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# Regional Innovation Monitor Plus

## Regional Innovation Report Southeast (Jihovýchod)

**To the European Commission**

**Enterprise and Industry Directorate-General**

**Directorate B – Sustainable Growth and EU 2020**

# Regional Innovation Monitor Plus

Regional Innovation Report Southeast (Jihovýchod)

technopolis |group| in cooperation with



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## **PREFACE**

Launched in 2010, the Regional Innovation Monitor<sup>1</sup> continues to be one of the flagship initiatives of DG Enterprise and Industry of the European Commission. From the outset, it aimed at supporting sharing of intelligence on innovation policies in some 200 regions across EU20 Member States.

RIM Plus aims to help regions to improve their innovation policies based on better and harmonised policy intelligence. The new contract aims to contribute to the development of more effective regional innovation policies and promote policy learning.

Building upon the experience gained and results obtained during the implementation of the RIM in the period 2010-2012, the RIM Plus service evolves towards providing practical guidance to regions on how to use the collected information, establishing a network of regional experts with thematic specialisation, and organising specialised workshops taking into account the relevance and potential interest among the regional innovation policy makers.

RIM Plus covers EU-20 Member States: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden and the United Kingdom.

This means that RIM will not concentrate on Member States where the Nomenclature of territorial units for statistics NUTS 1 and 2 levels are identical with the entire country (Estonia, Latvia, and Lithuania), Malta which only has NUTS 3 regions, Slovenia which has a national innovation policy or Cyprus and Luxembourg which are countries without NUTS regions.

The main aim of 30 regional reports is to provide a description and analysis of contemporary developments of regional innovation policy, taking into account the specific context of the region as well as general trends. All regional innovation reports are produced in a standardised way using a common methodological and conceptual framework, in order to allow for horizontal analysis, with a view to preparing the Annual EU Regional Innovation Monitor Plus report.

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The Regional Innovation Access Point and Knowledge Hub presenting further details of the regional innovation measures, policy documents and regional organisations in South East Czech Republic is accessible through the RIM Plus online inventory of policy measures: <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/region/select>

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<sup>1</sup> <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/>

# Executive Summary

## **1. Main Trends and Challenges in the Regional Innovation System**

The Czech NUTS 2 region Southeast (Jihovýchod) is a statistical unit which consists of two NUTS 3 self-governing regions: Jihomoravský kraj (South Moravia) and Kraj Vysočina (Highlands). In terms of research and innovation performance and capacities, these two NUTS 3 regions are very different with Jihomoravský representing more than 93% of Southeast's overall R&D investment.

Concerning the sources of growth, the segment of foreign companies has driven economic performance in both regions. However, there is an important difference between Jihomoravský kraj and Kraj Vysočina: while former is home to both manufacturing and R&D departments of many foreign companies, the latter is predominantly characterised by assembly and manufacturing functions and represents a typical branch-plant economy with important role of foreign-controlled companies. Given its favourable combination of labour costs and qualified technical labour force, Brno metropolitan area (the capital city of Jihomoravský kraj) became a strategic location in Europe or even globally for a number of foreign companies, such as AVG, Honeywell, FEI, ABB, and others.

In terms of industrial structure, mechanical and electrical engineering represent the key drivers of export performance in both NUTS III regions. Export in electrical engineering is dominated by large foreign companies than in case of mechanical engineering. In Jihomoravský kraj, or more specifically in Brno metropolitan area, the ICT sector has been growing fast in the recent years, partly thanks to activities of several global companies (e.g. IBM, AVG, Red Hat etc.), while Vysočina's strength is in production of automotive components (e.g. Bosch, Automotive Lighting, Valeo, etc.). Vysočina Region has a weak ICT sector, which is typical for non-metropolitan regions. Agro-food business (NACE 01+03+10) accounts for a significant share of total employment (approx. 10%) in both regions, but its export performance is much weaker compared to mechanical and electrical engineering. Service sector is substantially larger in Jihomoravský kraj, which reflects the fact that Brno functions as an important university and administrative centre and is a base for many business service companies and specialised health services.

In terms of R&D and innovation performance, Jihovýchod can be described as a "high performer" compared to the Czech average and also in comparison with regions in other post-communist countries, yet as a "low performer" compared to the EU. Jihomoravský kraj itself scores significantly higher in comparison with the EU while Kraj Vysočina alone would score below both EU and Czech averages. This reflects the structural differences described above, as well as the very different stages of maturity of the regional innovation systems in the two constituent parts of Jihovýchod.

### **Challenge 1: Mismatch between research supply and innovation demand**

While the majority of local companies are characterised by a low innovation demand associated with their unfavourable position within the global value chains, there are at the same time several research teams in Jihovýchod (esp. Jihomoravský kraj) where a

vast majority of public R&D of Jihovýchod is concentrated) which often are well integrated in an international research community and are producing high quality research results. This mismatch between *research supply and innovation demand hampers the entrepreneurial discovery process*. This is further exacerbated by very rudimentary and underdeveloped mechanisms for technology transfer and generally for partnering between academia and business sector.

### **Challenge 2: Narrowing down the strategy focus and greater business sector involvement**

Much of the innovation policy efforts so far have been of a generic nature. There is, however, an increasing recognition that for a region the size of Jihovýchod, it is necessary to specialise in particular niches and concentrate the public support on those. Moreover, this fact is further emphasised by the smart specialisation strategy approach to which all existing regional innovation strategies in Czech regions are currently being aligned. Some efforts have been made recently (especially in Jihomoravský kraj but more recently also in Vysočina) to better understand the key knowledge bases on which the region's competitive advantage can build further. The next challenge will be to develop and implement dedicated instruments which will include also thematically specific, vertical measures focused on the key narrowly defined market niches. For this purpose, the region's innovation policy will also have to step up the efforts for involvement and active commitment by the leading industrial partners.

### **Challenge 3: Inadequate national innovation policy**

The overall political instability of Czech national politics is taking its toll in the form of a missing plan on the strategic reforms, as well as an absence of a broader national consensus over the strategic direction in the field of research and innovation. While there is an increasing demand for such reform effort among Czech businesses, its absence is restricting the scope of action at the level of regional innovation policy.

## **2. Innovation Policy Governance**

The region Southeast represents a mere statistical unit and it is therefore difficult to speak of any governance at the NUTS2 level. The region consists of two self-governing units (krajs): Kraj Vysočina and Jihomoravský kraj. Each of the two krajs has a very different institutional set up and governance of innovation policy, as well as in the extent (or even existence/non-existence) of concrete innovation policy activities carried out at the regional level. While Jihomoravský kraj is often quoted as an exception to the rule by Czech standards, a kraj representing the national role-model of regional innovation policy with a clearly defined governance model, implementation structures and a functional partnership between public sector, academia and industry; the Kraj Vysočina is quoted as a region with underdeveloped regional innovation policy.

In case of Jihomoravský kraj the governance system is de-centralised, largely independent of the national policy-making (national policies and programmes are often used only as the means to fund the implementation of regional strategy rather than the other way round). It can be characterised as a strongly co-ordinated yet, at the same time, largely participatory system, and open to initiative by associated stakeholders. The co-ordination mechanisms are very explicit including regional stakeholders and in some cases also the national level (ministries, national agencies). The existing set up is a result of a 10 year history and evolution marked with effort to continuously improve the governance model.

In case of Vysočina, the situation until present can be characterised as a fragmented governance system with limited number of actors and limited coordination efforts. This may change in the near future as a consequence of the recently (September 2013) approved regional innovation strategy. However, it is too early to judge whether and how the system is going to develop.

### 3. Innovation Policy Instruments

*Jihomoravský kraj* currently implements its third generation of regional innovation strategy. The strategy was approved both by the Regional Government and the city of Brno in February 2009. The strategy has four horizontal priorities: i) technology transfer; ii) services for companies; iii) human resources for science and technology; iv) internationalisation; and four vertical priorities: i) mechanical engineering, ii) information technologies, iii) electro engineering, iv) life-sciences.

The first generation of the Regional innovation strategy of Vysočina Region was adopted by the Regional Government in September 2013. On the basis of a survey and public consultations three horizontal priorities were outlined: i) innovation infrastructure and technology transfer; ii) human resources and PR of innovation activities; iii) international cooperation; and five vertical priorities: i) mechanical engineering; ii) wood processing industry; iii) food processing industry and agriculture; iv) car industry; v) IT and automatisation. Since the actual implementation of the strategy has not started yet, the planned measures are not analyzed in this document.

### 4. Conclusions: future actions and opportunities for innovation policy

In case of **Jihomoravský kraj** the aim of the Regional Authority is to focus more on supporting vertical priorities, namely cyber security, electron microscopy and production of machine tools (these priorities are being currently defined) and these topics are preliminary.

The kraj wants to support incoming and reintegrating researchers in the research areas which are likely to be relevant for the vertical priorities. Furthermore, the kraj plans to support cooperation with regions which are also strong in these sectors in area of research and development (Horizon 2020 etc.).

The Regional Authority also stated its intention to launch “a reform” in secondary schools (namely vocational training) where it aims to create so called “centres of training excellence” which should correspond with the regional vertical priorities.

Furthermore, the Region will continue to support creation of new businesses with special emphasis on the priority areas.

**The Kraj Vysočina**, on the other hand, tries to realise the first steps towards implementing its regional innovation policy, thus it aims to deliver some tangible results which would be appreciated by companies in the region.

So far, no comprehensive evaluation report has been conducted on the innovation system of Jihomoravský or Vysočina. However, various studies on innovation system in the Czech Republic which are also relevant for the Southeast Region recommend the following:

- **Increase investment in higher technical education and vocational training** in relevant areas;
- **Increase entrepreneurial awareness** across all age groups, namely at primary, secondary and university levels;
- Motivate research organisations to manage research strategies, to increase problem orientation of implemented research agendas and to **increase the relevance of research in the regional economy**;
- Implement measures to **upgrade SMEs within their respective value chains** since many of them are suppliers of third or even fourth tier;
- Implement measures to **strengthen the links between academia and industry**;

- **Motivate companies and research groups to boost their international engagement** through participation in international research consortia.

## 1. Main Trends and Challenges in the Regional Innovation System

### 1.1 Recent trends in economic performance

The Southeast Region of Czech Republic<sup>2</sup> does not constitute a self-governing region itself but consists of two self-governing krajs – Jihomoravský kraj and Kraj Vysočina (NUTS 3). These two self-governing krajs have a rather different economic structure as well as different assets in terms of the potential for economic growth. Primary differentiating factor between them is Brno metropolitan area as the second largest economic centre in the Czech Republic<sup>3</sup>. Kraj Vysočina and non-metropolitan areas of Jihomoravský kraj are predominantly rural areas with substantially less progressive economic structures (see below). Thus, economic performance of Southeast as a whole is driven by Brno metropolitan area. Overall, the region is rather heterogeneous in terms of intra-regional disparities, as well as economic performance.

In 2012, regional GDP reached €22.25b, accounting for about 14.6% of Czech GDP. Regional GDP per capita reached €13,252<sup>4</sup> which amounts to 91.3% of the Czech average. As a percentage of the EU average, per capita GDP of the Southeast Region amounted to 74.0 % (in PPS). Measured by exchange rate, regional GDP reached only 51.8% of the EU average (see Figure 1). Compared to other Czech regions, Southeast ranks second, behind Prague (118.2%) and above third Střední Čechy (50.5%). Regarding the long-term real growth of regional gross value added since 1995 (100%) Southeast performs slightly below the Czech average (153.4% vs. 154.0%). Region's economic performance rapidly decreased in 2009. The magnitude of the decrease followed a trend prevailing for the entire Czech economy. However, the recovery has been stronger (regional GDP in 2012 reached 100.7% of the 2008 level) compared to the national performance (99.2% of the 2008 level), indicating an above average resilience.

The regional labour force amounted to 0.832 million in 2012 (according to ILO methodology), 15.8% of national total, whereas in 2008 it amounted to 0.819 million. The labour force has grown in Jihomoravský kraj (by 22,000 people), while it has decreased in Kraj Vysočina (by 9,000 people). This internal disparity is caused by net migration flows caused by the attractiveness of Brno metropolitan region and other microregions with good accessibility to Brno. Southeast as a whole is significantly below the EU average in terms of unemployment (ILO methodology). The general rate of unemployment equalled 7.7% compared to 10.5% at EU level (see Figure 1). Unemployment rate in Kraj Vysočina was lower (6.4%) than in Jihomoravský kraj (8.1%). In terms of long-term unemployment, Southeast Region has performed much better (3.0%) than the EU average (4.1%).

The quality of human resources in Southeast region has been steadily increasing, if measured by the share of population with tertiary education. In 2011, 21 % of all employees have tertiary education which is above CZ average (20.1 %) but still do not reach the average EU level (30.4 %). Concerning life-long learning<sup>5</sup>, the Southeast region (9.7 %) exceeded the EU average (9.0 %) in 2011. However, it significantly

<sup>2</sup> For the sake of clarity, the term „region“ is used throughout this report to refer to region Southeast (Jihovýchod), i.e. the NUTS 2 region. The Czech term „kraj“ (literally „region“) is used systematically to distinguish clearly the self-governing regions (NUTS 3) from the NUTS 2 administrative, statistical region.

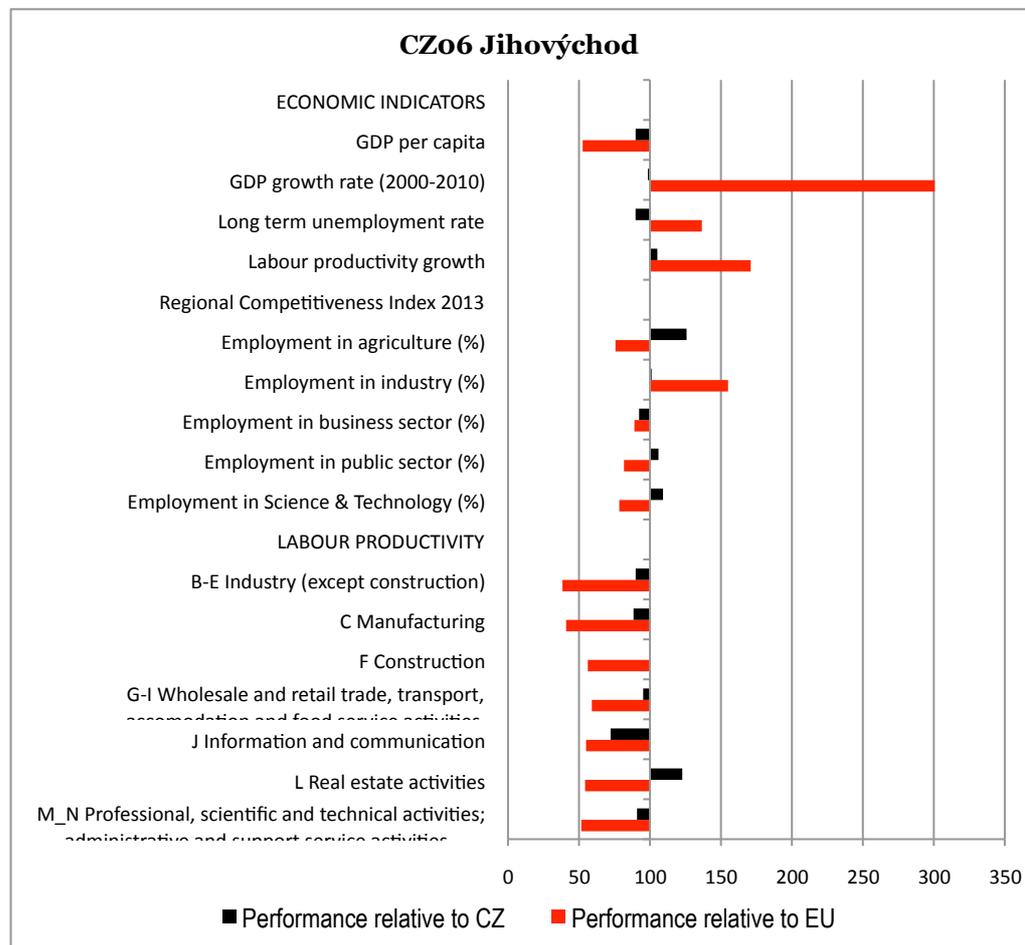
<sup>3</sup> For instance: concentration of 25% of the national R&D capacities, concentration of large companies' headquarters, strong sector of rapidly growing SMEs, five universities and colleges etc.

<sup>4</sup> Exchange rate (not PPP) method.

<sup>5</sup> Participation of adults aged 25-64 in education and training (data from Eurostat).

lagged behind the EU average until 2011<sup>6</sup>. This dynamic change is one of the results of European Social Fund investments. However, the presented statistical data reflect only the quantitative change which, given the rapid increase in the offer of trainings over a short period of time, often conceal a lack of quality.

Figure 1 Economic performance indicators



Source: Eurostat.

In 2012, most employees worked in services<sup>7</sup> (57.3%), while 39.0% were employed in the secondary sector (NACE sections B – F) and 4.0% in the agricultural sector. The sectoral structure significantly differs between the two self-governing krajs. Jihomoravský kraj is characterised by more progressive economic structure (2.9% in agriculture, 37.0% in manufacturing, 60.1% in services) than Kraj Vysočina (6.8%, 43.9% and 49.3% respectively). The difference is caused by the function that Brno has in the Czech settlement and economic system. As a major Moravian metropolis, Brno is home to headquarters of many public institutions as well as private companies which leads to a higher share of service employment in Jihomoravský kraj. This has also significant implications for the character and development potential of regional innovation system. Concentration of private as well as public decision-making (strategic) activities creates more favourable conditions for competitiveness based on innovation activities than in a region where such activities are more scarce (e.g. Kraj Vysočina).

<sup>6</sup> In 2010, Czech Republic 7.5 %; EU 9.1 %; in 2009, Czech Republic 6.5 %; EU 9.1 %.

<sup>7</sup> NACE sections G – U

Concerning the sources of growth, the segment of foreign companies has driven economic performance in both regions. However, there is an important difference between Jihomoravský kraj and Vysočina. While the former is home to both manufacturing and R&D departments of many foreign companies, Vysočina is predominantly characterised by assembly and manufacturing functions and can be largely characterised as a branch-plant economy. Given its favourable combination of labour costs and qualified technical labour force, Brno metropolitan area has become a strategic location in Europe (in some cases even globally) for a number of multinationals. For instance, Honeywell established one of its global R&D centres there, currently employing more than 1,000 staff. Three ABB sites with more than 1,800 employees represent ABB's leading manufacturing and product development location for transformers and special switch-boards worldwide. FEI, global manufacturer of electron microscopes, generates here more than 40% of its manufacturing output in Brno and is currently expanding its R&D centre.

Vital endogenous business sector is a key prerequisite for innovation-led competitiveness and growth. Jihomoravský kraj has also a relatively favourable position in this respect due to relatively robust sector of locally owned businesses that are successfully competing globally. The most iconic of these is the Brno-originating anti-virus software company AVG which – despite being a multinational – still keeps most of its R&D and some other key functions in Brno. Vysočina also is home to a number of locally-owned technology companies, although in much smaller numbers and on a smaller scale (e.g. PBS, Envinet, Medin, etc.).

Concerning the industrial structure, mechanical and electrical engineering represent the key drivers of export performance in both regions. Export in electrical engineering is mostly dominated by large foreign companies, in case of mechanical engineering the domestic firms play a more important role. In Jihomoravský kraj, especially in Brno metropolitan area, ICT sector is rapidly growing, including activities of several global companies (e.g. IBM, AVG, Red Hat etc.); while Vysočina kraj's strength is in the production of automotive components (e.g. Bosch, Automotive Lighting, Valeo, etc.). Vysočina has a relatively weak ICT sector, which is typical for non-metropolitan regions. Agro-food business (NACE 01, 03, 10) accounts for a significant share of total employment (approx. 10%) in both regions, but its export performance is much weaker compared to mechanical and electrical engineering. Service sector is substantially larger in Jihomoravský kraj as mentioned above. Brno functions as an important university and administrative centre and is a base for many business service companies and specialised health services, in some cases of national significance (e.g. Supreme Court, Constitutional Court, Masaryk Memorial Cancer Institute, etc.). These all add to a higher level of personal income, which, in turn, stimulates both general and specific services in retail. Vysočina Region reveals a certain level of specialisation in logistics.

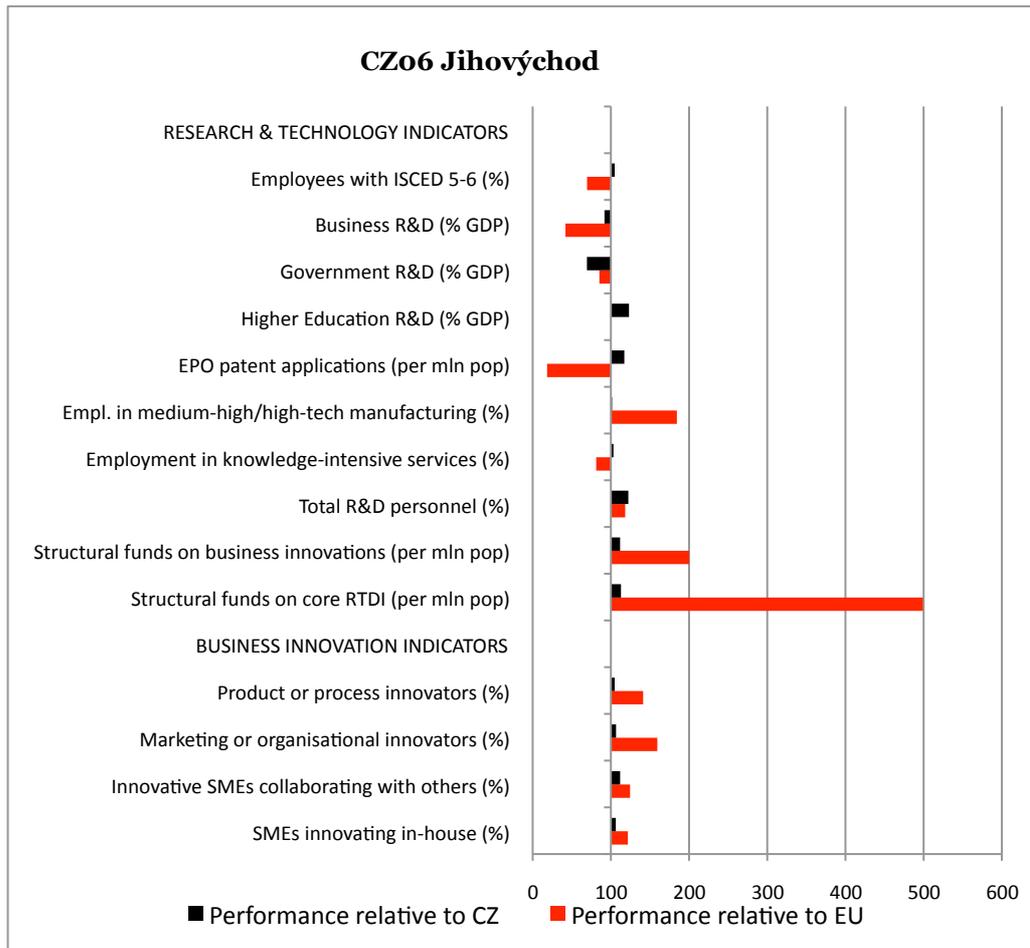
## 1.2 Recent trends in regional innovation performance

In terms of R&D inputs (BERD) and innovation performance (number of rapidly growing innovative companies), Southeast Region can be described as a “high performer”<sup>8</sup> compared to the Czech average and also in comparison with regions in other post-communist countries, yet as a “low performer” compared to the EU (see Figure 2). Jihomoravský kraj itself scores significantly higher in comparison with the EU while Vysočina alone would score below both EU and Czech averages. This reflects both the structural differences described so far, as well as the very different stages of maturity of the regional innovation systems in the two krajs of Southeast (see chapter 2 for details).

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<sup>8</sup> Rumpel et al. (2013)

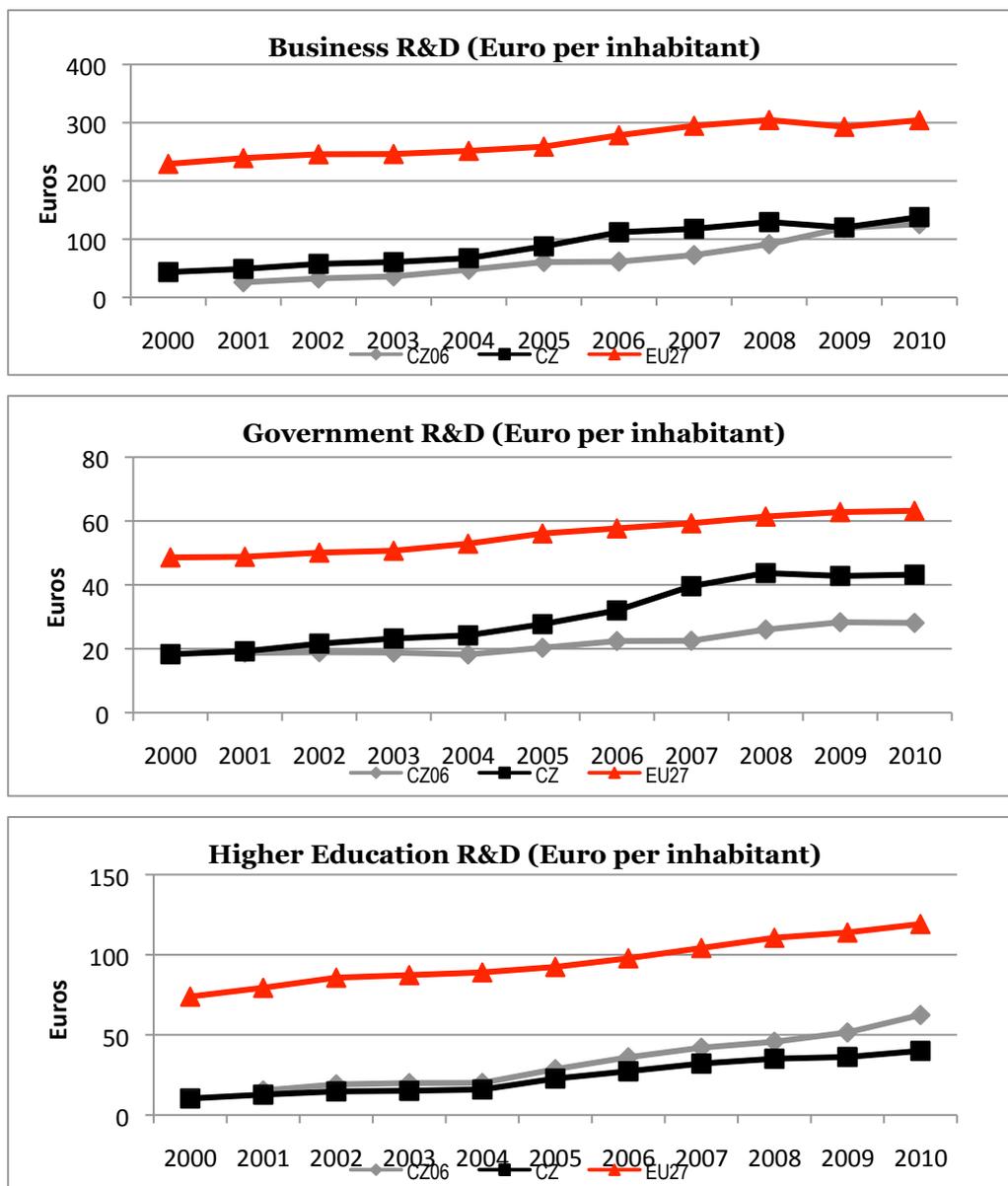
Figure 2 Innovation Performance Indicators



Source: Eurostat.

The RTDI sector in Southeast Region is driven by business sector, but also includes the second largest concentration of public research capacities in the Czech Republic. In 2011, gross expenditure on R&D (GERD) per GDP (2.16%) exceeded the national average (1.84%). The region contributes 16.9% (€436m) to the Czech total, above the region's 14.3% GDP share. In terms of HEI sector R&D (34.2% of national total), the region ranks even higher. Business sector expenditure on R&D (BERD) as a percentage of GDP amount to 1.12%, which is in line with the national average of 1.11%. Government sector (in the Czech context mainly the institutes of the Academy of Sciences of the Czech Republic) expenditure for R&D (0.24%) is slightly below the national average (0.32%). On the contrary, the higher education institutions in Southeast score highly above the Czech average in R&D expenditures, yet almost exclusively accounted for by Brno universities. The respective figure for Southeast amounts to 0.79% of GDP (compared to 0.4% for the Czech Republic).

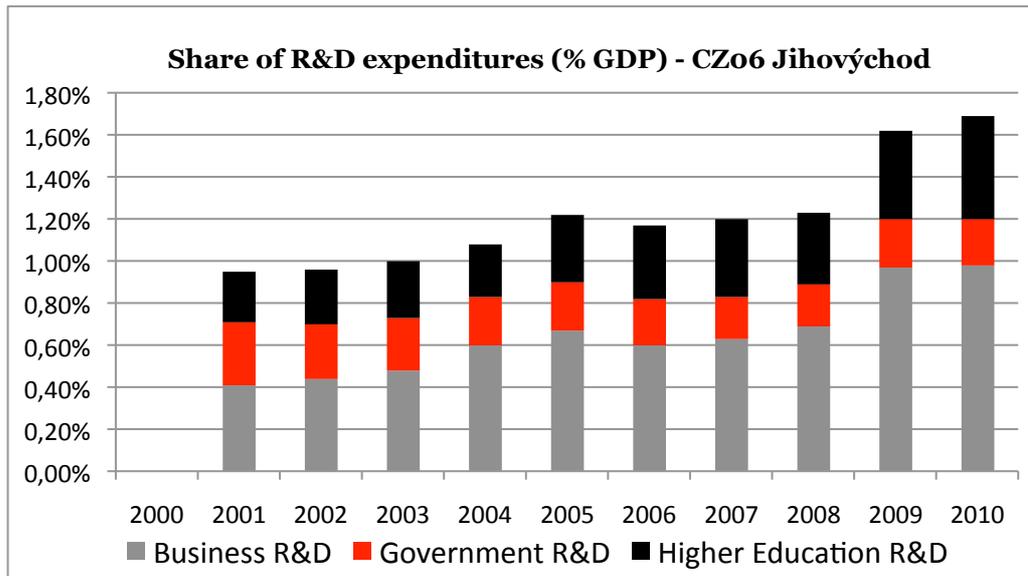
Figure 3 R&D expenditure per sector of performance



Source: Eurostat.

When interpreting the data about RTDI system in Southeast Region, it is necessary to point out that the share of Jihomoravský kraj on Southeast's GERD equals 93.5%. This documents the great disparity between krajs Jihomoravský and Vysočina. Their innovation potentials are rather different both in quantity (inputs and outputs) and quality (e.g. technical level of innovation).

Figure 4 Share of R&D expenditure per sector of performance



Source: Eurostat.

With a total number of 532, Southeast Region had the second highest number of R&D performing entities in the Czech Republic in 2011, accounting for 19.6% of all such entities in the Czech Republic. (Prague in comparison had 670 R&D performing subjects.) From the total number of R&D performing entities in the region 445 were headquartered in Jihomoravský kraj, only 87 in Vysočina. Most of the R&D performing entities are companies; 367 in Jihomoravský kraj and 83 in Vysočina. Given the near absence of public research capacities, the innovation system in Vysočina is largely driven by business sector and oriented predominantly towards non-technical innovation (only 6.5% of Southeast's GERD). Despite a steady inflow of foreign investment into Vysočina over the last decade, a majority of the new investors concentrated on assembly and manufacturing functions (with a few exceptions such as Robert Bosch in Jihlava which operates an R&D department in Vysočina). In contrast, Jihomoravský kraj has a much broader potential for science-driven technological innovation. This potential has also been recognised and exploited by a number of multinationals who, over the last 15 years, decided to set up and increasingly also expand their R&D centres in Brno and its surroundings (e.g. Honeywell, ABB, Siemens, Red Hat, SolarWinds, FEL, AVG, Bosch-Rexroth, ON Semiconductors, Flextronics, etc.). BERD has been increasing since 2001. Despite this positive development, Southeast (41.3 %) as well as the Czech Republic (45.3 %) significantly lag behind the EU average. Investments of the Structural funds into core RTDI (498.3 % of EU and 112.3 % of CZ average) significantly help the catching-up process in terms of GERD as well as BERD. .

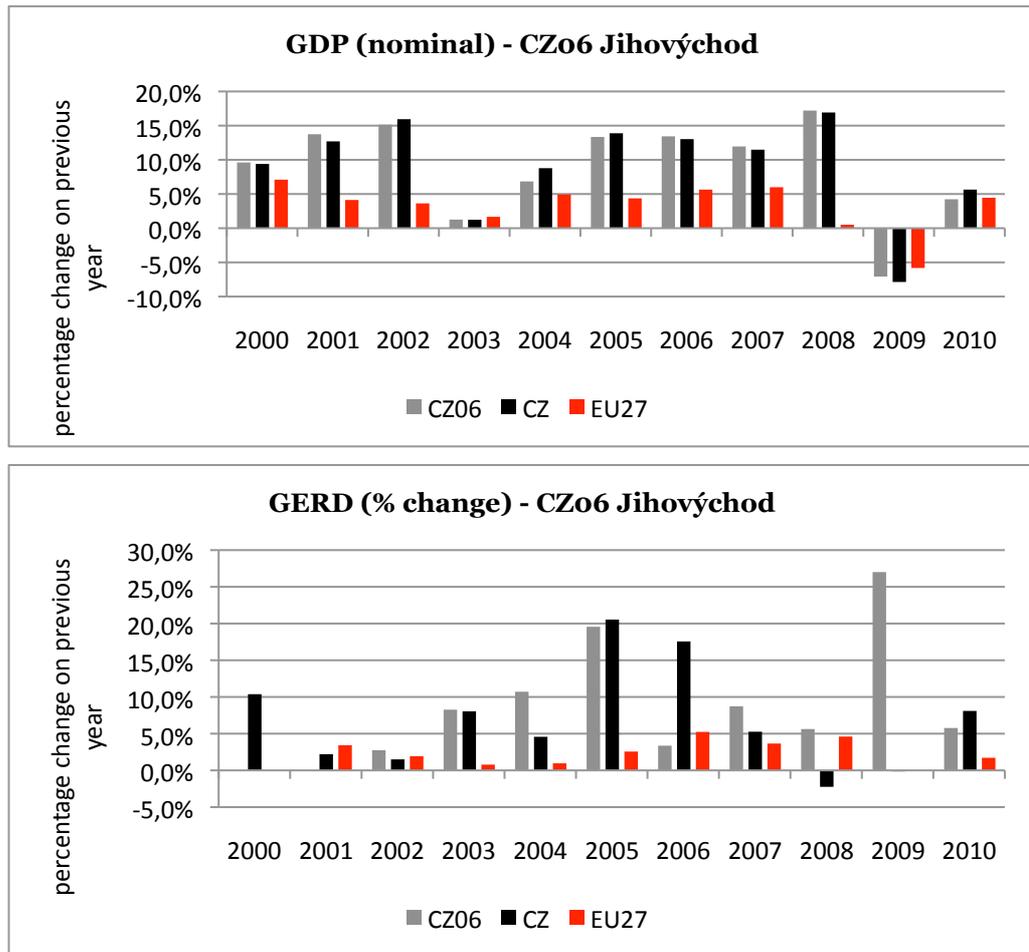
Business innovation indicators (CIS 2008) show that Southeast as well the Czech Republic is relatively strong in the numbers of innovating SMEs. Technological (product or process) innovators (56%) and non-technological (marketing or organisational) innovators (60%) reach 140.6 % and 158.7 % of EU average respectively. 46% of the SMEs in Southeast region are open to collaboration, which is by 23.9 % above the EU average.

When assessing the future of regional innovation system in Southeast, two fundamental characteristics that distinguish the Czech economy from the countries that score the highest ranks on various innovation scoreboards (e.g. IUS 2011) deserve a mention.

Firstly, from a macroeconomic point of view, the Czech Republic, as well as other transitional economies in Central Europe, is disproportionately dependent on foreign-

owned companies. Much of its economy is concentrated in manufacturing, often branch plants of foreign multinational with a limited autonomy, while the sector of knowledge-intensive business services is relatively underdeveloped (28.46% of total employment, 80.6% of EU average). Manufacturing thus represents the major driver of competitiveness, but its structure is different when compared to the leading economies in Western and Northern Europe. Key industries are dominated by multinationals' plants, usually without strategic marketing, sales and R&D operations, which has serious impacts on the extent and quality of innovation demand across the business sector. Despite the recent trend among multinationals based in the Czech Republic to supplement the manufacturing function with an R&D function (a trend particularly visible in places like Brno due to the large concentration of talent, i.e. over 80,000 university students), the relatively unsophisticated innovation demand represents an important structural weakness of many foreign-owned businesses in the Czech Republic. Local enterprises typically compete in market segments of standardised goods and services with high price sensitivity and face an increasing competition from countries with even lower production costs (e.g. Romania, Turkey or China). Many local entrepreneurs do not have the ambition and/or the means to re-orient towards markets where higher-rank innovations are the key to long-term success. This is a general characteristic of the Czech economy and clearly there are numerous cases of Czech-owned companies that did develop strong international positions thanks to innovative and advanced products and services. Nevertheless, this characterization of business sector holds as an overall assessment of the situation in Southeast, except Brno metropolitan area which is marked by a much larger innovation potential and also somewhat more progressive structure of businesses. However, the innovation and thus economic performance of Brno cannot outweigh the economic performance of the whole region. The resulting internal disparities in terms of economic and innovation-system structures underlie the long-term trends in economic performance and GERD.

Figure 5 GERD and GDP trends



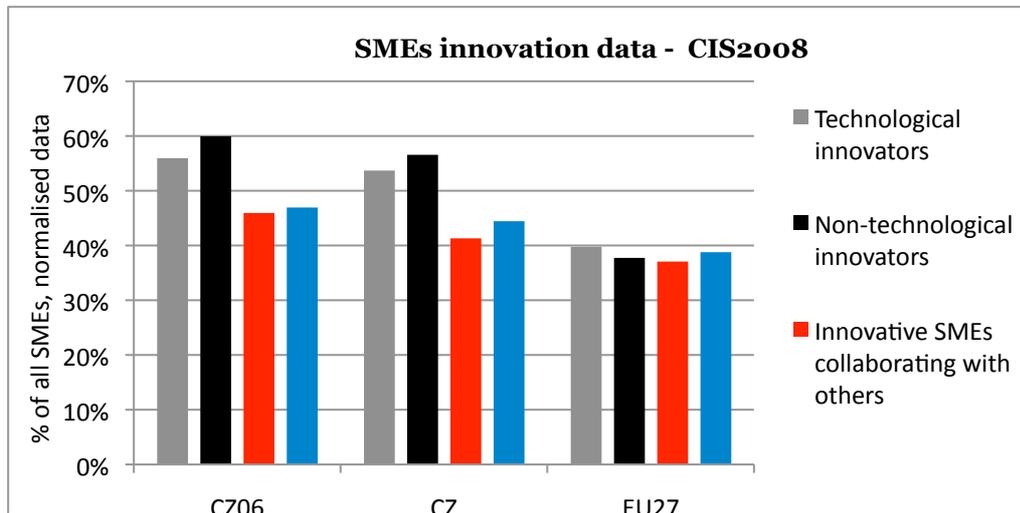
Source: Eurostat.

Secondly, from an evolutionary perspective, the innovation system of the Czech Republic (as well as all Czech regions) is in something of a “catching-up phase”. The absence of at least two generations of successful entrepreneurs seeking new opportunities (centrally planned economy in 1948–1989) combined with the underdeveloped non-technical competencies (strategic marketing, sales, innovation management, etc.) represent fundamental barriers to business innovation in most Czech firms. Foreign firms undertake a greater part of their higher value added business activities (i.e. R&D and market intelligence) outside of the Czech Republic. The demand of their subsidiaries for local supplies is predominantly on the lower value-added end, offering lower margins and opportunities for technological advances.

Local firms that are largely dependent on meeting the demands of the recent wave of FDI are thus, on one hand, presented with an attractive opportunity of a relatively certain source of short and mid-term profit products with a limited scope for innovation; but on the other hand, are locked-into lower positions within the value chains of their client multinationals with limited opportunities for further technological advancement and autonomous innovation activity. Such barriers are characteristic for most industries in the Czech Republic and for all regions. They significantly affect the structure of business sector in terms of innovation regimes and also the types of innovation, including the patterns of collaboration in RTDI.

Figure 6 shows that Czech SME sector is more innovative than the EU average. But the data should be interpreted carefully. Local SMEs (typically tier-2 suppliers) are under pressure<sup>9</sup> from their multinational customers at higher levels in value chains. They focus esp. on technological process innovations aimed at reducing unit costs of their products. However, the picture is quite different in terms of new product innovation, especially when it comes to the new to market innovations<sup>10</sup> (see the discussion above).

Figure 6 Technological & non-technological innovators



Source: Eurostat.

Several other indicators could be used to measure innovation potential or characteristics of a region (see Appendix D). Some of them are not suitable in case of the Czech Republic and its regions. For instance patent data. Czech Republic has so small numbers of international patents that regional patenting data are not adequate for benchmarking. In terms of EPO patent applications, Southeast (17.8 %) as well as the Czech Republic (15.3 %) are below the EU average. It indicates a qualitatively different position of the Czech economy (as in case of the rest of the post-communist member states) in global value chains when compared to most of the old EU member states. The position can be described as the manufacturing base for affluent European markets. Data on employment in medium-tech and high-tech manufacturing (11.74 % of total employment in Southeast, 183.7 % of EU average) also indicates such position within the European economy. Most Czech regions have a very high share of employment in these segments of manufacturing indicating a strong innovation potential. However, it is only a statistical effect. Most of the high-tech industry staff are employed in branch-plants with assembly of standardised manufacturing products, usually without higher value added activities, as discussed above. This line of interpretation is also supported by significantly lower share of employment in knowledge intensive services (28,6% of total employment, 80.6 of EU average - see data in Appendix D).

<sup>9</sup> Multinational integrators and tier-1 suppliers require significant reduction of unit costs (prices) per each new contract with local SMEs.

<sup>10</sup> Berman Group (2010)

### 1.3 Identified challenges

Based on field research of business as well as academic sectors and on discussions with representatives of stakeholders and innovation system experts, three key challenges were identified:

- ***Mismatch between research supply and innovation demand hampers the entrepreneurial discovery process.***

As a result of the prevailing position of the regional, and national economy within the global value chains (see above), a majority of **local companies are characterised by a low innovation demand and, indeed, also innovation capacity**. As a consequence, the best research teams in Southeast (especially Jihomoravský kraj where a vast majority of public R&D is concentrated) which often are well integrated in an international research community and are dealing with global research issues, lack adequate industrial partners for their research work. In other words, they produce knowledge which is potentially usable only by companies dealing with the development of world class technologies, which can appreciate and make use of new scientific knowledge and discoveries and have the internal capabilities to do so. However, only a very few local companies are “world technology leaders” or at least “smart technology followers”. As a result, it is difficult to find adequate partners, to define common research and innovation interests (in terms of academia-business collaboration) and transform them into a concrete long-term R&D agenda. Low mutual trust and skewed perspectives about motivations of potential partners (e.g. researchers’ perspective of entrepreneurs and vice-versa) is further exacerbating the above described mismatch. The **challenge** thus consists in, on the one hand, **a long-term effort to upgrade a larger number of local companies to a position where they can become adequate partners for leading local academic teams**; and, on the other hand, an effort to further **embed local multinationals in the regional economy** by actively developing their partnerships with public research organisations.

- ***Narrowing down the strategy focus and greater business sector involvement.***

Whereas much of the innovation policy efforts so far have been of a generic nature, there is an increasing recognition that for a region of the size of Southeast, it is necessary to **specialise in particular niches and concentrate the public support on those**. An effort has been made over the past years (especially in Jihomoravský kraj but more recently also in Vysočina with its new regional innovation strategy) to better delimitate and better understand the key knowledge bases on which the region’s competitive advantage dwells. The aim is to identify a limited number of possible narrow fields in which the regional economy can become a significant centre globally (e.g. electron microscopes, cyber security software). Further, the problems within such narrowly defined innovation systems (incl. external linkages) must be taken into account in order to develop dedicated instruments for the next generation of innovation strategies which will consist of horizontal instruments with some specific, vertical measures focused on the key narrowly defined industries (e.g. pre-incubation programme with common and specific modules).

However, any further advancement towards an innovation policy based on a thematic specialisation is not possible without **a greater involvement and commitment of the leading industrial partners, the key holders of the strategic market intelligence**. An important part of this challenge is thus to gain the trust and commitment of these stakeholders in the process of regional innovation strategy. On the basis of deeper business commitment, the strategic (long-term) R&D agenda should be defined in a collaborative process involving both local and external research and business partners. This holds true both for Jihomoravský kraj, which is relatively advanced in this respect, as well as for Vysočina, which is only at the beginning of its regional innovation policy efforts.

- ***Inadequate national innovation policy***

The current absence of a credible action plan of fundamental national reforms (e.g. reforms of education system), instability in several key policy areas (e.g. financing of public research), as well as an absence of national consensus over the strategic direction in the field of research and innovation hamper and restrict further the effort at the regional level. From the other side, there is a **growing demand among leading Czech business people as well as economic development professionals for creation of an adequate platform tasked with elaboration of a national innovation strategy covering the entire eco-system**, incl. the quality and relevance at all levels of education, institutional reforms, coordinated science policy, etc. Although this challenge can be viewed partly as an externality to the regional innovation policy, there is a need to emphasise its importance. Moreover, since many regional actors are at the same time important actors and stakeholders at the national level, there is an opportunity to up-grade some of the good practice from the regional level into national level policy-making.

## 2. Innovation Policy Governance

### 2.1 Regional autonomy and autonomy with regard to innovation policy

Overall, the self-governing Czech regions (krajs) represent relatively young entities established only in the year 2000. As a rule, the self-governing regions correspond with the NUTS 3 level and it is at this level that the elected regional council operate, with their own budgets and a set of responsibilities set by law (Act no. 129/2000 Coll. on “krajs”). The key responsibilities of krajs in the Czech Republic concern the fields of primary and secondary education, transport (selected parts), health sector (selected parts), and regional policy. The Czech krajs have a high degree of autonomy, they can prepare laws applicable to their territory, and they also have a legal initiative vis-à-vis the national level (i.e. can initiate new acts at the national level).

In respect of regional development, the competences and responsibilities of krajs are defined by Act on Regional Development from year 2000 (Act no. 248/2000 Coll.) in very broad terms and cover responsibilities for supporting business development, human resources and labour market, research, technological development and innovation, as well as tourism development, transport infrastructure, municipal infrastructure, social services, healthcare, environment, and more. The role of krajs in regional development policy is also defined broadly; the only explicit obligation is related to the requirement of analysing the state of its economic development and preparing its own strategic development plan. Any concrete measures related to regional development are defined as non-binding.

The Czech krajs are thus free to choose any of the topics mentioned by the Regional Development Act – including the innovation agenda – and launch initiatives or programmes in these areas, depending on their respective needs. In this sense, the degree of autonomy of Czech regions is relatively high and there is no effort at the national level to influence the regional initiatives in this respect.

In practice, the vast majority of the krajs’ budgets consist of mandatory expenditures that are tied to a concrete purpose (e.g. funding for primary schools, hospitals, etc.) which largely restricts ability of regions to formulate and, importantly, to directly fund and implement concrete initiatives and programmes. Krajs active in the field of innovation policy are thus largely limited by restricted regional budget, while being free to act as facilitator (rather than a funder) who initiates projects that are subsequently funded from national level. Moreover, the understanding of regional development by responsible regional authorities is rather diverse (in line with the wide interpretation set by the Regional Development Act) and only in some Czech regions

the innovation agenda is understood as an integral part of regional development while in others the innovation policy is neglected.

So in one extreme case, regional innovation policy is understood as a key ingredient of regional development policy and a cornerstone of a region's development strategy. In another extreme case, innovation policy is regarded as irrelevant, the region being a recipient of innovation policy measures defined and implemented at the national level without efforts to initiate projects or act as project developer in this field. Often the understanding of regional development in such Czech regions is constrained to the administration of the EU Structural Funds through regional operational programme and implementation of subsidy-driven projects in the field of tourism development, direct subsidies to companies and municipal infrastructure development (i.e. activities historically supported from regional operational programmes).

In respect of regional innovation policy, the result is a rather diverse situation, depending on how broadly or narrowly the concept of *regional development* is understood by regional policy-makers in a respective region. This diversity is reflected both in the institutional set up and governance of innovation policy, as well as in the extent (or even existence/non-existence) of concrete activities carried out at the regional level.

The Southeast Region (Jihovýchod) is a mere statistical unit at the NUTS 2 level which consists of two self-governing regions (krajs): Kraj Vysočina and Jihomoravský kraj. The only uniting feature of the two "krajs" (apart from the NUTS 2 statistical classification) is the existence of a common institutional structure for management of a common Regional Operational Programme Jihovýchod (Southeast) which, however, as mentioned above, is only marginally relevant to innovation. The situation in respect of innovation policy in Jihovýchod region is nevertheless illustrative of the above-mentioned institutional and innovation policy diversity. While Jihomoravský kraj is often quoted as an exception to the rule by Czech standards, a kraj representing the national role-model of regional innovation policy with a clearly identified governance model, implementation structures and a functional partnership between public sector, academia and industry, Vysočina is quoted as a region with underdeveloped regional innovation policy.<sup>11</sup>

Since there is no common governance or institutional set-up for the governance of innovation policy in the overall region Southeast (Jihovýchod), the following text will, as much as possible, separate out the characteristics of the respective governance models in the two NUTS 3 regions: Jihomoravský kraj and Kraj Vysočina.

## 2.2 Set up of the regional governance model

At the NUTS 3 level, the two krajs – **Jihomoravský and Vysočina**– differ both in the number and roles of key stakeholders and the overall governance. At the most general level, however, the types of stakeholders are identical. The political (elected) bodies consist of the elected regional assembly, the regional council and the governor. The Regional Assembly (Zastupitelstvo kraje) is in charge of regional laws and regulations design, co-ordination of regional development, design and implementation of tourism strategies, delegation of its members into the regional council (NUTS 2 level), design of public transport services, approving of the annual regional budget, etc. The Regional Council (Rada kraje) is an executive body of the Assembly and is responsible for creation and implementation of regional policies and strategies, and implementation of Regional Assembly's decisions. The Governor is the main political representative of the region.

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<sup>11</sup> Erawatch, Czech Republic country report 2013  
[http://erawatch.jrc.ec.europa.eu/erawatch/openems/information/country\\_pages/cz/country](http://erawatch.jrc.ec.europa.eu/erawatch/openems/information/country_pages/cz/country)

The practical implementation of any policy actions then largely depends on the Regional Authority (Krajský úřad), the executive body of the regional government (Assembly, Council and Governor). The agenda of innovation policy usually dwells with Departments of Regional Development at a given kraj which can implement the policy directly through their staff, or through other intermediaries or contracted agencies, depending on the historically developed practice.

### 2.2.1 Jihomoravský kraj

In the case of **Jihomoravský kraj**, the innovation policy design and its associated governance system are ranked as probably the most advanced in the country. Jihomoravský kraj was also the first Czech region (kraj) to design and implement its regional innovation strategy (RIS), starting already back in 2002. The result of this first generation of regional innovation strategy was the creation of an institutional framework that largely survived – with some important modifications – until present. The initial RIS of Jihomoravský kraj created an overall consensus over the need for a concerted action at the regional level as a response to the economic downturn and rising unemployment and the strategy to which the key regional stakeholders agreed was centred around the support of innovation, research and higher education. The regional consensus also led to a formal institutionalisation of a Steering Committee of the Regional Innovation Strategy which comprised representatives of regional government, local government (City of Brno), the two main universities in the region (Masaryk University and Brno University of Technology) and Regional Development Agency of Jihomoravský Region which acted as a catalyst of the first generation of RIS.

The first strategic project implemented under the RIS in 2003 was the creation of a dedicated agency – South Moravian Innovation Centre (Jihomoravské inovační centrum, JIC) – established jointly by these four key stakeholders (Jihomoravský Region, City of Brno, Masaryk University and Brno University of Technology) and funded by the region and the city<sup>12</sup>. JIC was from its creation assigned with the task to implement several projects defined in the first Regional Innovation Strategy (2002-2004), especially operating the first technology incubator that was built by Brno University of Technology. More importantly, JIC became over time a key actor in the overall system of regional innovation governance in Jihomoravský kraj.<sup>13</sup>

As the regional innovation ecosystem matured over time, a new, second generation of RIS was prepared (2005-2008) by JIC under the sponsorship of JIC founders. With this generation of RIS, the formal responsibility for the management and coordination of the regional innovation strategy was transferred from Regional Development Agency to JIC who reported on the progress (or lack thereof) of individual RIS projects back to its founders. The second generation of RIS in Jihomoravský kraj responded to the accession of the Czech Republic to the EU and the availability of Structural Funds funding which suddenly opened up new opportunities and challenges, especially speeded up the construction of two new business incubators run by JIC. Furthermore, the second generation of RIS in Jihomoravský kraj also responded to the acknowledgement of the important role played by human resources and education vis-à-vis the challenges of knowledge-based society. As a consequence, an additional

<sup>12</sup> Later on, in 2005, the original founders were complemented by the remaining two public universities in the region: Mendel University and University of Veterinary and Pharmaceutical Sciences.

<sup>13</sup> The core business of JIC was from the outset, and in line with the objectives of the RIS, to support technological start-ups and this activity until present created over 100 alumni start-ups and three business incubators, all based in Brno (one dedicated to life sciences and two general technology incubators where IT companies dominate). Over time, the portfolio of activities of JIC grew to include also pre-incubation activities (business accelerator StarCube), activities aimed at increased interaction between the academic and business sectors through organisation of networking and match-making activities, introduction of innovation vouchers scheme and in the last years also increasingly activities aimed to boost the innovative potential of regional companies through projects such as Competence Centre of Machine Tools Technology (INTEMAC), support in international R&D and innovation grants and matchmaking, open innovation session for large companies and SMEs, etc.

agency was created jointly by Jihomoravský kraj, Masaryk University and Brno University of Technology<sup>14</sup>, called South Moravian Centre for International Mobility (Jihomoravské centrum pro mezinárodní mobilitu, JCMM). The task of this agency is mainly to support talented secondary school students and their teachers, to support gifted university students, provide them with mentoring and to attract them to research careers, to attract international students to Jihomoravský kraj (especially from countries of former Soviet Union and Western Balkans) and to attract and facilitate the integration of experienced scientists to South Moravian universities and research institutes.<sup>15</sup>

The current, third generation of RIS in Jihomoravský kraj was prepared and approved in 2008 for the period 2009-2013. The emphasis remains on support to innovative start-ups, human resources for research and innovation, but increasing emphasis is put also on support to mature companies in the region, on internationalisation and on the support of research and in particular development of research infrastructures. The latter point reflects also increased emphasis in the Structural Funds programming period 2007-2013 in the Czech Republic on the support of research and development and the availability of important amounts of funding from Operational Programme Research and Development for Innovation for new research capacities.

The third generation of RIS in Jihomoravský kraj was also accompanied by important changes in the organisation of the RIS process and the overall governance of regional innovation. Firstly, a formal RIS Steering Committee was formed in 2009, which consists of high level representatives of the regional and municipal government, higher education institutions, Academy of Sciences, Regional Development Agency of Jihomoravský kraj and the directors of JIC and JCMM as permanent guests. The RIS was also supplemented by bi-annual Action Plans which consist of a set of concrete projects that are implemented under the umbrella of RIS by assigned responsible institution (JIC, JCMM, Regional Authority, universities, etc.). The main tasks of the Steering Committee is the approval of the strategy, actions plans, and securing of finance for implementation of individual projects. Secondly, the position of RIS manager was also formally constituted, whose job is to coordinate the RIS activities, monitor the progress and report back to the Steering Committee. Evaluation of the past RIS projects was also included among the tasks of RIS manager. Thirdly, the Steering Board and the RIS manager, were also supplemented by the so called RIS Coordination Board consisting of a number of key stakeholders from the region (company associations, chamber of commerce, technology transfer offices of universities, regional representation of CzechInvest – the national business development agency, etc.) and a set of four Working Groups with a task to identify key challenges for the innovation system in Jihomoravský kraj and formulate (working groups) and validate (Coordination Board) the proposed projects for the Action Plan. The work of the Working Groups was also supplemented by data collected through series of surveys and interviews both among the businesses and research teams in Jihomoravský kraj and this process has become continuous, with similar survey carried out almost every year since 2009.

Other important actors in the regional innovation system are universities and research institutes which are also represented in the institutional set up of RIS. All four public universities – Masaryk University, Brno University of Technology, Mendel University and University of Veterinary and Pharmaceutical Sciences – are represented on the RIS Steering Committee by their rectors. In addition, the Military Academy and the institutes of the Academy of Sciences of the Czech Republic present in Jihomoravský

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<sup>14</sup> The founders were later complemented by Mendel University, University of Veterinary and Pharmaceutical Sciences and the City of Brno.

<sup>15</sup> The latter activity is carried out through a programme called SoMoPro (South Moravian Programme for Distinguished Researchers) which is co-funded by Jihomoravský kraj and the European Commission (Marie Curie Action called Co-fund) and has been carried out since 2009.

kraj have their representatives on the Steering Board. Three of the abovementioned universities have their own technology transfer offices. Two of them (from Brno University of Technology and Masaryk University) are represented on the Coordination Board of RIS, while the one at Mendel University was only established in 2012. Public research institutes in Jihomoravský kraj are represented primarily by the institutes of Academy of Sciences of the Czech Republic whereby nine of its institutes have their seat in Jihomoravský kraj and 15 have their branch or subsidiary in the region and jointly have their representative in the Steering Board. The most important of these by size, the volume of scientific production and importance for the regional innovation system are the Institute of Biophysics, Institute of Scientific Instruments, Global Change Research Centre, Institute of Physics of Materials, Institute of Analytical Chemistry and Institute of Vertebrate Biology. In majority these institutes concentrate their efforts on basic research, yet they are also an important source of expertise and potentially of commercially viable research results. These institutes of the Academy of Sciences are further supplemented by several public research organisations subordinated to the national ministries. The most notable of these are the Veterinary Research Institute (Ministry of Agriculture) and the Centre for Transport Research (Ministry of Transport). These institutes are involved in both basic and applied research and often serve as a knowledge base for both public and private sectors.

Vast majority of the institutions mentioned above are concentrated in the regional capital Brno. So far there have been some indications of efforts to spread out the innovation system in a way that would encompass also other parts of the region yet there are, to the date, no demonstrable results of such effort.

### *2.2.2 Kraj Vysočina*

The situation in **Kraj Vysočina** in terms of governance of regional innovation is in many ways simpler, a fact which reflects both the very recent history of regional innovation policy in this region, and also a much smaller number of relevant stakeholders. In the case of Vysočina, it has been only since 2011 that the Regional Authority launched the preparatory works for its regional innovation strategy. Rather than trying to set up any new entity dedicated to this agenda, the Regional Authority of Vysočina decided to keep the responsibility over the preparation and implementation of RIS in-house whereby its Department of Regional Development acts as the main actor. The Regional Authority went for an expert approach and entrusted the preparation of the strategy to an external consultancy, which carried out a survey of companies and drafted the strategy in 2010-2013. The proposed strategy was subsequently consulted with relevant stakeholders in the region (chambers of commerce, business clusters, local university and public research institutes) as well as with other departments of the Regional Authority. The final document was approved by the Regional Government in September 2013.

The reasons for launching the preparation of regional innovation strategy were to do with the recognition of importance of innovation and the perceived need on the part of public sector to stimulate innovative capacity of local industry, as well as to strengthen the link of local research capacities with industry. This effort preceded the requirement of ex-ante conditionality for having in place a smart specialisation strategy. Yet the initiative coincided conveniently in time and the strategy has been finalised and approved at a time when the requirement of S3 become topical in the context of preparation of the new programming period 2014-2020.

The governance of innovation system in the Kraj Vysočina to date can be characterised as largely absent, lacking an overall strategic framework. The limited number of initiatives that have taken place in the region so far have been the result of isolated efforts by individual institutions that reacted to the funding opportunities offered from the national level (mostly from Structural Funds funded Operational Programmes). Nevertheless, the approval of the Regional Innovation Strategy in September 2013 promises a fresh start. The plans for the nearest future are to set up a regional

Innovation Board (Rada pro inovace) consisting of two representatives of regional government, rector of College of Polytechnics Jihlava, representative of Czech Academy of Sciences (see below) and the regional Chamber of Commerce. The Board will be supported by Department of Regional Development which will also be responsible for steering the work of a Working Group consisting of selected leading industrial partners and other members. Whether or not the newly approved regional innovation strategy will harness these efforts and align the interests of the relevant regional stakeholders remains to be seen.

The key stakeholders in Vysočina are the College of Polytechnics Jihlava (Vysoká škola Polytechnická Jihlava), a relatively recent higher education establishment founded in 2004 which aims to cater for the qualification and labour market needs of the regional economy (provides training in economics, tourism, IT, health and social work) and two branches of institutes of the Academy of Sciences of the Czech Republic: the Institute of Theoretical and Applied Mechanics in Telč and the Institute of Vertebrate Biology in Studenec. Another relevant stakeholder is the Institute of Potato Research in Havlíčkův Brod, a small and specialised institute (subordinated to the Ministry of Agriculture) which is also active in commercialisation of research results and has been operating a small business and innovation park for a number of years, currently the only institution of its kind in the region. The project of a Science and Technology Park in Jihlava, combined with a Technology Transfer Centre, has been under development since 2008. However, its completion is only planned for 2014 and it is not clear to what extent this is a mere real estate project, or a genuine effort to provide quality service to start-up companies.

When comparing the regional governance set up for innovation policy in the two NUTS 3 krajs, the difference is striking. Although both krajs form the same regional statistical unit, NUTS 2 Jihovýchod, their approach to managing the innovation policy is very different.

In case of Jihomoravský kraj the governance system is de-centralised, largely independent of the national policy-making (national policies and programmes are often used only as the means to fund the implementation of regional strategy rather than the other way round). It can be characterised as a strongly co-ordinated yet, at the same time, largely participatory system, open to initiative by associated stakeholders. The co-ordination mechanisms are very explicit and include not only regional stakeholders but in many cases include also the national level (ministries, national agencies); partly as a side effect of the progress achieved so far the key partners of the regional innovation ecosystem the stakeholders are often consulted by national authorities in matters related to national policy design.

In the case of Kraj Vysočina, the situation until present can be characterised as a fragmented governance system with limited number of actors but still practically absent coordination efforts. This may change in the near future as a consequence of the newly approved regional innovation strategy. However, it is too early to judge whether and how the system is going to develop since the formal approval of the strategic document per se does not guarantee a successful launch of a sustainable cycle of policy design – implementation – monitoring – revision.

So far, there has been very little interaction between the two regions in terms of coordination of their respective innovation policy efforts, despite obvious opportunities for sharing of good practice.

The table below gives an overview of innovation policy governance.

Table 1 Innovation Policy Governance

	Description	Comment
<b>Degree of general regional autonomy</b>	Moderate	General regional autonomy is moderate, the Czech regions (krajs) have the right of legislative initiative, yet they cannot charge local taxes and are fiscally dependent on transfers from national budget, without any

		incentive related to the amount of taxes originating from the given region.
<b>Degree of autonomy with regard to innovation policy</b>	High	High level of autonomy, yet no obvious incentive mechanism for preparing and implementing innovation policy at the regional level, with no funding stream linked to it. The main incentive being the personal motivation of key policy-makers. In many cases the absence of a critical size of regions restricts the feasibility of fully fledged regional innovation policy (Vysočina included).
<b>Set-up of regional governance system (centralised/de-centralised/fragmented)</b>	Centralised (in Jihomoravský and Vysočina).	The set ups of regional governance in both Jihomoravský and Vysočina are largely centralised, concentrated at the Regional Authority (in Jihomoravský parts of governance outsourced to JIC).
<b>Nature of the process of strategy development (top-down/bottom-up/participatory)</b>	Bottom-up in both Jihomoravský and Vysočina, participatory in Jihomoravský.	In Jihomoravský kraj historically bottom-up (i.e. designed by regional initiative in the absence of a national framework) and over time increasingly participatory (increasing involvement of stakeholders – from public sector to research and higher education institutions and most recently key industrial partners); in Kraj Vysočina bottom-up, strategy initiated by the regional government.
<b>Intra- and inter-regional co-operation</b>	Intra-regional cooperation high, inter-regional cooperation limited in Jihomoravský; in Vysočina early to judge.	Intra-regional cooperation level in Jihomoravský kraj is high, with a majority of key stakeholders being directly involved in the process; inter-regional cooperation is limited to some coordinated efforts in field of research collaboration (Brno-Olomouc and Brno-Vienna/Lower Austria); Both intra- and inter-regional co-operation in case of Vysočina in its infancy (associated with the preparation of the RIS).

The following table provides more detailed information about the innovation policy institutional set-up and available human resources, outlining the main recent changes and giving a summary assessment. In case of Jihomoravský kraj the key organisation responsible for innovation policy is, as previously mentioned, JIC (South Moravian Innovation Centre), who act on the basis of delegation and on behalf of Regional Authority. In case of Vysočina, the key organisation is the Regional Authority and, more specifically, its Department of Regional Development.

Table 2 Innovation Policy Institutional Set-Up and Available Human Resources

<b>Policy stage</b>	<b>Primary organisation</b>	<b>Number of personnel directly in charge</b>	<b>Total number of employees</b>	<b>Change in the number of personnel directly in charge over the last five years</b>	<b>Summary assessment</b>
<b>Strategy development</b>	South Moravian Innovation Centre (JIC) (in Jihomoravský kraj)	5 <sup>16</sup>	40	+2	The no. of staff corresponds to the no. of strategic objectives + RIS manager
	Department of Regional Development of Regional	5	39	+5	The staff are all based at the Department of Regional

<sup>16</sup> Headcount.

	Authority (in Kraj Vysočina)				Development and were supported by external consultant
<b>Programming</b>	South Moravian Innovation Centre (JIC) (in Jihomoravský kraj)	5	40	+2	Similar to strategy development stage
	Not applicable in Kraj Vysočina due the embryonic state of RIS	5	39	+5	The programming stage is currently under preparation, yet it is expected that it will require the capacity of the 5 staff (possibly more)
<b>Implementation</b>	South Moravian Innovation Centre (JIC), South Moravian Centre for International Mobility (JCMM) and a number of other partners responsible for implementation of individual projects (in Jihomoravský kraj)	80	55 (in JIC + JCMM)	25	Implementation of individual projects under RIS is assigned to individual partners (as per the current Action Plan); the number is estimated at 70 (mostly at JIC and JCCM, but also at universities and research centres, City of Brno, Regional Authority)
	Not applicable in Kraj Vysočina due the embryonic state of RIS	n.a.	n.a.	n.a.	
<b>Monitoring and evaluation</b>	South Moravian Innovation Centre (JIC) (in Jihomoravský Region)	2	40	+1	The South Moravian staff dedicated to monitoring and evaluation are employed at JIC (the chief analyst and RIS manager) who partly outsource the evaluation studies to external suppliers
	Not applicable in Kraj Vysočina due the embryonic state of RIS	n.a.	n.a.	n.a.	

### 3. Innovation Policy Instruments and Orientations

#### 3.1 The Regional Innovation Policy Mix

Since the Southeast region consists of two self-governing NUTS 3 regions / krajs (Jihomoravský kraj and Kraj Vysočina) which are very different in terms of their innovation policy development the two regions are analysed separately. However, both krajs are at the moment in the process of designing their new Regional Innovation Strategies (following the S3 methodology). It is assumed, that both regions will reflect new trends in the design of innovation policies for the new programming period 2014-2020 (the exact process of new RIS design is described in chapter 3.4.)

### 3.1.1 Jihomoravský kraj

Currently (year 2013) the third generation of the regional innovation strategy is being implemented. The strategy was approved both by the Regional Government and the city of Brno in February 2009.

In 2008, at the beginning of the RIS formulation process, representatives of the Regional Government, the city of Brno, universities and intermediaries agreed on the following strategic goals: *i*) to expand overall intervention from start-up support to include cluster development, technology transfer, internationalisation etc.; *ii*) to prepare the region for the new 2007-13 EU programming period in order to efficiently stream financial funds into the region; *iii*) to bolster already existent partnerships by establishing permanent structures, such as the Steering Committee (high-level political group), the Coordinating Committee (expert group) and four thematic working groups comprising 80 people from all three triple helix environments.

Based on an extensive survey results and on an expert assessment by working group leaders, four horizontal priorities were formulated:

- i) Technology transfer;
- ii) Services for companies;
- iii) Human resources for science and technology;
- iv) Internationalisation.

On the basis of quantitative analysis and extensive field research among companies (185 interviews) and research groups (30 interviews), four vertical priorities were outlined:

- i) Mechanical engineering;
- ii) Information technologies;
- iii) Electro engineering;
- iv) Life-sciences.

Strategic goals and activities were proposed for each horizontal priority. In order to ensure proper implementation of the strategy, an Action Plan for 2009 – 2010 with 27 projects was prepared. In 2012, a second Action Plan for 2012–2013 has been launched and is still in the process of implementation.

The Technology transfer priority is mainly realised by the innovation vouchers scheme and services of TTOs at research organisations. The objective of the *Innovation vouchers* is to support mutual cooperation, development and problem solving for companies by subsidising contract research in the size of €4,000. The applicant (company) has to co-finance the project by 25%. *Services of TTO* at the research organisations are mostly focusing on legal advice to researchers and IP protection. Regional programme to fund proof of concept of new technological discoveries is under consideration. For other measures of this priority see Table 3.

The Services for companies priority is mostly realised by a pre-incubation programme (JIC|Start Up Programme), an incubation programme (JIC|Innovation Park) and by a pilot project Competence centre for machine tools (Intemac). The objective of the *pre-incubation programme (JIC|Start Up Programme)* is to help future entrepreneurs to prepare entrepreneurial projects, to develop skills of future company teams with help of consultants and mentors. The programme is mostly financed by the Regional Authority. The objective of the *incubation programme (JIC|Innovation Park)* is to consult already established knowledge intensive start-ups in order to grow faster. The companies are offered premises, loans, consultancy from in-house consultants and external mentors. Recently various events and special consulting services have been offered in area of *service design and design thinking*. At the moment a seed fund is under preparation with a private bank as a main partner. These activities are mostly

financed by the Regional Authority, partly also by OP Entrepreneurship and Innovation. The pilot project for creating *competence centre for machine tools (Intemac Solutions)* is one of few which are clearly focusing on one of the strongest industry sectors in the region. The objective of this project is to solve research problems which are common for more companies operating in the sector of machine tool building. The project is jointly financed by the Regional Authority, OP Entrepreneurship and Innovation and companies. For other measures of this priority see Table 3

The Human resources priority is mainly realised by programmes Talented Student Support Scheme, Brno PhD Talent, SoMoPro I and II. The *Talented Student Support Scheme* is focused on support of talented students from the first year of secondary school until after their completion of bachelor's degree studies at university (provided that the supported student continues studies at a local university). Students receive financing for the duration of their studies. The financial aid is aimed to cover expenses for self-education purposes. The programme *Brno PhD Talent* supports talented master students by providing additional scholarship in order to motivate the most talented students to study for a doctoral degree since the "normal" state-funded scholarship is not financially sufficient and attractive. Approximately 60 students are supported every year. The *SoMoPro* grant programme aims to attract foreign scientists and to attract Czech scientists from abroad back to the region. The programme is 40% co-financed by the FP7 programme Cofund. For other measures of this priority see Table 3

The Internationalization priority is realised by projects of establishing International Secondary School, Brno Expat Centre (services to expatriates) and JIC|Internationalization activities which aim to connect local companies to international research consortia, e.g. FP7 projects. For other measures of this priority see Table 3.

### 3.1.2 Kraj Vysočina

The first generation of the Regional innovation strategy was adopted by the Regional Government in September 2013. On the basis of survey and public consultations three horizontal priorities were outlined:

- i) Innovation infrastructure and technology transfer;
- ii) Human resources and PR of innovation activities;
- iii) International cooperation;

In addition, five vertical priorities were identified:

- i) Mechanical engineering;
- ii) Wood processing industry;
- iii) Food processing industry and agriculture;
- iv) Automotive industry;
- v) IT and automatisation.

For each horizontal priority several measures/ projects were formulated (Innovation infrastructure and technology transfer – 9 measures; Human resources and PR of innovation activities – 7 measures; International cooperation – 4 measures). The budget for each measure was estimated. The Authority relies on the possibility to fund the measures from Structural Funds 2014-2020 and also from the budget of the Regional Authority. Since the actual implementation of the strategy has not started, planned measures are not analysed.

Table 3 Existing regional innovation support measures

Title	Duration	Policy priorities	Budget	Organisation responsible	More information
<b>Talented students support measure</b>	2005 -	3.3. Promotion of science, education, PhD studies and S&T career awareness	0.12m/year	JCMM	<a href="http://www.jcmm.cz/en/scholarship-for-foreign-university-students.html">http://www.jcmm.cz/en/scholarship-for-foreign-university-students.html</a>
<b>Brno PhD Talent</b>	2008 -	3.3. Promotion of science, education, PhD studies and S&T career awareness	0.17m/year	JCMM	<a href="http://www.jcmm.cz/en/doctors.html">http://www.jcmm.cz/en/doctors.html</a>
<b>SoMoPro I</b>	2009 - 2013	3.1. Mobility of researchers	3.8m	JCMM	<a href="http://www.jcmm.cz/en/somopro.html">http://www.jcmm.cz/en/somopro.html</a>
<b>SoMoPro II</b>	2012 - 2015	3.1. Mobility of researchers	4.0m	JCMM	<a href="http://www.jcmm.cz/en/somopro.html">http://www.jcmm.cz/en/somopro.html</a>
<b>JIC   Start Up Programme (pre – incubation programme)</b>	2010 -	4.3. Fostering start-ups and gazelles 5.3. Innovation awareness-raising	0.2m/year	JIC	<a href="http://www.jic.cz/starcube-en">http://www.jic.cz/starcube-en</a>
<b>JIC   Innovation Park (incubation programme)</b>	2003 -	4.3. Fostering start-ups and gazelles 5.5. Seed and early-stage capital vehicles, business angel networks 5.2. Science-, technology parks and incubators	0.6m/year	JIC	<a href="http://www.jic.cz/innovation-park-en">http://www.jic.cz/innovation-park-en</a>
<b>JIC Fund (microloan fund)</b>	2005	5.5. Seed and early-stage capital vehicles, business angel networks	0.2m	JIC	<a href="http://www.jic.cz/innovation-park-en">http://www.jic.cz/innovation-park-en</a>
<b>JIC   Innovation Vouchers</b>	2008	2.1. R&D cooperation projects between academy and industry	0.16m/year	JIC	<a href="http://www.jic.cz/innovation-vouchers">http://www.jic.cz/innovation-vouchers</a>
<b>JIC   Internationalisation</b>	2010 -	7.3. Support to participation in international R&I programmes	0.12m/year	JIC	<a href="http://www.jic.cz/internationalisation">http://www.jic.cz/internationalisation</a>
<b>Erasmus for young entrepreneurs</b>	2013 -	5.3. Innovation awareness-raising	0.1m/year	JIC	<a href="http://www.jic.cz/erasmus-for-young-entrepreneurs">http://www.jic.cz/erasmus-for-young-entrepreneurs</a>
<b>JIC   120 seconds</b>	2010	2.1. R&D cooperation projects between academy and industry 4.5. Knowledge transfer and cooperation between firms (incl. technology acquisition)	0.05m/y	JIC	<a href="http://www.jic.cz/120-seconds-for-innovative-companies">http://www.jic.cz/120-seconds-for-innovative-companies</a>
<b>JIC   technology transfer</b>	2008	4.5. Knowledge transfer and	0.3m/year	JIC	<a href="http://www.jic.cz/technology-transfer">http://www.jic.cz/technology-transfer</a>

		cooperation between firms (incl. technology acquisition)			
<b>Brno Expat Centre</b>	2011 -	3.1. Mobility of researchers	0.12m/year	BEC	<a href="http://www.brnoexpatcentre.eu/">http://www.brnoexpatcentre.eu/</a>
<b>Intemac Solutions (Competence centre for machine tools)</b>	2013 --	2.1. R&D cooperation projects between academy and industry 2.2. Mobility between academia and business 4.5. Knowledge transfer and cooperation between firms (incl. technology acquisition)	0.5m/year	JIC	<a href="http://www.intemac.cz/cz/">http://www.intemac.cz/cz/</a>
<b>Technology transfer office at Masaryk University</b>	2005-	2.1. R&D cooperation projects between academy and industry 2.3. Knowledge transfer structures between academia and industry 4.4. IPR protection and exploitation	0.8m/ year	Masaryk University	<a href="http://www.ctt.muni.cz/en/">http://www.ctt.muni.cz/en/</a>
<b>Technology transfer office at Brno University of Technology</b>	1998-	2.1. R&D cooperation projects between academy and industry 2.3. Knowledge transfer structures between academia and industry 4.4. IPR protection and exploitation	0.2m/ year	Brno University of Technology	<a href="https://www.vutbr.cz/utt">https://www.vutbr.cz/utt</a>
<b>Technology transfer office at Mendel University</b>	2012-	2.1. R&D cooperation projects between academy and industry 2.3. Knowledge transfer structures between academia and industry 4.4. IPR protection and exploitation	0.5m/ year	Mendel University	<a href="http://www.ctt.mendelu.cz/cz">http://www.ctt.mendelu.cz/cz</a>
<b>Technology transfer office the St. Anne Hospital (International Clinic Research Centre)</b>	2012-	2.1. R&D cooperation projects between academy and industry 2.3. Knowledge transfer structures between academia and industry 4.4. IPR protection and exploitation	0.2m/ year	St. Anne Hospital	<a href="http://www.fnusa-icrc.org/en/pillars/industry/technology-transfer/">http://www.fnusa-icrc.org/en/pillars/industry/technology-transfer/</a>

Source: RIM Plus repository (Jihomoravsky kraj, Kraj Vysočina /Czech Republic), authors' elaboration

### 3.2 Appraisal of Regional Innovation Policies

The three main **challenges** were identified in terms of innovation system development in the Southeast region (see also chapter 1.3.):

- Mismatch between research supply and innovation demand hampers the entrepreneurial discovery process;
- Strategy focus and business involvement;
- Inadequate national (not only) innovation policy.

Concerning the “*mismatch between research supply and innovation demand*”, in case of Jihomoravský region, instruments such as the innovation vouchers, the services of technology transfer offices at universities, the pre-incubation programme (JIC|Start Up Programme), the incubation programme (JIC|Innovation Park), networking events such as “120 seconds”, the competence centre for machine tools can partly overcome this challenge (see also chapter 3.1. where objectives of these measures are stated).<sup>17</sup> However, strategies of public research organisations/research groups should be more problem oriented and incentives introduced in this direction; schemes to support inter-sectoral mobility should be implemented.

In case of Vysočina region, no measures have been realised so far. Nevertheless, there are several planned measures which could increase innovation demand and help to connect to the relevant research capacities, e.g. innovation vouchers, business incubator, microloan fund for start-ups or innovation academy.

In terms of the “*strategy focus*” challenge it is necessary to point out that majority of today’s measures are of horizontal nature. Some of the measures, esp. in the human resources priority, favour support of science and technology study and research areas. Only first attempts to focus on specific sectors were realised, e.g. competence centre for machine tools, or special infrastructure (incubator) for life-science start-ups.

When considering the challenge “*business involvement*” there are several activities aimed at increasing company engagement in innovation measure realisation. JIC StartUp Programme invites mature technology companies to formulate technology topics which should inspire future entrepreneurs to create business cases on their basis. JIC Innovation Park invites mentors from mature companies to consult knowledge intensive start-ups.

The challenge “*inadequate national (not only) innovation policy*” cannot be easily tackled from the regional perspective. Although the Regional Government has power to propose legislative Acts to the national Parliament, nevertheless this power has never been used in the area of research and innovation. However, there are several examples where South Moravian regional innovation scheme was instrumental in designing measures at the national level. One of most significant examples is programme SoMoPro (South Moravian Programme for Distinguished Researchers) which served as a best practice model for designing a scheme for attracting foreign post-docs to Czech research organisations (financed from the Operational Programme Education for Competitiveness). The size of the national scheme is €200 million, whereas the size of the regional counterpart is only €3.8 million, yet the regional scheme acted as a laboratory test of sorts. Another example is an innovation voucher scheme which is also considered for implementation through a national level scheme in the next programming period. Last but not least, many South Moravian policy-makers are regularly consulted during designing new calls and new Operational Programmes on the national level. Although this approach is not of systemic nature, it seems that, at the moment, it is the only way to overcome the challenge in question.

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<sup>17</sup> Objectives of these measures aim to tackle the challenge in question (some are very explicit about that, some are only implicit).

In terms of **evaluation**, an interim evaluation process of RIS started in 2012. The process has been carried out by the RIS secretariat based at JIC and involves individual evaluations of respective policy instruments and projects. The results are presented at open discussions with relevant stakeholders. The process is still ongoing and is planned to be completed in spring 2014. So far these measures have been evaluated: innovation vouchers, talented students support scheme, Brno PhD talent, SoMoPro I. The JIC Start Up programme and Innovation Park (incubation programme) are currently being evaluated. Results are summarised in Table 4. A comprehensive external ex-post evaluation is planned to be conducted in 2015.

Ongoing monitoring of RIS implementation takes place. However, it is rather of an operational nature (e.g. progress on new incubator establishment, number of innovation vouchers issued etc.) and does not include data suitable for impact evaluation. All relevant information is presented in Table 4.

Table 3: Evaluated innovation measures in Jihomoravský kraj with the key evaluation results

Measure	Outputs	Outcomes (selected)	Evaluation results / recommendations
<b>Innovation vouchers</b>	250 co-operations were supported (total costs €0.9.)	2/3 supported companies had solved problem	To continue with current set up
<b>Talented students support scheme</b>	450 students supported (since 2005)	Most of supported students stated that they would not be able to afford language courses, books purchasing etc.	Not yet elaborated in the draft report.
<b>Brno PhD talent</b>	60 PhD students supported (total costs €0.8m)	<ul style="list-style-type: none"> <li>• 88% of mentors regards supported students performing better results;</li> <li>• 50% of supported students would not study or study in other city.</li> </ul>	<ul style="list-style-type: none"> <li>• increase quality of selection process;</li> <li>• integration of scheme with pre-doctoral studies;</li> <li>• increase PR efforts about the selection process;</li> <li>• increase quality control of PhD project during studies.</li> </ul>
<b>SoMoPro I</b>	27 researchers attracted (total costs € 3.8m)	<ul style="list-style-type: none"> <li>• new method implemented (11 cases);</li> <li>• new contacts established (9);</li> <li>• inspirational research/working culture (8);</li> <li>• new research topics brought (4)</li> <li>• research management (2);</li> <li>• new research field created (1).</li> </ul>	<ul style="list-style-type: none"> <li>• positive impact on research quality of local research groups proved;</li> <li>• incoming researchers are very good but they are not part of the world class excellence;</li> <li>• too high administrative burden.</li> </ul>

Source: evaluation reports, Regional Innovation Strategy of South Moravia, authors' elaboration

In terms of **synergies between national and regional innovation policy** it is necessary to point out that a majority of innovation measures in the Czech Republic are realised from the national level. There are several programmes managed by the Technology Agency of the Czech Republic (e.g. programme Alfa, Center of Competence and others), several measures are also carried out by the Ministry for Industry and Trade (financed by Operational Programme Entrepreneurship and Innovation) and by the Ministry for Education, Youth and Sports (financed by Operational Programme Research and Development for Innovation, Operational Programme Education for Competitiveness). Investments from OP Research and Development for Innovation are especially of great importance for the Southeast Region. In the last three years €700 million were invested in R&D infrastructure. Many measures carried out within

the RIS were actually aimed at maximising benefits of these investments on the regional economy. The most typical examples are Innovation Vouchers, JIC Start Up Programme (pre - incubation programme) and JIC Innovation Park (incubation programme).

### 3.3 Good practice case

#### 3.3.1 StarCube – Startup Accelerator, managed by JIC (2011–2012), Jihomoravský kraj

StarCube – Startup Accelerator was chosen as a good practice case due to the fact that it has been several times appreciated as best practice by several national and international stakeholders, such as National Training Fund, Ministry of Industry and Trade, Microsoft Innovation Centre Network. It also covers a wide target group in the region and it is a great “marketing tool” of the overall innovation policy.

StarCube is a three-month startup accelerator programme aimed at turning business ideas into new technology-based companies. The goal of the programme was to promote entrepreneurship and strengthen the entrepreneurial spirit in order to increase the number of high-growth innovative businesses and highly qualified jobs in the region. The programme consists of an intensive training programme (lectures, seminars and workshops on various business topics), networking events, consulting from JIC staff, coaching and mentoring from experienced entrepreneurs and investors and presentation in front of opponent boards. The programme was also accredited as an official training course by two Brno universities and thus enables to interconnect students from both universities and create multi-disciplinary teams involving experienced entrepreneurs. The programme has two runs annually.

- Main objectives
  - 1) Promoting entrepreneurship among university students and strengthening the entrepreneurial spirit in cooperation with universities;
  - 2) Increasing the number of high-growth innovative businesses in the region;
  - 3) Increasing the number of highly qualified jobs in the region.

- Main activities

Selection process – As a result of the awareness campaign approx. 200 candidates submitted their ideas, on the basis of an initial filtering 50% were invited to an interview. Approximately 25% were invited to Bootcamp.

BootCamp – two and half days long BootCamp event to further present participant’s ideas. Mentors helped participants with the first business steps and decisions and gave first advice on how to transform their ideas into a viable business.

Trainings – Business & Technical trainings on key business domains. These trainings geared-up the teams to start working on their ideas in a much more efficient way and to convert them into the market-ready products.

Mentoring – JIC provided a base of well experienced mentors who can give feedback to StarCube’s teams.

Networking brought great possibility to establish business relationships informally.

StarCube Show was a demo day for projects participating in StarCube, startup accelerator. Successful projects, once they turn into companies, are eligible to apply for the incubation programme of JIC.

- Results

StarCube helped to raise the awareness about entrepreneurship and foster the success of high-potential start-ups significantly. Apart from creating 15 new innovative companies (12 survived till October 2013) and minimum of 35 highly qualified jobs in

the region, StarCube also created a large start-up community called StartupClub which involves more than 500 people actively contributing to start-up activities in the region and beyond and who meet on a regular basis.

StarCube has significantly contributed to the promotion of entrepreneurship not only among students, but also among general public. The programme has helped promoting the region as a start-up hub on both national and international level, getting attention of investors and media. Based on the experience so far, it is expected that StarCube will result in ten newly established high-tech companies each year.

### 3.4 Towards Smart Specialisation Policies

The process of drafting and implementing smart specialisation strategy is managed by the Ministry of Education, Youth and Sports of the Czech Republic in cooperation with various other stakeholders including the self-governing (NUTS 3) regions/krajs. There will be one national smart specialisation strategy with 14 regional annexes which will represent short versions of the regional innovation strategies of all the regions of the Czech Republic. In order to ensure high quality and common approach to design regional RISs, the Ministry in cooperation with Regional Authorities appointed an S3 manager in each of the 14 Czech krajs. In addition, the ministry tendered a facilitator which guides and coaches the S3 managers to draft strategy and set up long-term implementation process according to the EU Guide for smart specialisation (including management structures, monitoring and evaluation procedures, budgeting etc.). The facilitator is also responsible for drafting the national smart specialisation strategy. This method should ensure both top-down and bottom-up approaches to properly define horizontal and vertical priorities. At the moment (November 2013), the analytical parts of the regional annexes are drafted and managing structures in most regions are established.

In case of **Jihomoravský kraj** the mission, vision, horizontal priorities have been formulated; vertical priorities are being currently defined. See also Figure 7.

Figure 7: Strategic framework for RIS Jihomoravský kraj 2014-2020



Since the new measures are not finally defined yet, it is difficult to assess how different they will be from previous generation of RIS. However, it is clear that more business and research actors were involved in the strategy design. Thus, it is likely that the strategy will be more fine-tuned according to the needs of these stakeholders. In terms of relative importance of vertical versus horizontal priorities, it is expected that roughly 80% of schemes will be of a horizontal nature. Nevertheless, it can change in favour of vertical priorities over the time of implementation.

In case of **Kraj Vysočina** the first generation of RIS was only adopted in September 2013. Since the formulation of this version took two years (the actual SEA process took almost two years), the approach towards formulation did not take into account the

smart specialisation methodology explicitly. However, at the moment (November 2013), the management structures are being established and the recently adopted RIS is being revised according to the S3 guidelines; some of the horizontal measures will be revised in the next months as they do not always fully correspond with the economic structure and the maturity of innovation system in the kraj. Concerning vertical priorities, the current version defines priority industry sectors and does not deal with any more narrow market niches or define knowledge domains. The actual measures should be defined in the following months as a part of the revision process.

The S3 strategy both on national and regional levels should be finalised in the first draft by the end of the 2013. However, it is clear that the fine tuning will continue in the first half of 2014. The national S3 strategy will determine the framework for interventions from the two main Operational Programmes: OP Education, Research and Development and OP Entrepreneurship for Competitiveness. Since there will be no longer any regional operational programmes in the Czech Republic, the two OPs will most likely contain special regional S3 “envelopes” to finance regional innovation measures.

### 3.5 Possible Future Orientations and Opportunities

#### *3.5.1 Possible future orientations and opportunities – considered by the regional governments*

In case of **Jihomoravský kraj** the aim of the Regional Authority is to focus more on supporting vertical priorities, namely cyber security, electron microscopy and machine tools building (these priorities are being currently defined).

The kraj plans to support incoming and reintegrating researchers in the research areas which are likely to be relevant for the vertical priorities. Furthermore, the kraj plans to support cooperation with regions which are also strong in these sectors in the area of research and development (Horizon 2020 etc.).

The Regional Authority also stated its plans to launch “a reform” in secondary schools (namely vocational training) where it aims to create so called “centres of training excellence” which should correspond with the qualification needs of regional vertical priorities.

Furthermore, the kraj will continue to support creation of new businesses with a special emphasis on the priority areas.

**Kraj Vysočina**, on the other hand, tries to realise first steps within its regional innovation policy, thus the kraj aims to implement actions that can bring demonstrable results which will be recognised and appreciated by local companies.

#### *3.5.2 Possible future orientations and opportunities – consideration of the regional expert*

**Jihomoravský kraj** should more reflect the current trends in the restructuring of multinationals since substantial part of the regional economy is dependent on subsidiaries of large enterprises. Many multinationals tend to re-concentrate, on a global scale, their R&D functions next to production sites, therefore this process should be used as an opportunity by the kraj. The kraj should encourage these companies to embed more in the local environment, e.g. by cooperation with universities and research organisations or with local incubation facilities to motivate start-up companies to deal with topics which are of interest by relevant multinationals.

Since the economy backbone of **Kraj Vysočina** consists primarily of companies in machinery and automotive industries, specific measures to help technological upgrading of these companies would be advisable. Moreover, since the kraj has a very limited public research base, enforcing and creating ties between companies and Prague’s or Brno’s universities should be encouraged, including staff mobility, especially of PhD. students.

### *3.5.3 Possible future orientations and opportunities – considerations and options mentioned in systemic evaluations*

So far, no comprehensive evaluation has been conducted on the innovation system of Jihomoravský kraj or Kraj Vysočina. However, various studies on innovation system in the Czech Republic, which are also relevant for the whole Southeast Region (including both Kraj Vysočina and Jihomoravský Kraj) recommend the following:

- Increase investment in higher technical education and vocational training in relevant areas;
- **Increase entrepreneurial awareness** across all age groups, namely at primary, secondary and university levels;
- Motivate research organisations to manage research strategies, to increase problem orientation of implemented research agendas and to **increase the relevance of research in the regional economy**;
- Implement measures to **upgrade SMEs within their respective value chains** since many of them are suppliers of third or even fourth tier;
- Implement measures to **strengthen the links between academia and industry**;
- **Motivate companies and research groups to boost their international engagement** through participation in international research consortia.



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## Appendix B Stakeholders consulted

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2. Ivo Minařík, Head of Department, Department of Regional Development, Jihomoravský Regional Authority (31/10 2013).
3. Petr Chládek, manager of regional innovation strategy of South Moravia, South Moravian Innovation Centre (11/10/2013).
4. Jiří Hudeček, CEO, South Moravian Innovation Centre (14/10/2013).

## Appendix C Statistical Data

	CZ06 Jihovýchod	Country	EU27	Year	Performance relative to	Performance relative to
	CZ06	CZ	EU27		EU27	CZ

### ECONOMIC INDICATORS

GDP per capita (Euros)	12800	14300	24500	2010	52,2	89,5
GDP growth rate - (2000-2010)	8,79	8,95	2,93	2000-2010	300,2	98,2
Long term unemployment rate	3,04	2,72	4,14	2011	136,2	89,5
Labour productivity growth (%)	3,75	3,57	2,20	2000-2010	170,6	104,8
RCI 2013		0,03	0,00	2013	100,0	100,0
Share of employment in agriculture	0,04	0,03	0,05	2011	75,3	125,4
Share of employment in industry (including construction)	0,39	0,38	0,25	2011	154,6	100,8
Share of employment in business	0,27	0,29	0,30	2011	88,7	92,0
Share of employment in public sector	0,20	0,19	0,25	2011	81,3	105,6
Share of employment in S&T	0,07	0,06	0,09	2011	78,0	108,8

### RESEARCH & TECHNOLOGY INDICATORS

Employees with ISCED 5-6 (% all employees)	21,0	20,1	30,4	2011	68,9	104,2
Business R&D (% GDP)	125,7	137,9	304,3	2010	41,3	91,2
Government R&D (% GDP)	0,22	0,32	0,26	2010	84,6	68,8
Higher Education R&D (% GDP)	0,49	0,4	0,49	2010	100,0	122,5
EPO patent applications (per mln population)	20,48	17,58	114,99	2008	17,8	116,5
Employment in medium-high & high-tech manufacturing (% total employment)	11,74	11,64	6,39	2011	183,7	100,9
Employment in knowledge-intensive services (% total employment)	28,46	27,73	35,32	2011	80,6	102,6
Total R&D personnel (% active population) - numerator in head count - all sectors	1,80	1,48	1,53	2010	117,6	121,6

Structural funds on business innovations (Euros per mln population)

Structural funds on core RTDI (Euros per mln population)

155,04	139,52	77,74	2007-2013	199,5	111,1
313,96	279,68	63,01	2007-2013	498,3	112,3

**LABOUR PRODUCTIVITY**

B-E - Industry (except construction)

C - Manufacturing

F - Construction

G-I - Wholesale and retail trade, transport, accomodation and food service activities

J - Information and communication

L - Real estate activities

M\_N - Professional, scientific and technical activities; administrative and support service activities

27 311	30 492	71 853	2010	38,0	89,6
22 878	25 981	56 378	2010	40,6	88,1
24 462	24 397	43 792	2010	55,9	100,3
22 215	23 425	37 843	2010	58,7	94,8
43 702	60 769	79 994	2010	54,6	71,9
209 225	170 955	387 941	2010	53,9	122,4
20 362	22 494	39 717	2010	51,3	90,5

**BUSINESS INNOVATION INDICATORS**

Technological (product or process) innovators (% of all SMEs)

Non-technological (marketing or organisational) innovators (% of all SMEs)

Innovative SMEs collaborating with others (% of all SMEs)

SMEs innovating in-house (% of all SMEs)

0,56	0,54	0,40	2008	140,6	104,2
0,60	0,57	0,38	2008	158,7	106,0
0,46	0,41	0,37	2008	123,9	111,2
0,47	0,45	0,39	2008	121,0	105,6



