competition for talent. In this respect a much larger spectrum of policy measures than just those in the hands of regional policy have to be addressed, to achieve fundamental improvements, since a substantial part of the migration decisions and choice of country of residence of highly skilled migrants is shaped by a number of rather heterogeneous factors that are mainly in the hands of national policy.

Nonetheless, regional policy can contribute to increasing the attractiveness of a region for the highly skilled by a) improving the above conditions for high skilled mobility wherever possible and b) co-ordinating services geared towards the needs of migrants and reducing costs of integration (such as for instance welcoming centres that provide help with bureaucratic procedures, finding schools for children, workplaces for spouses and other issues often relevant for the migration decision of highly skilled).

Furthermore, results from the migration literature also suggest that small labour markets are less attractive for highly skilled migrants than large ones so that policy measures that aim at increasing cross-border labour mobility within CENTROPE (and thereby enlarge the current national labour markets) in particular when they are geared towards the needs of

the highly skilled are complementary to the goal of increasing the attractiveness of CENTROPE as a place for immigration of highly skilled.

#### **Increase effort to avoid brain drain from the region and resource expatriates**

Closely related to this aim a further challenge is to avoid brain drain from CENTROPE to other regions. This is obviously closely related to the aim of increasing competitiveness of CENTROPE in the worldwide competition for talent, since any policy that increases the attractiveness of a region for highly skilled immigrants is also likely to reduce the incentives for highly skilled to emigrate. Since the success of the return option for migrants depends on whether migrants have acquired skills abroad that are in demand and can be adopted back home, a number of further policy aspects could be considered here. In particular a number of regions and countries have recently organised special initiatives for high-skilled returnees which provide them with consultancy on job offers back home and (similar to welcome services) services to help with integrating family and children into the home economy.

In addition, given the substantial emigration of highly skilled also the option of resourcing expatriates that are unwilling to return, by for instance using them as anchor persons for networks abroad (the so called diaspora option) could be a valuable complementary measure to foster regional development in CENTROPE. In this respect a number of recent policy initiatives (e.g. Austrian Scientists North America, Siss-List.com) have launched networks that aim at improving the links between and to researchers abroad and to intensify and maintain their connection to the sending country.

#### **Exchange of best practices and co-ordination of active labour market policies to avoid labour shortages and improve the situation for individual target groups**

Such policies will have to be supported by appropriate active labour market policy measures. Here employment rates among the population with completed primary education have been persistently low and even declining despite extended phases of rapid economic growth in some CENTROPE regions. In addition, in many parts of the region it is expected that growth will not suffice to mitigate unemployment. This suggests that combating long-term unemployment and thus avoiding the associated risk of de-qualification as well as improving the employment perspectives of the less skilled is a problem shared by many parts of CENTROPE. Results also suggest that in all

CENTROPE regions elderly have low employment and activity rates. Hence policy could in particular focus on activating older and less skilled persons and integrating long-term unemployed in the labour market. For the less skilled and long term unemployed this will probably require intensive training measures aiming at providing them with skills that are in demand on labour markets.

For the older, by contrast, more integrated strategies that combine elements of retaining the capability to work (i.e. focusing on the health status of the elder through preventive action), retaining employability (e.g. through training and life-long learning) and awareness building among both employers and workers for the needs and capabilities of older workers seem to be most promising. These policies are important not only from a short-term but also from a long-term perspective, since the experience of the boom years 2006-2008 shows that in many CENTROPE regions labour shortages arise rather rapidly (and at quite high unemployment rates) when employment conditions are improving.

Aside from placement activities therefore also a large potential for co-operation also exists in active labour market policies. Here in addition to the PES also some of the regional labour market actors (in particular territorial employment pacts or regional organisations) could be partners in co-operation. Previous experience in these activities, however, suggests that such co-operation should be focused to exchange of experience (such as exchange of best practice) among organizations for particular target groups, since this is usually very positively evaluated by participants in existing co-operations, while the operative programs for these target groups can usually be administered by national agencies.

Efforts to design own projects with a focus on active labour market policy by CENTROPE, by contrast, seem to be most promising in areas where specific target groups are addressed, for which cross-border actors may be expected to have high competence. Such groups could be cross-border workers, minority groups living in more than one country and emigrants from a particular CENTROPE country living in another CENTROPE country. Furthermore, also increased co-ordination in the use of existing infrastructure (e.g. training centres) could provide a fruitful area in which co-operation among labour market policy actors.

#### 3.2.4. Retaining attractiveness for foreign investors, and dynamically developing comparative advantages

A further topical field of work for cross-border co-operation in CENTROPE could also focus on retaining and improving the competitiveness in the enterprise sphere of CENTROPE. Here the focus should on the one hand – due to the specifics of the region - be on securing and developing the regions' position as a location for FDI, since as has been shown in the CENTROPE regional development report project FDIs are of major importance for the region. On the other hand a central focus could, however, be also placed on the support of cross-border SME networks, because a large literature documents the special problems SMEs have in internalization of their activities and in cross-border network establishment. In this respect the results of the CENTROPE regional development report project suggest that while CENTROPE is a highly open region, for the majority of its enterprises and residents a deep integration into European and world markets is more important than integration within CENTROPE. Thus one has to conclude that internal integration in the enterprise sphere and in particular for SME's in CENTROPE is still far away from the closely knit, unhierarchical intra-regional networks, that have often been seen as the determinants of regional success in the case study literature on regions such as e.g. Silicon Valley or Little Italy.

This may, however, also not be a severe problem given that CENTROPE is a small region for which integration in the world economy is of a much larger importance than internal integration

At the same time following a strategy which attempts to uncritically imitate these spectacular cases where internal integration has contributed to growth and development is also likely to face rather low chances of success. A by now quite substantial body of research into "normal" regions shows that these spectacular cases are exceptional and difficult to imitate by regional policy makers. The reason for this is that problems with critical masses in the region, issues of diseconomies of time compression (i.e. the necessity to take a long-term perspective on developing regional networks, and the danger of wanting to achieve too much in too short a time) and the inter-connectedness of various policy fields often present unsolvable problems to imitating such spectacular regional success stories, with attempts of imitation often leading to situations where policy makers attempt to achieve too much in too short a time with inadequate resources. A more pragmatic approach to deepening internal integration in CENTROPE should thus focus on

a limited number of individual policy initiatives that address issues of particular importance for the region.

### **Marketing CENTROPE as a location for FDI**

For instance the results of the CENTROPE regional development report project indicate that overall and independent of the type of FDI, the attraction of foreign investments is a sound strategy for the CENTROPE regions in terms of economic growth and development. This is also confirmed by European studies, which show that the presence of multi-national enterprises in a region has positive spillovers on local firms, which through learning effects, taking over of new practices, co-operation with MNEs increase their productivity and competitiveness. Furthermore FDI has also positive effects on the regions' labour markets, firstly through direct effects, but importantly also through indirect effects, as the jobs created in FDI firms generate income that supports more local activities. Moreover FDI spillovers to local firms add to employment generating effects, which in total outweigh the negative FDI effects from takeover restructuring and loss of market shares for competitors. Given this, attracting FDI is an economically important goal for the CENTROPE regions, and there is some potential for joint initiatives that aim to market CENTROPE as a location for FDI's.

Realistically such a marketing initiative will, however, also have to take into account the potential competition for FDI among individual CENTROPE regions. As illustrated by the results of the CENTROPE regional development report project, FDI in the CENTROPE is not mutual FDI, where the CENTROPE regions or countries invest in the other CENTROPE regions. Rather the CENTROPE regions are in competition with each other for FDI coming from outside the CENTROPE area. Yet not all CENTROPE regions compete for the same type of FDI. Rather it seems that Vienna and Bratislava region, due to a similar functional specialisation, have relatively similar structures of FDI, which focus strongly on the fields of headquarter, business and innovation services, while West-Transdanubia, Western Slovakia, the Czech Southeast region and potentially also Lower Austria and Burgenland compete mainly for manufacturing multinational enterprises. Thus these differences in functional specialisation reduce competition among regions to some degree.



**Table 3.6: Potential activities of CENTROPE in attracting, retaining and integrating FDI's in the region**

Function	Objective	Examples of concrete policies
<b>Co-ordination &amp; Mediation</b>	Generate early information on potential large investments	- through spatial planning boards
	Contribute to co-ordinating labour market policy in case of large scale FDI's	- Co-ordinate training on demand measures
<b>Information</b>	Inform about potential suppliers and customers in the cross-border region	- Participation at workshops and seminars - Develop focused reports e.g. on automobile suppliers in region - Organize study visits
<b>Lobbying</b>	Establish CENTROPE as a "trade mark" for FDI'S	- Create joint marketing initiatives for the region

In addition in designing such a marketing strategy it will have to be realised that competition for FDI is not confined to the CENTROPE area, since CENTROPE regions also compete with regions outside CENTROPE. Thus such an initiative is most likely to yield high returns, when it focuses on the early stages of an FDI decision, where companies choose a larger region within which to invest and/or when it focuses on parts of the FDI market (i.e. countries or sectors) where so far only few FDI have come from so far. In these areas therefore joint marketing activities could have the highest value added.

#### **Increasing the attractiveness of CENTROPE as a location for FDI**

In addition to increasing FDI activities in the region also the attractiveness of the region for FDI has to be maintained. In this respect recent studies on FDI identify several determinants for FDI. The first set of such determinants is derived from statistical analysis and lists the following characteristics. Border regions and regions with a good transport infrastructure attract more FDI than others. Likewise industry clustering and/or existing clusters of foreign firms are conducive to FDI, just as the educational level of the population, while surprisingly information and communication technology is of less importance. Furthermore the size of the domestic market (either regional or country wise), language skills of the population as well as the tax rates are important determinants. Therefore cross-border activities in infrastructure development and cross-border cluster formation can contribute to increasing CENTROPE's attraction for FDIs. As an additional point here, however, one could think of establishing an early information system in cases where a large FDI is attracted and where such an FDI requires cross-border infrastructure planning or where it touches on other aspects of cross-border spatial planning.

Apart from the results of statistical analysis these studies also present main location determinants from the point of view of a company's CEO. Here – as also found in the CENTROPE regional development report project - the most important determinant is the market size or the growth potential of the market, followed by the costs of production, the presence of suppliers, universities and research and education of the population. Clearly many of these determinants are not policy relevant or outside the CENTROPE regions' control, such as whether a region is a border region, tax policy, labour or production costs. Other determinants such as infrastructure, education, language skills, by contrast, as shown above, can be influenced by cross-border policy at least to some degree, while yet others such as market size can be influenced by reducing cross-border market barriers. Thus also these factors are closely related to the implementation of a cross-border policy as outlined above. One additional function that could be provided by CENTROPE in this respect is to co-ordinate “training on demand” measures in cross-border active labour market policy in cases of attracting FDI's, where the supply of qualified labour in one region is insufficient to meet demands of new firms. This would lead to firms having access to an even larger pool of qualified labour in CENTROPE.

#### **Embedding existing FDI's in the region**

Multinational enterprises that invest in one region are also not independent, autarkic entities but rather for their own production depend on a network of local or nearby suppliers of intermediate inputs in the form of goods and services. Given the complexity of production or value chains of multinationals it is more than unlikely that one region alone can provide all the necessary inputs for - at least medium to large scale – multinationals. This fact can thus be exploited by policies aiming both at attracting FDI as well as by policies aiming at a deeper integration of the existing FDI's in the region into the regional economy for benefit of the whole CENTROPE area.

Indeed, given the already high importance of FDI, this later objective (i.e. embedding existing FDI's in regional supply and delivery networks) is of an even higher importance than attracting new FDI.

Such a deeper integration of the CENTROPE in the form of establishing cross-border industry or firm networks, fostering the co-operation between enterprises (multinational and locals), which could be supported by CENTROPE actors through cross-border

clustering policies, but also by special information events for selected lead firms (in particular when they are new in the region).

### **Generating deeper integration of existing and new SME networks**

There is also still some room with respect to developing more locally based more vertically integrated small and medium size enterprise (SME) networks in CENTROPE. While this is not very surprising since it reflects the results of much of the literature, our results also indicate that any policy that aims at increasing internal co-operation within the CENTROPE-region would have to take the substantial heterogeneity of the enterprises in the region into account.

For instance for policies that aim at a deeper integration within the CENTROPE in terms of cross-border enterprise co-operation – aside from foreign owned enterprises - the primary target groups would be young and small enterprises, since they have a high chance of co-operating in the region. Policies targeted at these enterprises would, however, have to follow quite different strategies than those for FDI. When targeting young and small enterprises one has to accept that they need substantial support both in the form of consulting services as well as with financing, since they face larger problems in cross-border co-operation. These problems could be addressed through CENTROPE actors in cross-border policy through:

1. Coordination of national and regional support programs for SMEs – here one could aim at determining how compatible existing programs for SME support in various parts of CENTROPE are and potentially also focus on the exchange of best practice in SME policies.
2. Awareness building for the importance of internationalization among SMEs – by providing success stories of internationalization that could motivate enterprises that have so far not internationalized to attempt such an internationalization and by coordinating existing and/or providing new consultancy services to existing SMEs
3. Providing information to SMEs in their internationalization attempts – this could again be achieved through coordinating or provision of consultancy services for SMEs that in the long run could be integrated into a separate CENTROPE internationalisation agency for SMEs

**Table 3.7: Potential activities of CENTROPE in developing cross-border SME networks**

Function	Objective	Examples of concrete policies
<b>Co-ordination &amp; Mediation</b>	Contributing to co-ordination of support programs for SMEs	- expert working groups - best practice exchanges
<b>Information</b>	Awareness building for importance of internationalisation among SME's	- Providing success stories and co-ordinating and providing consulting services
	Providing information for SMEs wanting to internationalize	- CENTROPE internationalization support agency for SME's
<b>Pooling resources &amp; creating own projects</b>	Develop new support and training tools for SME internationalisation	- Internationalisation consulter - Provide training to SME managers

4. Developing new support and training tools for SME internationalization – in addition CENTROPE actors could also experiment with developing own small scale support and training projects focused on SME internationalization. In this respect for instance Nowotny and Palme (2007) based on the positive experiences in Vienna in a similar program focused on innovation support, suggest an internationalization consulter program. In this SMEs could be offered to employ (part time or for a fixed term) an experienced manager to help with their internationalization process. Alternatively also additional training measures for SME managers or even self-support groups could be initiated in this field.

### 3.2.5. Policies directed at tourism and the knowledge intensive service sector service

Finally, it is, however, also an important feature of regional development in the aftermath of the economic and financial crisis of 2009 that more diversified and urban regions and regions with a more knowledge-intensive and servo-industrial base have proven more resilient to the economic crisis than regions that are more strongly focused on a few industries or have a smaller technological base. This first of all suggests that, while strategies focusing on providing ideal conditions for only a few industries (such as clusters) can be highly successful in times of good economic growth, they do bear a certain element of risk in times of recession or structural decline of those industries. A diversified economic structure in terms of either a broad sector and technological mix or diversified functional specialisation is thus one way to insure against such cyclical variations. Since most of the CENTROPE regions are highly industrialized regions, this implies that aside from strategies focusing on industry also service sector development should be of importance in developing a fully fledged cross-border development strategy. A number of studies have, shown that service industries are particularly effective in creating employment for less

skilled workers. Policies directed at industry could therefore be augmented by cross-border strategies aiming at the development of the service sector. Indeed, aside from aiming at the currently highly industrialised regions, such a strategy could also be of primary importance for the urban agglomerations of the region, where business services are already today a major factor in terms of employment.

### **Developing cross-border knowledge economy networks (in particular in knowledge - intensive service industries)**

As shown in this report many of the more urban regions in CENTROPE have a strong specialisation on more knowledge intensive service industries and in general services have provided an important impetus to both GVA and employment growth in CENTROPE in recent years. Furthermore, some recent studies on individual CENTROPE countries and regions have shown that in international comparisons the export intensity of knowledge intensive service industries is rather low in CENTROPE.

Fostering the co-operation of enterprises in such knowledge intensive services (as e.g. in business consulting, creative industries or also in communication industries) with the joint aim of entering new export markets, could therefore be one aim for cross-border policy. In principle the same tools as for cluster development in industrial policy can be used for this. Yet, in doing so, a number of particularities of the knowledge intensive service industries have to be considered:

These arise first of all from the fact that only few clustering attempts for the knowledge intensive service industries exist on the CENTROPE territory, so that here CENTROPE actors could either lobby for the creation of clusters in this area in the individual regions or initiate the development of such clusters. These clusters could be organized around the business services consultancy enterprises or the creative industries, for which some initiatives exist at least in Vienna.

The second particularity arises from the fact that much of the knowledge intensive service industry sector is dominated by small and medium sized enterprises (SMEs). This, given the many impediments SMEs face in their internationalisation attempts, implies that in these areas substantial effort should go into informing enterprises of these sectors on business opportunities in other CENTROPE countries or abroad. One tool that could be provided by CENTROPE actors in this respect could be a CENTROPE service tender observatory, which could collect tenders for services in the CENTROPE and other

European countries as well as by the European Commission to support the internationalisation of and networking among knowledge intensive service providers in the region.

**Table 3.8: Potential activities of CENTROPE in developing cross-border service industries (tourism and knowledge intensive services)**

Function	Objective	Examples of concrete policies
<b>Knowledge intensive services</b>		
<b>Co-ordination &amp; Mediation</b>	Contribute to co-ordinating national policies towards knowledge intensive services	- Organize experience exchange and exchange of best practices
<b>Information</b>	Inform on tenders for consultancy projects in the area of knowledge intensive services	- CENTROPE service tender observatory
	Providing information for service firms wanting to internationalize	- CENTROPE internationalization support agency for service providers
<b>Lobbying</b>	Lobby for creation of knowledge intensive service clusters (in particular in the large cities)	
<b>Pooling resources &amp; creating own projects</b>	Create own cross-border clusters in knowledge intensive industries (in particular in large cities)	- Focus on consultancy enterprises, creative industries or business services.
<b>Tourism</b>		
<b>Co-ordination &amp; Mediation</b>	Contribute to co-ordinating private, public and civil sector actors to develop cross-border offers for MICE and spa tourists to prolong duration of stay	- create CENTROPE tourism board - develop a joint tourism strategy
	Co-ordinate and support initiatives to increase quality of tourism offers	- organize exchange of best practices
<b>Information</b>	Provide information on tourist attractions for short term holiday makers and people making one day excursions from CENTROPE	- continue initiatives such as CENTROPE tourism portal - provide a special tool for information on school excursions and summer camps
<b>Lobbying</b>	Establish CENTROPE as a “trade mark” for tourism	- Create joint marketing initiatives for the region
<b>Pooling resources &amp; creating own projects</b>	Generate projects to increase quality of tourism offers	- Tourism quality improvement seminars - Projects to develop regional tourist infrastructure and attractions
	Generate projects to generate local cross-border tourist industry clusters focusing on particular target groups and regional touristic resources	- focus on common history, cross-border identity and shared natural resources

Finally, a third particularity that has to be considered is that provision of knowledge intensive services as well as consultancy services often requires the interaction of the service provider and the client. Internationalisation in these sectors – in contrast to that in manufacturing – is therefore often associated with foreign direct investments rather than export. As a consequence when providing support to service firms that want to internationalize FDIs rather than exports should be the primary focus of this support. In this

respect the specific know-how of CENTROPE actors on the legal situation in the CENTROPE countries could be used to develop special consultancy services for internationalisation of the knowledge intensive service sector in CENTROPE, since enterprises often mention lack of knowledge of legal stipulations and/or market conditions as a barrier to internationalisation.

Realistically, however, given the results of the current report, such co-operation activities for such services are primarily of interest for the urban agglomerations of the regions where a localisation of knowledge intensive services already exist. For the majority of the other regions, by contrast, continued development of such services on their own territory will be the main issue in the future. Here co-operative strategies of CENTROPE actors, however, could focus on issues such as the exchange of best practices in service sector and SME support.

#### **Co-ordinating tourism policies and tourism marketing strategies**

A further service industry where increased cross-border interaction could be beneficial is tourism. This is an important sector in all of the economies of CENTROPE and results presented in this report suggest that, apart from the urban agglomerations, many CENTROPE regions present rural areas whose tourism development focuses on spa resorts of regional and sometimes international significance, wine production, sports and wellness tourism as well as other aspects of weekend tourism. CENTROPE therefore offers a large and diverse set of attractions for many different segments of the tourism market, with, however, different regions sometimes specialising in different market segments.

The main goals for co-operations in tourism could therefore be to attract more tourists to the region, to make them stay longer, to extract a higher value added from visitors and to use potential synergies to increase the international competitiveness of the region for tourism as a whole. This requires making the region more visible to tourists, to deepen cooperation between local and regional authorities as well as across the private, public and civil sectors in the individual CENTROPE regions and to strengthen the coordination of activities of individual actors.

This also suggests that a joint marketing strategy of CENTROPE as a tourist destination should be developed. The preconditions for such a co-operative strategy, however, seem

to differ substantially for different segments of the tourism market. In particular two target groups could be specified for such marketing initiatives:

1. The active population residing in CENTROPE - This group of tourists include young people, families with children as well as active seniors living in the region and visiting other parts (usually only one country) of the region for one day excursions or for a few days (e.g. weekends tourism). For this group providing information on the region (as is for instance currently done at [www.mycentrope.com](http://www.mycentrope.com) and [www.tourcentrope.eu](http://www.tourcentrope.eu)) and potentially also creating interesting events are important policy initiatives. Therefore care should be taken to provide up-to-date and interesting information on such portals. In addition within this group also activities for some special target groups (e.g. trips organized by schools and summer camps for children) could be of interest for cross-border tourism marketing.

For these groups developing co-operative marketing and development strategies seems to be less of a challenge as can also be seen from a number of more small scale activities that already exist in this field. One reason for this is that competition in this form of tourism is less intense within CENTROPE since the provision of an additional attraction or more information often results in these tourists either taking an extra trip or possibly substituting a short term stay outside CENTROPE for one in the region.

2. The population outside CENTROPE – This group of tourists include people who make both shorter and longer trips. During their holiday they could possibly visit more than one country in CENTROPE. They prefer knowing history and culture of the region, some of them in combination with tasting wine or national culinary specialities. This group also includes MICE tourists who usually stay only for a short term, but could potentially prolong their visit or come again to get to know a particular destination better.

For this market segment developing co-operative strategies is more difficult because - as shown in this report - individual regions specialize in different touristic market segments (in terms of sending countries and tourism types) and because where common specialisations exist some competition among regions, which counteracts incentives to co-operate, may be expected. Nonetheless a common marketing strategy could make sense also for this group. Thus for instance a possible joint objective of cooperative tourist strategies could be to increase the length of stay of (MICE, spa and



other) tourists or increasing the number of tourists returning to CENTROPE by increasing efforts to “cross-sell” tourism products.

This could for instance be done by motivating tourism providers to offer packages, where such tourists can visit nearby sites in the CENTROPE region, when staying for a little bit longer or by co-operating to make the many spa’s in the region, that are currently mostly visited by national tourists, better known internationally. Another possibility could be to better inform MICE tourists or persons on city trips in the large cities on the attractions of CENTROPE in sports, wellness and recreational tourism in other parts of the region so as to motivate them to return for a different holiday another time.

### **Improving the quality of tourism services, infrastructure and accommodation**

There is, however, also still a big potential for development in CENTROPE in terms of the infrastructure for tourism, accommodation facilities and in terms of quality of the services provided. In case of several regions in CENTROPE, regional tourism product development is necessary in order to achieve stronger synergy effects from cooperation within CENTROPE. This would inter alia include improving the quality of tourist infrastructure as well as of accommodation facilities and restaurants. Thus improving the quality of tourist infrastructure and accommodation could also be a joint objective of cross-border tourism development in CENTROPE. Even though also here many concerns may exist as to the potential of increased competition through more quality suppliers in the region, any strategy that aims to attract more tourists to the region, make them stay longer and extract a higher value added from visitors, critically hinges on an improvement in the quality of the product. Therefore CENTROPE actors could at least engage in activities that exchange best practice methods for support of tourist enterprises or even develop specialised consultancy services to contribute to improving the quality of tourist products.

Furthermore, given the heterogeneity of tourism products offered in the region, it is also likely that tourism service providers in different touristic market segments face rather different preconditions for co-operation. Although a detailed analysis of these preconditions is beyond the scope of this study, one idea would be to organize multilateral thematic fora among firms providing thematically similar services. If these fora find co-operation mutually beneficial they could develop into clusters of mutually interconnected entities, firms and institutions in a particular field in the long run. In CENTROPE these fora could potentially be based on history and culture, the long tradition of wine production,

traditional gastronomic specialities, recreation and sports tourism including cycle tourism to name just a few possibilities. In particular in the region of Neusiedl Lake and in the surroundings of the national park Donau-March-Thaya-Auen (The National Park of the Danube, Morava and Dyje wetlands), there are also good preconditions for creation of cross-border holiday packages with common marketing activities.

These opportunities, however, are currently often not used on account of different levels in development of infrastructure, differences in service quality and inadequate coordination of tourism development strategies. One example of this is cycling tourism. Considering its increasing attractiveness, it would be interesting to create joint products in this form of tourism. However, a crucial precondition for launching such products is to improve infrastructure for cyclists in the lagging behind regions.

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## 4. Conclusions

This report which is the third and last regional development report of the pilot activity CENTROPE regional development report summarizes the project results and draws final policy conclusions by means of a strengths-weakness-opportunities-threats (SWOT) analysis of the region which is based both on the existing literature as well as on the project results.

### Strengths and opportunities of CENTROPE

Our detailed SWOT analysis which was conducted in 7 areas analyzed in the project (macro-economic development, demography & location, integration in the international division of labour, economic structure and structural change, human capital and education, research and development, labour markets and service industries) suggests that the CENTROPE in aggregate has important macro-economic and structural strengths and could develop into one of the most highly integrated and developed economic cross-border areas in the EU in the future.

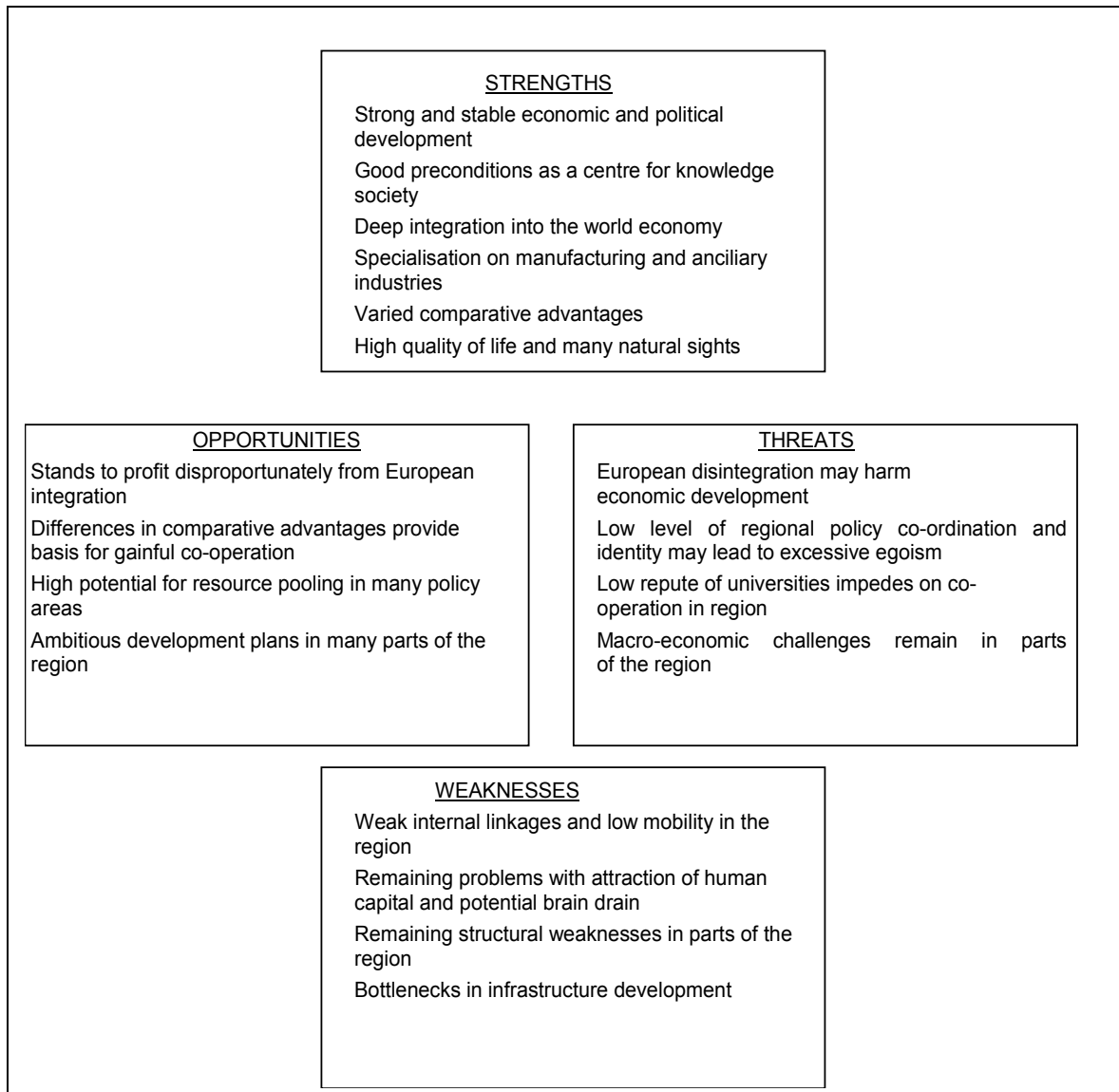
In a European comparison the region is a well developed and rapidly growing economy with a stable institutional environment that – in contrast to the expectations of many analysts - has also proven to be rather resilient to the economic crisis of 2008. Average economic growth was substantially higher than in the EU average throughout the last decade and exceeded the EU average by 0.5 percentage points in the period since the crisis (2009 to 2011). Thus despite substantially lower growth rates relative to the period 2004 to 2008 the growth performance of the region remained favourable even in times of crisis. This development is also expected to continue in the future. According to current projections GVA is expected to increase by 2.3% in 2012 in the CENTROPE aggregate and by 2.4% in the two subsequent years.

The region also has the preconditions to become a centre of the knowledge economy and is marked by a deep integration in the international division of labour. In particular it has been one of the most attractive locations for FDI in Europe and hosts a large number of universities (58) and research institutions:

- The CENTROPE regions are amongst the most attractive FDI destinations in the European Union. In an EU-wide comparison of 261 NUTS-2 regions Bratislava was the top location for FDI over the period from 2003 to early 2010 and Vienna still ranked

13th. Furthermore Tranava, Győr-Moson-Sopron and South Moravia are in the first quarter of the EU-27 NUTS 3 regions for inward FDI.

**Figure 4.1: Summary of results of a SWOT Analysis of CENTROPE**



- There are more university level students per inhabitant in this region than in the EU-average (almost 5% of the CENTROPE population as opposed to 4% of the EU's

population studies at universities). The region has increasingly assumed over-regional importance as a centre of university education.

Furthermore the region – due to its size - also has a rather varied economic structure and the individual sub-territories combine a large number of different comparative advantages (such as those of large urban centres, industrialized regions and also more rural regions) as well as rather varied natural sites for tourism development. This provides for the possibility of mutually beneficial exchange, creates incentives to form enterprise networks and provides chances for clusterisation among manufacturing enterprises, but also for co-operation in different forms of tourism.

While in recent years for the region as a whole – due to a number of large scale FDI's – a specialisation on the automobile industry has emerged, the individual sub-regions offer a number of further specialisations of knowledge intensive and business services in the urban centres (Vienna, Bratislava and Brno) and on electrical equipments, computer electronic, optical products industries in the more industrial regions. Similar observations apply to tourism. Here CENTROPE combines locations that are attractive for classic urban tourism (such as meetings, incentives, conferences and events tourism) and regions where recreational, wellness and spa tourism have rapidly developed in the last decades.

There are also many opportunities related to this situation since – as an assortment of a number of small and very open economies – the individual regions of CENTROPE stand to profit substantially from continued integration in the regional and international division of labour. If these opportunities are seized this will allow regions to specialize in areas of their comparative advantages, create critical masses for regional development through pooling of resources and create a potential for continued economic growth and development. Furthermore the region also has a high potential for cross-border clusterisation processes along various regionally-differentiated lines both in the manufacturing as well as in the service industries.

### **Weaknesses and Threats**

There are, however, also some weaknesses of CENTROPE, which suggest that at the current point in time the region is not making the maximum out of these opportunities. In particular – despite deep integration into the European division of labour – internal integration (i.e. between the individual parts of the region) is still underdeveloped in the region and is structurally often also quite hierarchical. This finding applies to almost all of

the cross-border activities analyzed in this project (foreign direct investment, migration, trade, student and patenting networks) with the exception of foreign trade. Thus for instance:

- Although Austria is the third most important investor in the CENTROPE, FDI from the Czech Republic, Hungary or Slovakia to other CENTROPE regions is much rarer. The only significant investments undertaken are those by the Czech Republic, which in total has established 15 FDI projects in the CENTROPE with majority of these projects in the Bratislava region in the last decade.
- Similarly only around 1.2% of the population residing in one of the NUTS2 regions of CENTROPE was born in a different CENTROPE-country than they resided in and in total 1.8% of the employed in one of the NUTS2 regions of CENTROPE commuted across borders in 2009 and these figures have only marginally increased recently - despite the recent May 2011 liberalization of migration.
- Also cross border co-operation in patenting is rather limited. In particular here co-operation between the Austrian and the other parts of CENTROPE is clearly below the levels that could be expected of a deeply integrated cross-border region. In terms of patent co-application Austrian partners never co-operated with a partner located in another CENTROPE-region outside Austria in the eight years from 2000 to 2008.
- Cross-border student exchange seems to be limited by the insufficient reputation of universities of CENTROPE. Only 16.6% of the interviewed students in the Austrian CENTROPE, 15.8% of the students in the Slovak CENTROPE and 10.5% of the students in the Czech CENTROPE can imagine studying in another CENTROPE country.

Furthermore, although student numbers are high in CENTROPE, the education structure of its workforce CENTROPE in general is characterized by a stronghold in the secondary and upper secondary education levels, while the share of tertiary educated in the workforce is below EU average. This therefore suggests that many of the regions' students end up working elsewhere after completing their studies and that therefore CENTROPE is a brain drain region. This is also confirmed by migration data according to which the share of tertiary educated among the emigrants from the CENTROPE countries is almost twice as high as among immigrants.

Finally, both the CENTROPE regional development report project as well as much of the related literature on the CENTROPE notices that there are still some remaining

weaknesses in the region with respect to transport infrastructure development. Here in particular North-South transport routes are still underdeveloped and existing infrastructure development plans are being realized rather slowly. Furthermore with respect to economic structure, some of the more rural CENTROPE regions are burdened by the typical weaknesses of such regions. Thus with respect to the R&D and innovation system there are obvious signs of strong functional disparities between the large cities of the region (Bratislava, Brno and Vienna) and the other CENTROPE regions and also in terms of sector structure modern knowledge intensive and business services are still underdeveloped in many of the more rural parts of CENTROPE.

Given these weaknesses and putting aside the potential risk of disintegration of the Euro zone, which, just as in the rest of Europe, could also negatively impact on the economic development in this region, the major risks that the region is currently facing arise from the fact that both in terms of cross-border exchange as well as in terms of economic policy the region is still relatively weakly linked and is also characterized by substantial internal heterogeneity.

This could potentially lead to situations of excessive egoism on the side of individual regions, so that the mutual benefits that could be drawn from increased integration and co-operation cannot be realised. Among the examples of such risks one could for instance mention an overly strong competition among regions for locations for FDI or the neglect of possibilities of cross-border co-operation in R&D and innovation in favour of co-operation with more distant partners, that are also often considered more prestigious.

This risk is all the more relevant given that since economic crisis in 2009 public funds for regional development in general have become more limited and some of the regions of CENTROPE (in particular those located in Hungary) are facing major macro-economic challenges. This may lead regions to overemphasize short-term gains from excessive competition relative to the long-term benefits of co-operation among regions.

## **Policy Conclusions**

Designing cross-border co-operative policies is therefore of major importance in CENTROPE. Based on the results of the CENTROPE regional development report project as well as the case study literature on cross-border co-operation in other regions the current study proposes that cross-border policy initiatives in CENTROPE should focus on fulfilling the following functions a) securing and providing information on the activities of

and development in other regions, b) co-ordinating spatial policies at the borders of administrative units, c) pooling resources and developing own projects in various strands of economic policy to improve competitiveness and d) lobbying for common interests of the participating regions. Furthermore, the report also suggests that the focal areas of cross-border co-operation should be where barriers to mobility, lack of mutual information and lack of co-ordination among regional actors may be deemed to impact most severely.

In detail the report suggests that cross-border policies in CENTROPE should inform, co-ordinate, augment and strengthen national strategies summarized under the following priorities which in turn are structured into individual objectives:

**Priority 1: Establishing and improving the institutional preconditions for cross-border policy making and cross-border spatial planning**

This priority should be explicitly devoted to developing the CENTROPE institutional structure into a permanent organization that has access to own financial resources outside EU funds and providing and developing the necessary infrastructure for effective and efficient cross-border spatial planning and policy as well as building an awareness for the region. The central objectives of this priority could be:

1. Revising existing strategies and visions guiding cross-border spatial planning and cross-border policy - under this objective an important task would be to evaluate whether the existing strategic planning document "CENTROPE – Vision 2015" still reflects the current strategic objectives of the individual regions participating in the CENTROPE project and to update this strategy by an appropriate foresight document wherever necessary. Such a foresight document could focus on a longer time horizon (i.e. 2020 or 2025) and would ideally also be broadly discussed in the participating regions as well as legitimised by some form of democratic decision taking of regional authorities to secure a maximum commitment of policy makers.
2. Building a more permanent organisational framework - A perhaps even more pressing need is to move the current CENTROPE co-operation, which is based on a succession of projects, to a more permanent and lasting level of co-operation. One possible solution would be to create a more stable structure for CENTROPE in the form of a central co-ordination institution. Such a high level group could be modelled after the secretariats or councils that have been created in many other cross-border regions. Furthermore - also following the examples of some of the most advanced cross-border



regions – this institution could be financed (e.g. through regular contributions of the member regions) and controlled by the partner regions and could be responsible for a) implementing the shared vision b) co-ordinating the various strands of cross-border policy outlined below, c) generating individual projects financed through EU or other sources and d) mediating between various policy actors through individual workgroups.

3. Improving the institutional situation for cross-border spatial planning - Irrespective of the creation of such an institution, which may take some time, this objective would set itself the goal to create more permanent institutions in the field of spatial planning. In this respect establishing a permanent working group or consultation mechanism or using the current high level group in order to improve the current situation with respect to spatial planning is paramount. This institution could on the one hand serve the goal of mutual information of partners with respect to spatial planning initiatives. It could, however, also serve as a location where joint interests of partner regions (e.g. for infrastructure development or EU initiatives) could be formulated.
4. Improve tools to monitor cross-border economic development as a basis for evidence based policy making - Such an institution would, however, also have to face the serious data constraints existing in cross-border policy formulation and evaluation. Currently, data availability is restricted to rather aggregate indicators that often lack the detail necessary for spatial planning processes, and certain indicators are available only for very few regions and even when available suffer from a lack of comparability. Designing data sources that are both recent and comparable enough to be useful for operative decisions therefore remains to be a major challenge in CENTROPE. Initiatives that are currently attempting to design such data (e.g. labour market monitoring tool used in the current project, or the CENTROPE map project) show that such tools can be developed. Such initiatives should therefore be continued, encouraged and expanded. The objective would be that in 5 years CENTROPE will be in a situation where all policies undertaken can be evaluated at the hands of reliable and comparable data at an appropriate level of disaggregation.
5. Set concrete actions in infrastructure development - Under this objective measures should be designed to a) secure information of regional actors on infrastructure development plans in individual regions, b) provide information on transport infrastructure in the region for the general public, c) co-ordinate and prepare the establishment of a CENTROPE transport association and d) develop a shared position of the CENTROPE regions with respect to and lobby for the development of TEN

networks vis a vis the EU and the more rapid completion of existing infrastructure development projects vis a vis the various national governments.

6. Build awareness for the cross-border region - Finally, hand in hand with institutional development, CENTROPE actors should also invest more resources to build public support for cross-border policies and raise awareness for the cross-border region. Although clearly such issues are currently not at the heart of the CENTROPE project, a cost effective and efficient way to at least partly contribute to this goal is to use existing regional and local events (e.g. exhibitions, conferences and festivals) to build awareness for the cross-border nature of the region.

### **Priority 2: Developing CENTROPE into a deeply integrated knowledge region**

Under this priority aside from the support for research and development activities, the central aim should be to make CENTROPE a deeply integrated, open region in which there are no barriers to student, researcher and labour mobility and which is embedded in the global knowledge economy through a continuous process of brain exchange rather than of brain drain. The central objectives here could be:

1. Developing co-operation activities among universities: - CENTROPE actors could aim to increase student mobility within the region by for example providing information for students on available places of education in CENTROPE and sources of financial support for study stays abroad, providing incentives for researcher mobility (through mobility grants or special CENTROPE professorships by which foreign professors with international repute could be asked to teach a course at different universities in CENTROPE), supporting the integration of CENTROPE researchers into international research networks, and coordinating cross-border provision of consultancy for EU research projects, developing own measures for improving the visibility of CENTROPE as a research area (e.g. by organising or financially supporting workshops and conferences devoted to issues of relevance for CENTROPE) and co-ordinating the development of joint curricula in certain fields (e.g. through creation of a virtual "CENTROPE University").
2. Improving research and innovation capacities in the enterprise sphere – This objective could be devoted to supporting cluster policies in CENTROPE by: providing information on potential co-operation partners in the region, creating infrastructure for cluster co-operation, informing about and potentially co-ordinating national and regional cluster support programs and contributing to establishment of a human

resource base for clusters. In addition an aim could be to increase not only the numbers of inventors in the region but also the number of patent applicants through a pooling of resources and increasing co-operation in the region. This could be achieved through providing financial incentives (e.g. by continuing the cross-border research voucher scheme developed and implemented in the CENTROPE -project), awareness building and information generation and consultancy in developing innovation policy governance as well as increasing the sustainability of existing cross-border R&D co-operations.

3. Co-operation in areas of education outside tertiary education – In addition also the mobility of pupils at all levels of education below tertiary education should be supported. Here CENTROPE actors could be helpful in providing ideas for bilingual cross-border curricula in which for example also certain topics of the common territory (e.g. the common history) could be explored. Apart from this support for cross-border excursions and educational trips, cross-border scholarships financially supported by regional and municipality authorities can be used to make such activities more attractive. In addition, the low rates of participation in life-long learning in many of the regions of CENTROPE suggest that also co-operation of providers of training (e.g. schools and adult training institutions), could be a focus in cross-border policy. Here the experiences made by the set of learning region strategies developed and implemented in the framework of the Austrian program for rural development could be used to design similar, local activities in a cross-border context.

### **Priority 3: Integrating cross border labour markets**

This priority could be directly geared to solving the everyday problems of persons working in the region. In particular it could focus on removing barriers to mobility and information deficits for persons willing to work in other countries of the region, helping cross-border commuters and on exchanging experiences in active and passive labour market policies. The central objectives of this priority would be to:

1. Strengthen existing initiatives to ease cross-border labour mobility and improve cross-border placement activities – Here CENTROPE actors could aim to strengthen the role and credibility of public employment services (PES) in cross-border labour market by helping to develop more flexible and less bureaucratic forms of cross-border placement through co-operation of regional public employment services (e.g. as in the EURES Pannonia project), actively improving and developing tools for cross-border placement

activities, and contributing to facilitating transfer of skills across borders (e.g. through a joint validation centre for vocational education or skills).

2. Encourage and establish systems of temporary and circular migration avoiding brain drain and increasing the attractiveness of the region for high skilled migration – Through for example providing or coordinating cross-border apprenticeship programs or internships as well as encouraging projects that aim to consult cross-border workers on their rights and duties in the receiving countries (as is currently done in the IGR project at the Austrian – Hungarian border) or by resourcing expatriates, by using them as anchor persons for networks abroad.
3. Exchange of best practices and co-ordination of active labour market policies to avoid labour shortages and improve the situation for individual target groups – Labour market integration in the region will, however, also have to be supported by appropriate active labour market policy measures. CENTROPE actors could organize exchange of best practices for combating long-term unemployment, improving the employment perspectives of the less skilled and elder, since problems with these labour market groups are shared by many parts of CENTROPE. In addition efforts could be devoted to design own projects with a focus on active labour market policy in areas where specific target groups are addressed, for which cross-border actors have a particularly high competence (e.g. cross-border workers, minority groups living in more than one country and emigrants from a particular CENTROPE country living in another CENTROPE country). Finally, also increased co-ordination in the use of existing infrastructure (e.g. training centres) could provide a fruitful area in which co-operation among labour market policy actors.

#### **Priority 4: Securing international competitiveness of the CENTROPE region**

Here the focus should on the one hand – due to the specifics of the region - be on securing and developing the regions' position as a location for FDI, since FDIs are of major importance for CENTROPE. On the other hand a central focus should also be put on the support of cross-border SME networks, because a large literature documents the special problems SMEs have in internalization of their activities and in cross-border network establishment; the development of co-operations in tourism, since this a classical field of cross-border co-operation, and the strengthening of the export base in knowledge intensive and tradable services, since most CENTROPE countries have only low exports of such services. The major objectives in this area could thus be:

1. Retaining and enhancing the attractiveness of CENTROPE for FDI and integrating existing FDI into regional economies – Here first of all attempts to create a joint marketing strategy for CENTROPE as a destination for FDI should be continued. In addition on a more concrete level one could also co-ordinate the development of “training on demand” measures in cross-border active labour market policy, in cases where the supply of qualified labour in one region is insufficient to meet demands of new FDIs, or establish early information tools in cases where the settlement of a particular FDI leads to demands on cross-border spatial planning and/or infrastructure development in other CENTROPE regions. Finally one could aim at supporting a deeper integration of the CENTROPE through establishing cross-border industry or firm networks and fostering the co-operation between enterprises (multinational and locals) through cross-border clustering policies, but also by special information events for selected lead firms (in particular when they are new in the region).
2. Generating deeper integration of existing and new SME networks – by contributing to the coordination of national and regional support programs for SMEs, awareness building for the importance of internationalization among SMEs or providing information to SMEs in their internationalization attempts and developing new support and training tools for SME internationalization.
3. Developing cross-border networks in knowledge intensive service industries – By using the same tools as for cluster development or SME support policies but also by initiating the development of such clusters, providing a CENTROPE service tender observatory, which could collect tenders for services in CENTROPE and other European countries as well as by the European Commission to support the internationalisation of and networking among knowledge intensive service providers and developing special consultancy services for internationalisation of the knowledge intensive service sector in CENTROPE.
4. Contributing to co-ordinating tourism policies – by creating institutions that foster cooperation between local and regional authorities as well as across the private, public and civil sectors within CENTROPE with the aim to create a CENTROPE tourism strategy, that complements the CENTROPE vision and creating joint marketing tools as well as strengthening initiatives in cross-border product development and product improvement and by developing the strategic documents necessary to guide cross-border tourism development (e.g. a CENTROPE tourism marketing strategy, CENTROPE tourism development strategy).

- 5 Improving the quality of tourism services, infrastructure and suprastructure –Here again exchange on best practice methods for support of tourist enterprises or development of specialised consultancy services may be a policy initiative taken by CENTROPE actors. Furthermore in order to create cross-border tourism products and an adequate suprastructure, CENTROPE actors could also actively pursue the creation multilateral thematic tourism fora or clusters (e.g. based on history and culture, wine production, traditional gastronomic specialities, recreation and sports tourism and others) and support the creation of cross-border holiday packages and recreation destinations with common conception and marketing activities.

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