“How to tackle challenges in a future-oriented EU Industrial Strategy?”

Volume 2
How to tackle challenges in a future-oriented EU industrial strategy?

Volume 2

This study provides a critical assessment of the 2017 EU industrial strategy and of the policy measures it comprises. Even though the EU industrial strategy is still a “meta-policy”, it successfully promotes a more integrated and innovative approach. However, it should more clearly identify mission-oriented strategic goals and mobilise the necessary effort and means to reach them. The study was prepared for the European Parliament at the request of the Industry, Research and Energy Committee.

This volume annexed to the main report contains five case studies presenting the industrial policy approaches adopted in different EU regions and Member States. It highlights how the EU industrial policy is deployed in these different contexts.
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<th>Description</th>
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<tbody>
<tr>
<td>ARTI</td>
<td>Agenzia Regionale per la Tecnologia e l’Innovazione della Regione Puglia (Regional Agency for Technology and Innovation - Apulia)</td>
</tr>
<tr>
<td>CAP</td>
<td>Common Agricultural Policy</td>
</tr>
<tr>
<td>CEA</td>
<td>Commissariat à l’Energie Atomique et aux Energies Alternatives (Alternative Energies and Atomic Energy Commission – Ile-de-France)</td>
</tr>
<tr>
<td>CESER</td>
<td>Conseil économique, social et environnemental régional (Regional Economic, Social and Environmental Council – Ile-de-France)</td>
</tr>
<tr>
<td>CICE</td>
<td>Crédit d’Impot pour la Compétitivité et l’Emploi (Tax Credit for Competitiveness and Employment – Ile-de-France)</td>
</tr>
<tr>
<td>CIR</td>
<td>Crédit d’Impot Recherche (Tax Credit for Research – Ile-de-France)</td>
</tr>
<tr>
<td>CoE</td>
<td>Centre of Expertise (Pirkanmaa)</td>
</tr>
<tr>
<td>COP</td>
<td>Centralny Okręg Przemysłowy (Central Industrial District – Podkarpackie)</td>
</tr>
<tr>
<td>COSME</td>
<td>Competitiveness for Small and Medium Enterprises</td>
</tr>
<tr>
<td>CROCIS</td>
<td>Centre Régional d’Observation du Commerce, de l’Industrie et des Services (Regional Observatory Centre of Commerce, Industry and Services – Ile-de-France)</td>
</tr>
<tr>
<td>CSA</td>
<td>Coordination and Support Actions</td>
</tr>
<tr>
<td>CSO</td>
<td>Central Statistics Office (Ireland)</td>
</tr>
<tr>
<td>DARPA</td>
<td>Defense Advanced Research Projects Agency (USA)</td>
</tr>
<tr>
<td>DBEI</td>
<td>Department for Business, Enterprise and Innovation (Ireland)</td>
</tr>
<tr>
<td>DGE</td>
<td>Direction Générale des Entreprises (General Directorate of Enterprises – Ile-de-France)</td>
</tr>
<tr>
<td>DIH</td>
<td>Digital Innovation Hub</td>
</tr>
<tr>
<td>EAFRD</td>
<td>European Agricultural Fund for Rural Development</td>
</tr>
<tr>
<td>EaSI</td>
<td>EU Programme for Employment and Social Innovation</td>
</tr>
<tr>
<td>EASME</td>
<td>Executive Agency for Small and Medium-sized Enterprises</td>
</tr>
<tr>
<td>EEN</td>
<td>Enterprise Europe Network</td>
</tr>
<tr>
<td>EFSI</td>
<td>European Fund for Strategic Investments</td>
</tr>
<tr>
<td>EGF</td>
<td>European Globalisation adjustment Fund</td>
</tr>
<tr>
<td>EIB</td>
<td>European Investment Bank</td>
</tr>
<tr>
<td>EIC</td>
<td>European Innovation Council</td>
</tr>
<tr>
<td>EMFF</td>
<td>European Maritime and Fisheries Fund</td>
</tr>
<tr>
<td>EP</td>
<td>European Parliament</td>
</tr>
<tr>
<td>EPRC</td>
<td>European Policies Research Centre</td>
</tr>
<tr>
<td>ERC</td>
<td>European Research Council</td>
</tr>
<tr>
<td>ERDF</td>
<td>European Regional Development Fund</td>
</tr>
<tr>
<td>ESF</td>
<td>European Social Fund</td>
</tr>
<tr>
<td>ESIF</td>
<td>European Structural and Investment Funds</td>
</tr>
<tr>
<td>EUR</td>
<td>Euro</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investments</td>
</tr>
<tr>
<td>FOF</td>
<td>Foreign Owned Firm</td>
</tr>
<tr>
<td>FSC</td>
<td>Fondo per lo Sviluppo e la Coesione (Development and Cohesion Fund - Apulia)</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
</tr>
<tr>
<td>GNI</td>
<td>Gross National Income</td>
</tr>
<tr>
<td>GNP</td>
<td>Gross National Product</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
</tr>
<tr>
<td>GVA</td>
<td>Gross Value Added</td>
</tr>
<tr>
<td>GVC</td>
<td>Global Value Chain</td>
</tr>
<tr>
<td>H2020</td>
<td>Horizon 2020</td>
</tr>
<tr>
<td>HEI</td>
<td>Higher Education Institution</td>
</tr>
<tr>
<td>IA</td>
<td>Innovative Action</td>
</tr>
<tr>
<td>IAU</td>
<td>Institute of Urban Planning (Institut d'Aménagement et d'Urbanisme – Ile-de-France)</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Telecommunication Technology</td>
</tr>
<tr>
<td>IDA</td>
<td>Industrial Development Authority (Ireland)</td>
</tr>
<tr>
<td>IFS</td>
<td>International Financial Services</td>
</tr>
<tr>
<td>JRC</td>
<td>Joint Research Centre</td>
</tr>
<tr>
<td>JTI</td>
<td>Joint Technology Initiative</td>
</tr>
<tr>
<td>MC</td>
<td>Monitoring Committee</td>
</tr>
<tr>
<td>MIUR</td>
<td>Ministero dell'Istruzione, dell'Università e della Ricerca (Ministry of Research, University and Education - Apulia)</td>
</tr>
<tr>
<td>MSCA</td>
<td>Marie Skłodowska-Curie Actions</td>
</tr>
<tr>
<td>N/A</td>
<td>Not available or Not applicable</td>
</tr>
<tr>
<td>NCBiR</td>
<td>Narodowe Centrum Badań i Rozwoju (National Centre for Research and Development – Podkarpackie)</td>
</tr>
<tr>
<td>NUTS</td>
<td>Nomenclature of Territorial Units for Statistics</td>
</tr>
<tr>
<td>NVVIP</td>
<td>Nucleo Valutazione Investimenti Pubblici (Valuation Cell of Public Investments - Apulia)</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>OP</td>
<td>Operational Programme</td>
</tr>
<tr>
<td>PIA</td>
<td>Programmi Integrati di Agevolazione (Integrated facilitation programs - Apulia)</td>
</tr>
<tr>
<td>PIA3</td>
<td>Programme d'Investissements d'Avenir 3 (Future Investments Programme 3 – Ile-de-France)</td>
</tr>
<tr>
<td>PLN</td>
<td>Polish zlotys</td>
</tr>
<tr>
<td>POR</td>
<td>Programma Operativo Regionale (Regional Operational Programme - Apulia)</td>
</tr>
<tr>
<td>PRA</td>
<td>Piano di Rafforzamento Amministrativo (Administrative Reinforcement Plan - Apulia)</td>
</tr>
<tr>
<td>PUG</td>
<td>Puglia (Apulia in Italian)</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>R&amp;D(I)</td>
<td>Research and Development (and Innovation)</td>
</tr>
<tr>
<td>RIA + SGA-RIA</td>
<td>Research and Innovation Actions + Specific Agreements</td>
</tr>
<tr>
<td>RIS</td>
<td>Regional Innovation Strategy</td>
</tr>
<tr>
<td>ROP</td>
<td>Regional Operational Programme</td>
</tr>
<tr>
<td>S3</td>
<td>Smart Specialisation Strategy</td>
</tr>
<tr>
<td>SBCI</td>
<td>Strategic Banking Corporation of Ireland (Ireland)</td>
</tr>
<tr>
<td>SHOK</td>
<td>Strategisenn Huippuosaamisen Keskittymä (Strategic Centres for Science, Technology and Innovation – Pirkanmaa)</td>
</tr>
<tr>
<td>SMEs</td>
<td>Small and Medium Enterprises</td>
</tr>
<tr>
<td>SRDEII</td>
<td>Schéma Régional de Développement Economique, d'Innovation et d'Internationalisation (Regional Strategy for Economic Development, Innovation and Internationalisation – Ile-de-France)</td>
</tr>
<tr>
<td>SSE</td>
<td>Specjalne Strefy Ekonomiczne (Special Economic Zones – Podkarpackie)</td>
</tr>
<tr>
<td>SWOT</td>
<td>Strengths, Weaknesses, Opportunities and Threats</td>
</tr>
<tr>
<td>TEN</td>
<td>Trans-European Networks</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>WWII</td>
<td>World War II</td>
</tr>
<tr>
<td>YEI</td>
<td>Youth Employment Initiative</td>
</tr>
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OVERVIEW OF CASE STUDIES

Location: Ile-de-France, France
Region type: Service-oriented urban core
Industrial policy approach: Holistic regional economic development policy with a recent additional strategy dedicated to industry
EU influence on the policy paradigm: Indirect
Role of EU initiatives and funding: Complementary

Location: Ireland (national level)
Region type: Mixed
Type of industrial policy: Broad enterprise policy (business environment focus)
EU influence on the policy paradigm: Indirect
Role of EU initiatives and funding: Complementary

Location: Western Finland / Pirkanmaa
Region type: Advanced manufacturing region
Industrial policy approach: Economic development and innovation policies with a focus on entrepreneurship
EU influence on the policy paradigm: Indirect
Role of EU initiatives and funding: Complementary

Location: Podkarpackie, Poland
Region type: Production-oriented peripheral region
Industrial policy approach: Regional economic development policy, largely overlapping with Cohesion Policy
EU influence on the policy paradigm: Critical through Cohesion Policy
Role of EU initiatives and funding: Critical (especially Structural Funds)

Location: Apulia, Italy
Region type: Lagging-behind / under-industrialised region
Industrial policy approach: Regional economic development policy, largely overlapping with Cohesion Policy
EU influence on the policy paradigm: Critical for concepts such as innovation, strategic approach, smart specialisation and evaluation culture
Role of EU initiatives and funding: Critical (especially Structural Funds)

Source: Authors based on case studies
1 APULIA¹

1.1 Regional economy and framework conditions in Apulia

1.1.1 Historical background

In 1951, the Apulian agricultural sector concentrated 18% of the regional added value and 65% of employment. By contrast, manufacturing industry only weighed 7.5% of production and 10% of employment (see figures 1–2). Three quarters of production and only a quarter of employment came from services (public and private).

Figure 1. Share of the regional added value by sector in Apulia between 1951 and 2017

Source: Authors based on ISTAT

Figure 2. Share of regional employment by sector in Apulia between 1951 and 2017

Source: Authors based on ISTAT

¹ In Italian, Apulia is referred to as “Puglia”
After World War II, Apulia was thus an essentially agricultural region, with a primary sector characterised by low productivity and wages, with a marginal role of industrial activities. The latter were concentrated in traditional sectors (clothing, knitwear, footwear) and the processing of agricultural products (see figure 3).

**Figure 3.** Share of regional employment in manufacturing by industry in Apulia between 1951 and 2017

Source: Authors based on ISTAT

Between the end of the fifties and the seventies, thanks to national policies for the South (see below) there was a marked increase in the weight of industry in the region. In 1980, the manufacturing industry accounted for 15.4% of regional added value and 17% of manufacturing employment. The sectoral mix also changed: the weight of metalworking and mechanics firms in regional industrial employment grew from 20% to 35% between 1951 and 1980. During the same period, the weight of the petrochemical chain doubled from 2 to 4% of industrial employment (see figure 3). At the same time, the weight of industrial employment in the food sector decreased from 27% in 1951 to 10% in 1985.

During this period of structural change in the economy and regional industry, the weight of industrial employment in traditional sectors (clothing, knitwear, footwear, furniture) remained very stable and always above 50% (see figure 3). This surprising situation was due to the existence of clusters, mainly remote from the larger cities of the region, which had specialised in these sectors. Areas such as those of North-Bari (knitwear and footwear), Murgia (furniture), Valle d'Itria (clothing and knitwear), Sud-Salento (footwear, clothing and hosiery) had progressively innovated in terms of techniques and markets, and had thus become similar to the districts of the central and northern regions.

Since the 1990s and until 2001, the economic structure of Apulia has not undergone radical changes. The weight of agriculture has continued to decline, both in terms of production and employment. The weight of the manufacturing industry has remained constant, both in terms of added value and of employment. Private services have gained importance, reaching 50% of production and a third of employment. The composition of the manufacturing sector has not evolved during this period, with traditional companies still above 50% of regional industrial employment, compared to 33% for metalworking-mechanics and 13% for agro-food.
In the last fifteen years, there have been some substantial changes, partly due to the great recession (2008-2013). The weight of manufacturing industry has declined in terms of production from 17% in 2001 to 13.7% in 2017, but also in terms of employment from 15.5% to 13% (see figure 2). This reduction is the result of a heavy contraction of light industry which has lost 16 percentage points in its share of industrial employment during the period (see figure 3).

Structurally, almost 80% of employment is concentrated in companies with up to 50 employees (see table 1 below), which is a higher percentage than the national average (55%) but also than Southern Italy as a whole (71%). Employment in companies with at least 100 employees is by contrast very low, with just 14% of total manufacturing employment in these companies (20.5% in the South and 34.8% in Italy). Moreover, the influence of these large companies has faded in the regional economy (Capriati, 1996). They accounted for up to 42% of regional industrial employment in 1981, when the great industrial centres reached their maximum employment and began to suffer from the first signs of crisis.

### Table 1. Share of employees in manufacturing enterprises by company size in Italy in 2011

<table>
<thead>
<tr>
<th></th>
<th>1-9</th>
<th>10-49</th>
<th>50-99</th>
<th>100-499</th>
<th>500 and beyond</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITALY</td>
<td>24.2</td>
<td>30.9</td>
<td>10.1</td>
<td>18.6</td>
<td>16.2</td>
</tr>
<tr>
<td>SOUTH</td>
<td>37.0</td>
<td>34.2</td>
<td>8.4</td>
<td>11.2</td>
<td>9.3</td>
</tr>
<tr>
<td>APULIA</td>
<td>40.6</td>
<td>38.0</td>
<td>7.2</td>
<td>8.4</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Source: Authors based on ISTAT

1.1.2 Current regional industrial structure, innovation system and international linkages

Apulia is the region in the extreme South-east of the Italian peninsula. It has 4 million inhabitants, ranking 8th nationally for population. The per capita income of Apulia was estimated at EUR 17,800 in 2016. Among 266 European regions, Apulia is located at the 226th position, being thus in the last quartile of the distribution. Among Italian regions, only Sicily and Calabria have a lower per-capita income. Associating income with a synthetic index of human development that considers the overall conditions of quality of life (measured through life expectancy at birth) and access to knowledge (measured by the attainment of tertiary education), the position of Apulia worsens even more. The region is at the 233rd place at the EU level, ahead of Sicily and Campania.

However, the position of the region in terms of innovative capacity is quite different. Using a synthetic index built on R&D spending and the number of patents per million inhabitants, Apulia is at the 211th place, which is a relatively better ranking than for GDP per capita or human development. Four Italian regions fare worse according to this metric: Basilicata, Sardinia, Molise and Sicily. The innovative capacity index of Apulia has also improved by almost 30% in the last ten years, an increase among the highest in Italy.

Today, Apulia is still a region with low industrialisation, low innovative capacity and high unemployment of its workforce (see Table 2): Small enterprises and sectors with low productivity still prevail. Nonetheless, in recent years efforts have been intensified in R&D investments, which have allowed per capita spending to grow by 52.4% during the 2011-2016 period, reaching EUR 175 per capita. However, these advances did not make it possible to catch up with national (364.5) and European (594) values.
Table 2. Economic, industrial and innovation ecosystem in Apulia

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>EU</th>
<th>ITALY</th>
<th>APULIA</th>
<th>Value</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (2016)</td>
<td>29,200 (EUR per capita)</td>
<td>27,700 (EUR per capita)</td>
<td>17,800 (EUR per capita)</td>
<td>+2.3%</td>
<td>(2011-2016)</td>
</tr>
<tr>
<td>Unemployment rate (2016)</td>
<td>8.6%</td>
<td>11.7%</td>
<td>19.4%</td>
<td>+6.2 p.p.</td>
<td>(2011-2016)</td>
</tr>
<tr>
<td>Share of employment in high and medium high-tech</td>
<td>5.8%</td>
<td>6.1%</td>
<td>2.7%</td>
<td>+0.2 p.p.</td>
<td>(2011-2016)</td>
</tr>
<tr>
<td>manufacturing (2016)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports medium and high tech manufacturing (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.371 (range 0-1, 1 is best)</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Quality of Governance Index (2013)</td>
<td>50.5 (range 0-100, 100 is</td>
<td>31.8 (range 0-100, 100 is</td>
<td>19.4 (range 0-100, 100 is</td>
<td>-3.3</td>
<td>(2010-2013)</td>
</tr>
<tr>
<td>Share of population with tertiary education (2016)</td>
<td>30.7%</td>
<td>17.7%</td>
<td>13.3%</td>
<td>+1.7 p.p.</td>
<td>(2011-2016)</td>
</tr>
<tr>
<td>Patent applications per million inhabitants (2011)</td>
<td>113</td>
<td>73.9</td>
<td>16.4</td>
<td>+0.62</td>
<td>(2008-2011)</td>
</tr>
<tr>
<td>Non-RD innovation expenditure (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.310 (range 0-1, 1 is best)</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>SMEs innovating in-house (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.378 (range 0-1, 1 is best)</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: Authors based on Eurostat, Quality of Governance Institute, Regional Innovation Scoreboard

The integration of the Apulian economy to the national and global networks can also provide valuable information on its situation and evolution, in particular in the aftermath of the 2008 crisis.

In 2017, the total regional exports amounted to EUR 8.3 billion, including EUR 1.4 billion from the manufacture of transport equipment, EUR 1.6 billion from the chemical-pharmaceutical sector, EUR 1.3 billion from mechanics (electronics, machines, EUR 1 billion from light industry (textiles, clothing, footwear, furniture), EUR 0.9 billion from agro-food and EUR 0.6 billion from metallurgy. The sectors that suffered the most from the Great Recession were those of light industry with a reduction in exports of 24% compared to 2007, petroleum products (-24%) and metallurgy (-21%). On the contrary, sectors that have recorded an increase in exports compared to 2007 are the chemical-pharmaceutical (+ 95%), food (+ 60%) and means of transport (+ 35%).

The region is most integrated with its EU partners, as 54% of regional exports target EU countries. The most important non-EU outlet areas are Switzerland, North America and Asia, all with export shares of around 10%. A recent estimate by the JRC (2018) also takes into consideration the exchanges of Apulia with the other Italian regions. The data show a high degree of openness of the regional economy, with exports accounting for 46% of the regional GDP. These exports target primarily the rest of Italy (24% of the regional GDP) and equally other EU and non-EU countries (11% of the regional GDP each, for a total of 22%). The total imports of Apulia are higher and reach 67% of the regional GDP, coming for 31% from other Italian regions, 18% from other EU countries and 18% from other countries in the world.
More strategically, a recent study (Bentivogli et al., 2018) estimated the participation of Italian regions in Global value chains\(^2\) (see Figure 4). The participation of the Apulia region, i.e. the share of its gross export output stemming from global value chains, is below but close to the Italian average, at around 52%. The sectors with the most important contribution are those with the greatest presence of large national and international groups, such as mechatronics, aeronautics, pharmaceuticals, automotive, oil and steel industry.

Figure 4. Share of gross Export Output that stems from Italian regions' participation to global value chains in 2012

Source: Bentivogli et al. (2018)
Note: Apulia is coded “PUG”

\(^2\) Defined as the value added that crosses at least two national borders.
1.1.3 **Synthesis in the form of a SWOT analysis**

Box 1. SWOT analysis of the regional economy in Apulia

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Weaknesses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strategic position with respect to the Balkans and the Mediterranean sea</td>
<td>• Low GDP growth rate</td>
</tr>
<tr>
<td>• Widespread territorial coverage by a system of small and medium-sized enterprises</td>
<td>• Low employment rate</td>
</tr>
<tr>
<td>• Presence of young unemployed people with a medium-high level of education and skilled and underused female human resources</td>
<td>• High unemployment rate for young people and women</td>
</tr>
<tr>
<td>• Presence of innovative production activities</td>
<td>• Low R&amp;D expenditure</td>
</tr>
<tr>
<td>• Dynamism of some medium and large companies</td>
<td>• Poor ability to attract investments</td>
</tr>
<tr>
<td>• Highly qualified presence in the services sector</td>
<td>• Low level of public and private investments</td>
</tr>
<tr>
<td>• Highly qualified presence of private Research Centres and Universities</td>
<td>• Insufficient capacity of public administrations to manage complex programmes and projects of territorial development</td>
</tr>
<tr>
<td>• Growing tourism sector</td>
<td>• Insufficient exploitation of cultural and natural resources (highly seasonal tourist flows)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Opportunities</strong></th>
<th><strong>Threats</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increasing demand for services with high added value</td>
<td>• Persistence of irregular economic activities</td>
</tr>
<tr>
<td>• New employment opportunities offered by technological development of the information society</td>
<td>• Persistence of the activities of organised crime</td>
</tr>
<tr>
<td>• Increase of the level of decentralisation from the State to the Regions</td>
<td>• Growing global competitive pressure in the field of low cost, labour intensive production</td>
</tr>
<tr>
<td>• Emergence of specialised production districts / clusters</td>
<td>• Offshoring to third countries (e.g. Albania, Romania...)</td>
</tr>
<tr>
<td>• Expected increase in international maritime commercial traffic</td>
<td>• Backwardness of the education and training system</td>
</tr>
<tr>
<td>• Expected development of efficient production processes</td>
<td>• Slow adaptation of public administrations to their new tasks and responsibilities</td>
</tr>
</tbody>
</table>
1.2 Industrial policy approach adopted in Apulia

1.2.1 The evolution of regional industrial policy approach
Since the aftermath of World War II, the regional industrial policy has undergone two important phases in Apulia.

The first phase, which goes from the late fifties to the seventies, has been characterised by centralised decisions, taken by the central Government and the Cassa per il Mezzogiorno. It was based on the idea that the lagging development of the regions of Southern Italy was caused by the scarcity of physical capital (infrastructure, industrial investments). This capital had thus to be attracted through a combination of fiscal and financial facilitation policies, and public participation in companies. At this stage, efforts were made to encourage investments by large private and public companies in industrial areas known as development poles. Settlement in these areas granted specific advantages for companies: financial contributions for investment expenses, tax relief on labour costs and lower costs for energy and water. This phase brought to Apulia a significant number of companies that were concentrated in the industrial poles of Taranto (steel, mechanics, oil refineries), Brindisi (petrochemicals, aeronautics), Bari (mechanics), Foggia (food, aeronautics) and Lecce (mechanics).

The second phase, which has been going from the mid-1980s to today, has strongly consolidated the role of Regions. Since the 1980s, national policies that contributed to the post-War industrialisation of the Italian South have indeed been abandoned. In 1984 the Cassa per il Mezzogiorno was abolished. Thanks to the reform of the Structural Funds and the consolidation of the regional administrations, a substantial regionalisation of industrial policies began in the 1990s. However, the disengagement of the central authorities counterbalanced this evolution. The rationale of intervention has also evolved during that phase, with a shift in focus towards social capital and innovation capacity. As a consequence, actions targeting research, innovation, the use of ICT, internationalisation and human capital have been encouraged, alongside more traditional support to physical infrastructures.

Currently, the central government provides support to regional development through the Fondo per lo Sviluppo e la Coesione (FSC, or “Development and Cohesion Fund”). The FSC aims at favouring the economic and social rebalancing between the different regions of Italy, financing both infrastructural and intangible projects. It has a multi-annual character, facilitating the synergies and complementarity with the European Union Cohesion Policy. Indeed, in practice the FSC is almost entirely devoted to co-finance projects supported by Cohesion Policy. The national budget of the FSC reached EUR 4.879 billion for 2018, EUR 5.728 billion for 2019 and EUR 6.050 billion for 2020.

1.2.2 The current policy mix for regional industrial development: strategic objectives, priorities, specific measures and instruments

The Apulia Region designs and implements its industrial policy only thanks to the strategic, operational and financial contribution of the European Union. The resources used by the Region come almost entirely from the Structural Funds. Participation in some EU programmes has been reported (LIFE, Horizon 2020, COSME) but without details regarding scope or relevance. Participation in other European initiatives is scarce, also due to the difficulties indicated in paragraph 3.2 below. As a consequence, the regional strategic framework for industrial policy is the Operational Programme of Cohesion Policy, linked to other EU-related strategies (Smart Puglia 2020, Digital Agenda) and the regional governance.

Regional administrations only started in 1970
The main limits to the successful development of the region are identified as the prevalence of small businesses and the weak presence of industries with medium to high innovation capacities. Consistently with these challenges, the main strategic objective of the regional industrial policy is thus to steer industries towards higher added value product, resulting in structural change. Research and innovation is the main tool to reach that objective.

Operatively, this strategic objective is divided into three specific objectives: dissemination of research activities in companies; development of advanced digital applications and services; increasing the competitiveness of production systems. It corresponds to two of the eight axes of the Cohesion Policy Operational Programme “Puglia 2007-2013”: Axis I "Promotion, enhancement and dissemination of research and innovation for competitiveness" and Axis VI "Competitiveness of production systems and employment".

Details on the operationalisation of this strategy through EU-backed measures are provided in the dedicated section 1.3.3.

The region has developed its own instruments targeting industrial development, often using EU funding. Examples include the Integrated Facilitation Programmes for the industrial SMEs, or programme contracts with larger companies.

1.2.3 Governance arrangement, coordination mechanisms and stakeholders’ involvement

The organisation and governance of the regional industrial policy is closely linked to the organisational structure of the Cohesion Policy management (especially the Smart Specialisation Strategy). It can be schematically described as following:

Figure 5. Regional governance structure of industrial policy in Apulia, using the Cohesion policy and smart specialisation framework

Source: Authors based on Apulia S3 (2014b)
Note: NVVIP: Authority providing technical support and checking programming and evaluation of regional interventions
The governance system has ensured the **full involvement of all the stakeholders** of the regional industrial and innovation system to establish a shared vision of the prospects for regional development. The governance is entrusted to a team coordinated by the Directorate of the Policy Area for Economic Development, Labour and Innovation, the Managing Authorities of the Structural Funds and by the main transversal regional services. Technical support is guaranteed by the three agencies controlled by the Region namely ARTI, InnovaPuglia SpA and Puglia Sviluppo SpA. They play a crucial role in the implementation of economic interventions. ARTI is the Regional Agency for Technology and Innovation of Apulia and it is an instrumental body of the Region; InnovaPuglia SpA is a subsidiary of the Apulia Region for strategic planning to support ICT innovation (Information and Communication Technology); and Puglia Sviluppo SpA supports existing and new businesses.

Regional stakeholders have highlighted how a strong point of governance has been the **active inclusion of the different actors of the territory**, from the very early stages of the design of the economic strategy and regional policy programming. The participatory path has contributed to strengthening the institutional capacity of the regional community. The socio-economic Partnership (rural development), the Apulian Technological and Productive Districts, as well as the entire system of Local Action Groups (rural development/LEADER) and other stakeholders have had a constant and constructive relationship with the regional operational structure. This has been maintained even during the phases of definition of the individual calls that have implemented the measures of the regional Operational Programme of Cohesion Policy. The different stakeholders have offered an important contribution in the sharing of contents, tools and methods that characterise the regional strategy.

The methodological approach of active involvement of internal and external stakeholders to the regional administration’s work has responded to the challenges of complexity and transversality involved in industrial policies.

However, even if the inclusion of the different stakeholders in the programming phase is universally acclaimed, it should also be noted that behaviours observed are not always aimed at achieving collective goods. Stakeholders indeed sometimes focus on their own group-specific targets (e.g., entrepreneurial, academic, social…), **resorting to lobbying strategies** that tend to reduce the quality of programming.

The regional ecosystem is also **structured by clusters**, known as “districts”. The law on Productive Districts (Regional Law No. 23 of 3 August 2007 containing the rules for “Promotion and recognition of production districts”) led to the recognition of 17 Productive Districts between 2008 and 2011 in various sectors (clothing, furniture, mechanics, aerospace, environment, informatics…). Each District had its own specific governance and projects on common products or services. After their approval, these Districts have however been substantially abandoned. Alongside the Productive Districts, another important tool is the Technological Districts: (Cersosimo, Viesti 2013). At the end of 2011, the Italian MIUR (Ministry of Research, University and Education) recognised 29 districts, distributed over 18 regions. The recognised technological Districts of Apulia are:

- DARE - Regional Agri-food Technology District
- DHITECH - High Technology District -Tech
- Di.T.N.E - National Technological District on Energy
- District H-BIO Puglia - Apulian Technological District Human Health and Biotechnology
- DTA - Aerospace Technological District
- MEDISDIH - Regional Mechatronic District and Digital Innovation Hub of Apulia
1.2.4 Main strengths and weaknesses of the regional industrial policy approach

Box 2. Strengths and weaknesses of the regional industrial policy approach in Apulia

**Strengths**
- Good organisation and strong spending power
- Good endowment of specialised agencies
- Good involvement of regional stakeholders
- Effective financial engineering interventions for SMEs
- Wide availability of facilitation tools for SMEs

**Weaknesses**
- Poor attention to interventions favouring externalities in the ecosystem (e.g., Districts and clusters, Production chains)
- Excessive concentration of resources on programme contracts for large companies
- Poor ability to verify the effectiveness of expenditure
- Poor ability to verify the impact of spending on R&D
- Absence of coordination with national policies
- Lobbying behaviours of Stakeholders

1.3 The EU contribution to the regional industrial policy in Apulia

1.3.1 What is the contribution of the EU industrial strategy policy to the regional policy paradigm?

Regional policies in Apulia have literally begun with European programmes. As highlighted in section 1.1, the Italian regions became operational in the 1970s and until the end of the 1980s, they mostly implemented policies propelled by the national central government through its specific interventions targeting Southern Italy. With the first cycle of programming after the reform of the Structural Funds (1988), truly regional policies have been gradually implemented in Apulia, especially regarding economic and industrial development. The **role of the EU on the regional industrial policy paradigm** is thus crucial.

In recent years, the EU influence has contributed to **changes in the regional policy paradigm**.

Firstly, the Region has been stimulated to pay **greater attention to the processes of innovation** and to the links between the production and education and research systems. Previously, academia (especially public universities and institutes) and businesses had little linkages and cooperation on joint-research or dissemination of technologies. The **role of Smart Specialisation (Smart Puglia 2020) and the Digital Agenda backed by the EU** are important in this change, as detailed below.

A second important EU contribution concerns a **greater use of the strategic approach**, especially regarding the anticipation of technological evolutions and their effects on regional territorial and productive systems. This has in turn improved the skills and the ability to define the answers to be given to these changes. Previously, technological change was experienced as an exogenous element, which delayed responses. Today the relationship has changed, and initiatives are planned to use the new technologies to tackle the needs of the territory (Grignolini et al., 2015).

A third positive EU contribution concerns the **sharing of recent Community Guidelines on the Smart Specialisation Strategy**. This approach promoted by the EU through Cohesion Policy has stimulated the regional ability to identify priorities by involving stakeholders (Entrepreneurial Discovery Process) and to concentrate more resources on specific needs, territories, sectors and technologies. A virtuous example of this shift in paradigm concerns the Technological Districts (Florio et al. 2018). In the past, there has instead been a tendency to comply with the requests from the territories and sectors without any attention to issues of critical mass.
Box 3. Apulia Smart Specialisation Strategy (Smart Puglia 2020) and Digital Agenda

The Smart Puglia 2020 Strategy identified as main actions:

- Strengthening the competitive capabilities of the production system by combining the know-how and creativity of the territory with wise use of technologies
- Enhancement of talents and skills as a key factor for change
- Support for emerging social and environmental challenges that require more intelligent public policies capable of connecting territorial needs and new products or services
- Spread of digitisation as an accelerator of the "intelligence" of local communities and an instrument for open government
- Creation of networks to facilitate the circulation of knowledge

Moreover, some Key Enabling Technologies have been identified, which are characterised by a high level of knowledge, high R&D intensity and highly qualified jobs:

- Micro and nanoelectronics
- Nanotechnology
- Biotechnologies
- Advanced materials
- Advanced production and processing

The Puglia 2020 Digital Agenda, is based on the integration of enabling infrastructures, innovative services, specialisations and smart communities within a framework of dissemination of ICT technologies. It takes into consideration the entire territory and aims at allowing the development of new business models and widespread access to public services.

Smart Puglia 2020, in conjunction with the Puglia 2020 Digital Agenda, offers to the regional strategy a prospective vision influencing choices made under the Operational Programme of Cohesion Policy (and thus under the regional industrial policy). They also suggest a tight integration of "horizontal" policies for innovation, competitiveness, internationalization, with the "vertical" policies of the environment, transport, welfare and health, and cultural heritage; fundamental support consists of industrial research, the formation of human capital, and connection actions.

Last but not least, an important contribution of the EU to the regional industrial policy paradigm is its support for the culture of evaluation. Even if the analyses on the impacts of measures implemented in recent years on the regional economic, research and innovation systems are still very limited, the EU has introduced and consolidated notions of monitoring and evaluation at the regional level. The current poor and fragmented knowledge still limits the ability of future planning. Moreover, current regional evaluation practices focus on the timing of expenditures, neglecting other key aspects such as their quality and actual impacts on regional growth.

1.3.2 What is the contribution of the EU industrial strategy policy to governance, policy capacity and coordination?

Regional stakeholders have identified several aspects with contributions of the EU industrial policy to governance, policy capacity and coordination in Apulia. All levels of regional governance benefited from the contribution of the EU industrial strategy policy, as detailed below.
Box 4. Evolution of governance, policy capacity and coordination aspects at the regional and local level in Apulia under the influence of the EU

- Intensification and diffusion of linkages between regional stakeholders (social partners, local administrations, financial system, educational system) that previously did not have intense opportunities for interaction and sharing of objectives
- Strengthening of the programming capacity of the local ruling classes that previously favoured short-term administrative management, and which today deal with medium-long term objectives (under the Cohesion Policy framework for instance)
- Strengthening and grounding of the role of local social forces that were previously stuck in conflictual relationships
- Growth of a “culture of responsibility” in local administrations
- Mobilisation of local resources and better ability to adapt policies to local needs, which has led to a change in social conflicts (increasingly “local”)

Box 5. Evolution of governance, policy capacity and coordination aspects at the national level (with impacts on Apulia) under the influence of the EU

- Introduction of an Administrative Reinforcement Plan (PRA) aimed at enhancing the Authorities’ existing skills. It is a tool to improve the management of policies, community funds and the overall functioning of administrations.
- Preparation of a “Communication Strategy”, aimed at ensuring the transparency of the Cohesion Policy’s interventions and a wide visibility of the results achieved through a widespread dissemination of information. Its goal is to increase the levels of democracy and reduce the distance between Europe and its citizens.
- Creation of the Evaluation and Verification Unit of public investments which aims to carry out ex-ante and ex-post analyses of the impacts of major investments.

Beyond these positive EU contributions, some critical issues have been reported by regional stakeholders.

There is a lack of homogeneity (in terms of procedures, documentation, admissibility, etc.) between the management rules of the measures and projects falling under the scope of Cohesion Policy (indirect programmes) and the programmes directly managed by the European Commission. This lack of homogeneity mainly affects the possibility of exploiting skills acquired at the regional level in the context of Cohesion Policy to access other sources of EU funding that could benefit regional industrial policy. The discrepancies also generated a low use of the extra Structural Funds.

The necessary checks carried out by the Commission should also be simplified in order to avoid delays affecting the operations of the undertakings and the beneficiaries of the measures. Some unclear regulations at the beginning of the programming period are interpreted in the operational phase by the administration. This interpretation, a posteriori, is challenged in the control phase by the Commission, which generates great difficulties.

The absence of a truly national industrial policy produces two effects. On the one hand, the principle of additionality of European resources virtually disappears and, on the other hand, it reduces the resources that can be used at the regional level, in spite of local demands and needs.
1.3.3 Which instruments, initiatives and funding ascribable to the EU industrial policy are mobilised in the region?

Table 3. Strategic objectives, priorities and instruments (including EU-related) of the regional industrial policy in Apulia

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational objectives</th>
<th>Type of instrument</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>POR Puglia 2007-2013 (Cohesion Policy Operational Programme)</td>
<td>Apulia Region</td>
<td>1) Promote the dissemination of research activities in the business system</td>
<td>1a) Raise the demand and the propensity of companies to invest in Research</td>
<td>• Line 1.1) Support for business research activities • Line 1.2) Strengthen the scientific-technological potential of the region to support the demand of companies</td>
<td>EUR 173.4 million</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Develop advanced digital content, applications and services</td>
<td>2a) Strengthen the Digital Communication Infrastructures • 2b) Increase the use of innovative digital services in SMEs • 2c) Support the promotion of innovative digital public services</td>
<td>• Line 1.4) Disseminate ICT in SMEs • Line 1.5) Develop digital public services</td>
<td>EUR 94.5 million</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Increase the competitiveness of production systems, starting from the evolution of the competitive and technological context that requires strategies based on a greater ability to supply qualified resources at the local level and their high specification of production and technology</td>
<td>3a) Consolidate the growth of the productive fabric through integrated supply chain projects in favour of innovation, logistics and integration of the production and marketing phases. • 3b) Expand the offer of innovative financial instruments for the regional business system, to improve the level of capitalisation by increasing risk capital • 3c) Consolidate and expand the internationalisation processes of the Apulian production system, through initiatives to support regional or local development strategies for the internationalisation of SMEs, encouraging the expansion and qualification of the employment base, as well as sustainable development • 3d) Improve the settlement conditions of Apulian companies</td>
<td>• Line 6.1) Improve the competitiveness of companies • Line 6.2) Support the infrastructures of the production facilities • Line 6.3) Support territorial marketing and the internationalisation of production systems and businesses</td>
<td>EUR 958 million</td>
</tr>
</tbody>
</table>

Source: Authors based on Apulia S3 (2014b)
Overall, the activities related to the first two objectives (dissemination of research and innovation results, dissemination of digital technologies) have had a fair impact. In particular, measures that have allocated resources to research and development projects of large companies and to collaboration between companies, universities and public research centres, seem to have had some effectiveness. Similar measures were already present in the 2000-2006 programming period of Cohesion Policy, allowing a long-term analysis of their results. Indeed, there has been a marked increase in resources dedicated to R&D in the region between 2008 and 2015 (Eurostat). They indeed rose from 0.76% of the regional GDP at the beginning of the period to 0.99% in 2015, an increase of 30% in just seven years. This increase is even more relevant given the fact that it has occurred in the context of spending cuts that have affected the research activities of regional universities (Viesti, 2018). However, patenting activity has not experienced this growth. Indeed, the number of patents per 100,000 inhabitants has remained broadly unchanged over the period: 1.57 in 2008 and 1.58 in 2015. A reason to explain this stability can be that patents that were developed by large companies benefiting from regional funds were recorded at their headquarters, outside the region. It should also be noted that, due to the criteria for resources allocation (substantial concentration on large-scale projects), there does not seem to have been an increase in innovative capabilities and dissemination of research results to the benefit of medium and small local businesses.

However, the impact of the activities included in the third objective (growth of competitiveness) regional productive system has been very limited. However, part of this result can be linked to the wider economic situation, with the crisis limiting the effectiveness of interventions. Most of the resources have been allocated to investment programmes in large companies with multiple sites. Many of these programmes have been defensive: the crisis has threatened the operation of several plants and the Region has thus funded these investment programmes to avoid closures. After the aftermath of the crisis, manufacturing employment has decreased (-24% hours worked compared to before the crisis) and productivity has only slightly improved (EUR 22.2 per hour in 2008, 22.7 in 2015). The extensive use of these programme contracts in the strategy of industrial policy of the Apulia Region is also justified by the "speed of spending" that this instrument guarantees. Indeed, there is a substantial emphasis on speed of spending and absorption, also at the EU level, with less attention to effectiveness. Regional authorities thus tend to prefer to use this tool to realise substantial shares of spending in the short term. The other widely used instrument, the Integrated Facilitation Programmes, targeting SMEs, has had a limited impact as it has been conducted without any sectoral, technological or territorial concentration.

Regional clusters or districts mitigate this limited territorial, sectoral and technological concentration to some extent. Productive districts have been de facto abandoned since their creation in 2007. However, technological districts have an active role in the implementation of the industrial policy of Apulia. They have access to the main tools envisaged for Objective 1 (dissemination of research). In most cases, technological districts rely on large national and international companies that arrived in the region between the 1970s and the 1990s. In some cases the presence of these districts has had positive effects on the surrounding territorial ecosystem in the long-run, especially regarding human capital.

1.4 Conclusions and lessons learnt

1.4.1 How does the European industrial policy help the region to face future challenges?

The analysis carried out in the previous sections showed the main problems of the regional ecosystem: an inefficient industrial structure due to the prevalence of small size and traditional sectors; a low propensity to start new activities in areas of high technological intensity; insufficient allocation of resources dedicated to research and advanced training; inefficiencies of the local administrative system.
EU resources and programs are by far the most relevant stimulus to address these challenges and to define an industrial policy strategy for the future. Indeed, the EU has shaped the regional industrial policy paradigm (e.g., strategic approach, integration of different sectoral policies, evaluation culture…), especially thanks to the influence of Cohesion Policy and the Smart Specialisation approach. Moreover, the EU provides a framework to address the different challenges experienced by the region, including innovation or digitalisation (Smart Puglia 2020 Strategy, Digital Agenda…). As mentioned previously, a vast majority of the funding dedicated to industrial policy in the region comes from the EU.

As a consequence, the regional strategies and funding related to industrial policy are strongly consistent with the EU approach and enable the region to address its future technological and productive changes.

1.4.2 Scope for improving the EU contribution to regional industrial policy

The conducted analysis allows the identification of areas of potential improvement for the EU contribution to the regional industrial policy.

A nodal point concerns the actual additionality of European resources. De facto, EU resources tend to replace national ones that would have been dedicated to the production system but also research activities. For instance, the “Future in Research” measure allocates EUR 26 million to recruit fixed-term researchers at the regional universities, in the context of limited national funding for this end in Apulian and Southern Italian universities. The EU could strengthen its control of this potential moral hazard of national governments.

The Commission’s checks on the good use of resources for industrial policies are necessary and welcomed by local administrations and businesses. However, margins to make it more streamlined, timely and effective are still present. In many cases, control activities have created impediments to normal operating flows.

A further issue concerns the programmes directly managed by the Commission. As mentioned previously, there are discrepancies between requirements for these programmes and those of Cohesion Policy, generating problems to access the directly managed initiatives for regional stakeholders compared with other territories. The EU could instruct a pool of experts to propose solutions to this problem.
References


List of stakeholders interviewed

- Responsible for the management and implementation of the regional Operational Programme - Apulia Regional Authority
- Research and Innovation Area Manager - ARTI (regional agency for technology and innovation)
- Senior Economist – ARTI (regional agency for technology and innovation), Technology Transfer Policies Area
- General secretary - CGIL (Italian General Confederation of Labour - trade Union), Apulia
- Secretary - CGIL (Italian General Confederation of Labour - trade Union) Industrial Policy Office, Apulia.
2 ÎLE-DE-FRANCE

2.1 Regional economy and framework conditions in Île-de-France

2.1.1 Historical background
The industrial history of Île-de-France exhibits unique features with implications for the current situation at the regional and national level. Schematically, three major periods can be distinguished (Gueu, 2000):

• **19th century to the end of World War II: Industrialisation and concentration of industrial activities:** Benefiting from a large labour pool and access to raw materials, the Paris region has been a leading industrial pole since the 19th century, with 18% of French industrial employment in 1906. This development of heavy and transformation industries was particularly intense in the immediate suburbs of Paris, and accompanied with a densification of the urban fabric.

• **1950s-1960s: Industrial “deconcentration” and deployment of activities at the national and regional level:** This period is characterised by a contrasted evolution. The industrial weight of the region in France was strengthened, with 25% of the industrial employment in 1968. Residential and industrial densification continued in some areas close to Paris, but public authorities increasingly favoured industrial delocalisation to other areas of the region or elsewhere in France. New industries, such as automotive factories, tended to choose areas of the region where they could have access to cheap land with quality transportation infrastructures.

• **1970s-onwards: Relative deindustrialisation and shift to advanced services:** Île-de-France has faced a steep decline in industrial employment since the 1970s, at a much faster rate than the French average. Indeed, industrial employment only accounted for 8% of total employment in 2013. The 2008 crisis particularly weakened small industrial enterprises and lowly-skilled activities (CROCIS, 2018). However, owing to its large labour pool, the region remains the French region with the highest number of employees in industry in the 2010s. More qualitatively, the regional industry has also shifted towards activities with higher added-value, such as R&D, and in medium to high-technology sectors, such as aerospace or information technologies (IAU, 2016a).

2.1.2 Current regional industrial structure, innovation system and international linkages
Île-de-France clearly distinguishes itself from other French regions in terms of economic and industrial structure, owing to its central role in the country. For instance, it is a clear outlier regarding GDP per capita, which was 68% higher than the French average in 2016 (see Table 4). Its economy is mainly oriented towards advanced services, having experienced a fast decline in industrial employment, which was halved between 1990 and 2015 (IAU, 2016a). However, this decline should be nuanced, as the region still ranks first for industrial employment in absolute numbers at the national level. It is highly specialised in Information Technologies, aerospace, electrical products, energy, luxury goods and pharmaceuticals (IAU, 2016a, 2016b). Moreover, large industrial enterprises and innovative start-ups, which are essential to different aspects of innovation, are overrepresented in the regional industrial structure (IAU, 2016a).

More generally, the regional ecosystem is regarded as strongly favourable to innovation, notably owing to its high-skilled population (47.3% college-educated in 2016, see Table 4) and its concentration of command functions such as R&D, with dedicated spending per capita about three times as important as the EU average (in 2013, see Table 4). Industrial activities are thus highly integrated to advanced services.
A weak point of the regional industry is the **vulnerability of some SMEs**, which face difficulties to modernise their operations (Conseil Régional d’Île-de-France, 2017), e.g. in traditional sectors.

### Table 4. Economic, industrial and innovation ecosystem in Île-de-France

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>EU</th>
<th>FRANCE</th>
<th>ÎLE-DE-FRANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Value</td>
<td>Value</td>
</tr>
<tr>
<td>GDP per capita (2016)</td>
<td>29,200 (EUR per capita)</td>
<td>33,300 (EUR per capita)</td>
<td>56,000 (EUR per capita)</td>
</tr>
<tr>
<td></td>
<td>+8.1% (2011-2016)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment rate (2016)</td>
<td>8.6%</td>
<td>10.1%</td>
<td>9.2%</td>
</tr>
<tr>
<td></td>
<td>+1.0 p.p.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2011-2016)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of industry in the GVA (2015)</td>
<td>20%</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>+0 p.p.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2011-2015)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of employment in high and medium high-tech manufacturing (2016)</td>
<td>5.8%</td>
<td>4.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td></td>
<td>-1.0 p.p.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2011-2016)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports medium and high tech manufacturing (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.820</td>
</tr>
<tr>
<td></td>
<td>(range 0-1, 1 is best)</td>
<td></td>
<td>(range 0-1, 1 is best)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Quality of Governance Index (2013)</td>
<td>50.5</td>
<td>60.2</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>(range 0-100, 100 is best)</td>
<td>(range 0-100, 100 is best)</td>
<td>(range 0-100, 100 is best)</td>
</tr>
<tr>
<td></td>
<td>-14.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2010-2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of population with tertiary education (2016)</td>
<td>30.7%</td>
<td>34.6%</td>
<td>47.3%</td>
</tr>
<tr>
<td></td>
<td>+6.5 p.p.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2011-2016)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patent applications per million inhabitants (2011)</td>
<td>113</td>
<td>136.8</td>
<td>255</td>
</tr>
<tr>
<td></td>
<td>-15.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2008-2011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D expenditure per capita (2013)</td>
<td>542.4</td>
<td>722</td>
<td>1,560</td>
</tr>
<tr>
<td></td>
<td>(EUR per capita)</td>
<td>(EUR per capita)</td>
<td>(EUR per capita)</td>
</tr>
<tr>
<td></td>
<td>+8.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(EUR per capita)</td>
<td>(EUR per capita)</td>
<td>(EUR per capita)</td>
</tr>
<tr>
<td>Non-R&amp;D innovation expenditure (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.254</td>
</tr>
<tr>
<td></td>
<td>(range 0-1, 1 is best)</td>
<td></td>
<td>(range 0-1, 1 is best)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>SMEs innovating in-house (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.526</td>
</tr>
<tr>
<td></td>
<td>(range 0-1, 1 is best)</td>
<td></td>
<td>(range 0-1, 1 is best)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Source:** Authors based on Eurostat, Quality of Governance Institute, Regional Innovation Scoreboard

The region is also a **globalisation hotspot**, with its enterprises highly integrated in global value chains. This integration is demonstrated by the good performance of the region for medium to high-technology exports (ranking 0.820 in the Regional Innovation Scoreboard 2017 for that aspect, with 1 being the maximum, see table 4) but also by its concentration of company headquarters, of foreign-owned companies (CESER, 2005) and international research activities. **As a global city, Paris** is a major contributor to the attractiveness of the region at a global scale (IAU, 2016b). However, **infra-regional territories do not benefit from these advantages equally**, and some territories are experiencing important economic hardships with vulnerable populations (IAU, 2016b).
2.1.3 Synthesis in the form of a SWOT analysis

Box 6. SWOT analysis of the regional economy in Ile-de-France

Strengths
- Diversified economy with strong industrial sectors
- Highly-skilled population
- Linkages between industry and advanced services
- Strong R&D capabilities
- Solid entrepreneurship spirit (especially for start-ups)
- Solid innovation ecosystem
- High-quality infrastructures
- Global attractiveness / Paris as a global city

Weaknesses
- Deindustrialisation (limited industrial employment)
- High costs of labour and real estate
- Limited modernisation of some industrial SMEs (technological transfers)
- Fragile/excluded territories and individuals (cohesion dimension)

Opportunities
- Good position in emerging industries (especially digital ones)
- High potential for technological transfers from solution providers (e.g. CEA List, start-ups…) to other regional companies
- Enhanced structuration of the ecosystem
- Reorganisation of governance and transportation at the regional level (Grand Paris)

Threats
- Global competition
- Competition from other French regions (especially for production activities)
- Inadequacy of training/skills
- Real estate and transportation problems (diseconomies of scale)

2.2 Industrial policy approach adopted in Ile-de-France

2.2.1 The evolution of regional industrial policy approach

The evolution of the regional industrial policy approach should be analysed according to three interrelated dimensions:

- the decentralisation process, which has consolidated the competences of regional and local authorities in the field of economic interventions
- the changing nature of the national industrial policy, which was traditionally oriented towards strongly interventionist approach (national champions, sectoral support and territorial balancing through the aménagement du territoire), and its articulation with regional policy(ies)
- the recent adoption by the region of a dedicated strategy targeting the industrial sector, in addition to its overall economic policy

France is traditionally a highly centralised country, where regions have only begun to obtain competences and democratic legitimacy at the start of the decentralisation process in the 1980s. With the recent wave of decentralisation, especially the NOTRe law of 2015, competences of the different levels of government have been clarified (Régions de France, 2016a). In particular, regions now have exclusive competence over economic development, innovation, training, secondary and higher education and regional planning matters (Régions de France, 2016b). This restricts the action of the lower levels of government (département and communes) in these fields. This clarification should facilitate governance arrangement and could allow for the emergence of a consolidated regional economic and industrial policy.

In parallel with these changes of governance, national industrial policy is also evolving. From the end of world war II to the 1980s, French industrial policy was characterised by a “colbertist” model, with the
State promoting sectoral measure through consolidation of national champions or “grands projets” (Cohen, 2007).

In the 1980s, the context of increased European integration and globalisation pushed the French industrial policy to shift towards competitiveness measures focusing on framework conditions, regardless of the sector. During the 2000s, as more active industrial policy measures regained attention, initiatives based on innovation grants and territorial clusters (pôles de compétitivité) have notably been introduced (Cohen, 2007). Current national industrial policy mixes several approaches (Conseil National de l'Industrie, 2018), including support to specific sectors in a vertical perspective (e.g. 9 solutions of Nouvelle France Industrielle and strategic sectoral committees) (Ministère de l'Economie, 2017), territorial approach through pôles de compétitivité or territoires d'industrie (Gouvernement français, 2018) and improvement of macroeconomic/framework conditions (e.g. with the CICE to reduce labour costs). This situation has been criticised as lacking an overall strategic vision (Voy-Gillis, 2018). The articulation between this changing national industrial policy, which has several regional applications, and the regional industrial policy approach per se should thus be considered.

The two previous dimensions mean that the **regional industrial policy approach is relatively recent and is applied in the context of a transforming national policy.** Indeed, the first formal regional industrial policy has been introduced in the 2010s, even though previous interventions contributing to industrial development can be retrieved. The Plan Industries (2013-2017) focused on specific actions to promote industry (technical modernisation and business development), but with relatively limited resources, poor coordination and integration within larger economic strategic frameworks (Conseil Régional d’Île-de-France, 2017). To tackle delocalisations (especially of production activities) and industrial employment decline, regional authorities have the ambition to adopt a more transversal/holistic approach for the 2017-2021 period, through the “Smart Industrie” strategy. It has a total budget of EUR 300 million (including ESF/ERDF contributions) and draws upon the different areas of competence of the region that are relevant to industrial policy: technological modernisation, training and skills, real estate development, attractiveness of industry for the youth and at the international level (Conseil Régional d’Île-de-France, 2017). The approach emphasizes continuity of support actions of different types for industrial companies (from technical-economic diagnosis to investment), aiming at mobilising companies and triggering action.

This recent strategy specifically targeting the industrial sector **contributes to the wider economic development and innovation strategy of the region**, the Regional Scheme for Economic Development, Innovation and Internationalisation (SRDEII). The latter is based on four main pillars covering all the relevant competences of the regional authorities: internationalisation and attractiveness, regional competitiveness, entrepreneurship, ecosystem and collective actions to support companies, territories and employment (Conseil Régional d’Île-de-France, 2016a). Industrial activities were not explicitly designated as a priority when this strategy was drafted. However, several of its measures de facto benefit the industrial sector. In 2019, the total regional budget for economic development, innovation and tourism will reach EUR 160 million (Conseil Régional d’Île-de-France, 2018a), contributing to both the SRDEII and the Smart Industrie strategy.

The **Regional Smart Specialisation Strategy (S3) and ERDF/ESF-YEI Operational Programme** also contribute de facto to the regional industrial policy approach, especially though priorities related to industrial modernisation (e.g., the complex systems focus of the S3) (Conseil Régional d’Île-de-France,

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5 It however planned to design a specific industrial strategy (Smart Industrie strategy)
6 This envelope does not cover funding for higher education and research (EUR 82 million for 2019) and vocational training (EUR 589 million for 2019)
2013) or to overall support to economic development (regional OP) (Conseil Régional d’Île-de-France, 2016b). However, these strategies do not highlight industry as such.

2.2.2 The current policy mix for regional industrial development: strategic objectives, priorities, specific measures and instruments

The following table describes the **policy mix adopted by the region**. It only features the main measures and strategies that are explicitly recognised by regional or national authorities as contributing to the industrial/economic policy (Conseil Régional d’Île-de-France, 2017; Sénat français, 2018a) implemented in the region. However, it should be noted that other measures might be fact contribute to industrial development, e.g. framework conditions measures, national measures to restructure industrial sectors or major infrastructure projects such as the Grand Paris Express (metro extension). The actions of local authorities at the sub-regional level are also excluded, even though they have a relevant impact on economic and industrial development (especially regarding real estate).
### Table 5. Strategic objectives, priorities and instruments of the regional industrial policy in Île-de-France

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding (dedicated to the region only)</th>
</tr>
</thead>
</table>
| Smart Industrie strategy – Pillar I (industry of the future and adequate training) | Regional authorities and their partners (e.g. education systems, subcontractors…) | • Modernise industrial enterprises  
• Support to industrial champions  
• Train employees and job seekers to tackle the needs of industrial companies (Conseil Régional d’Île-de-France, 2017) | • Provide individual support to 500 enterprises (performance diagnosis, support to investments)  
• Create an accelerator supporting the development of about 30 industrial SMEs each year  
• Provide support to the Wilco accelerator supporting about 30 industrial start-ups each year  
• Create a club for mid-sized companies  
• Train 10,000 job seekers for industrial jobs in 5 years  
• Provide support to industrial training centres  
• Develop innovative training curricula  
• Provide support to the “campus des métiers” for main industrial sectors (vocational training) | Mixed (public investments, provision of services, training, advocacy, ecosystem consolidation) | Total budget for the three pillars of the Strategy: EUR 300 million (including ESF contributions), i.e. EUR 60 million each year. Major areas of spending include training and digital infrastructures. |
| Smart Industrie strategy – Pillar II (industrial attractiveness through innovation ecosystem and real estate) | Regional authorities and their partners (e.g. enterprises, R&D stakeholders, real estate companies, local authorities…) | • Integrate industry to the regional innovation ecosystem  
• Develop an adapted real estate offer for industrial needs (Conseil Régional d’Île-de-France, 2017) | • Provide support to specific industrial sectors and to dialogue between enterprises  
• Develop a regional digital platform for industrial projects and skills  
• Organise forums between large enterprises and subcontractors  
• Finance innovation-related structures (Additive Factory Hub, Fabrique Numérique)  
• Create an international digital hub  
• Provide support to R&D infrastructures/equipment projects shared between universities and SMEs  
• Foster dialogue to develop an adapted real estate offer  
• Support industrial advocacy targeting real estate agents and local authorities  
• Deploy high-speed internet infrastructures  
• Develop common transportation planning with local authorities  
• Develop open data on the real estate offer | Mixed (public investments, infrastructures, advocacy, ecosystem consolidation) | |
<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding (dedicated to the region only)</th>
</tr>
</thead>
</table>
| Smart Industrie strategy – Pillar III (attractiveness of industry for the youth and international stakeholders) | Regional authorities and their partners (e.g. education systems, economic development agencies…) | • Consolidate the attractiveness of industry and related apprenticeship  
• Promote regional industry at the local and international levels (Conseil Régional d’Île-de-France, 2017) | • Use regional information portals to promote industry  
• Strengthen education-industry partnerships  
• Strengthen apprenticeship in industry (e.g. support to dedicated training centres)  
• Provide support to training programmes for short-term needs of industrial companies  
• Develop partnerships between universities, consultancies and industrial companies  
• Conduct marketing campaigns to promote industry  
• Provide support to the Smart Industrie Salon  
• Create a common identity/community of stakeholders for regional industry  
• Integrate industry to the international attractiveness strategy | Mixed (public investments, advocacy, ecosystem consolidation) | Regional expenditure contributing to this economic strategy can be linked to three major policy areas (Conseil Régional d’Île-de-France, 2018a):  
Economic development, innovation and tourism: EUR 160 million  
Innovation, R&D and higher education: EUR 113 million  
Vocational training and education: EUR 589 million  
A part of this budget funds the Smart Industrie strategy |
| Schéma Régional de Développement Économique, d’Innovation et d’Internationalisation (SRDEII) | Regional authorities and their partners (e.g. education, training and R&D stakeholders, local authorities, private companies, real estate stakeholders, economic development agencies…) | Four main pillars (Conseil Régional d’Île-de-France, 2016a):  
• Favour internationalisation and attractiveness of the region,  
• Develop the competitiveness of enterprises (services, strategic sectors and SMEs)  
• Support entrepreneurship  
• Consolidate the regional ecosystem supporting enterprises, territories and employment (including governance, policy capacity…) | • Several operational objectives for each pillar of the strategy, most of them qualitative and process (rather than goal) oriented | Mixed (public investments, provision of services, infrastructures, training, advocacy, ecosystem consolidation…) | |
<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding (dedicated to the region only)</th>
</tr>
</thead>
</table>
| Île-de-France Operational Programme (ERDF-ESF-YEI) | Regional authorities and their partners (EU, national and local authorities, beneficiaries…) | The OP targets four major regional priorities (Conseil Régional d’Île-de-France, 2016b):  
• Balanced development and solidarity (focus on the lagging-behind urban areas)  
• Social and professional inclusion  
• Regional competitiveness, in the context of deindustrialization (focus on R&D, SMEs, innovation)  
• Sustainable development and environmental quality | The four major regional priorities are linked to some operational objectives to be achieved by 2020:  
• 75% employment rate  
• 3.2% of the regional GDP for R&D  
• 282,493 people lifted out of poverty  
• 11% share of renewables in final energy consumption  
• 4.13 Mtep reduction in final energy consumption  
• 28% reduction in GHG emissions compared to 1990 levels  
• 50% of 30-34 y.o. with higher education diplomas  
• 10% reduction of school-dropping | Mixed (public investments for multiple projects: provision of services, infrastructures, training, advocacy, ecosystem consolidation…) | The total OP budget for 2014-2020 is EUR 820 million (ERDF, ESF/YE; including the share managed by national and local authorities) (Europe en France, 2014) A part of this budget funds the Smart Industrie strategy |
| Crédit Impot Recherche (CIR) | National authorities (enterprises’ taxation service) | Tax credit supporting private R&DI activities (Ministère de l’Enseignement Supérieur, de la Recherche et de l’Innovation, 2018a) | Support R&D activities of private companies (mainly targeting industrial ones)  
Provide support to other innovation activities of private companies (mainly targeting services) | Tax credit | Île-de-France concentrates a large majority (about 66%) of the tax reduction for R&D activities, for a cost of about EUR 4 billion (Ministère de l’Enseignement Supérieur, de la Recherche et de l’Innovation, 2018b)². |
| Crédit d’Impôt Compétitivité Emploi (CICE, transformed into social security contributions’ reductions in 2019) | National authorities and their partners (tax authorities and social contributions’ collectors) | Reduce social contributions to lower labour costs and improve the competitiveness of companies (Direction des Finances Publiques, 2018) | Provide support to employment of low-skilled labour (up to 2.5 times the minimum wage)  
Directly improve business markups | Reduction of social contributions (formerly tax credit) | Important share of the national cost of about EUR 20 billion (Sénat français, 2018b) |
| Programme d’Investissements d’Avenir (PIA3) | National and regional authorities and their partners (universities, companies, Bpifrance…) | Support economic growth through education, research and development and economic innovations. Part of the programme is co-managed with regional authorities (Gouvernement | Provide flexible support to economic sectors, including industry but also tourism, agrofood…  
Provide support to research, education and innovation  
Provide support to local innovative projects (environment, transport, urbanism…)  
Provide support to new industrial technologies for | Public investments | Important share of the national cost of about EUR 10 billion (Gouvernement français, 2016) |

² Estimate based on the global cost of the CIR in 2018, about EUR 6.5 billion and the historical ratio of Île-de-France (about 66% of CIR Recherche, which is largely dominant within the CIR)
**Name of the measure, initiative** | **Authorities designing and implementing the measure** | **Strategic Objectives** | **Operational objectives / priorities** | **Type of instrument** | **Funding (dedicated to the region only)**
---|---|---|---|---|---
Nouvelle France Industrielle | National and regional authorities, private companies, consultancies/service providers… | • Support industrial modernisation and digitisation of companies, based on the development of 9 client-oriented “solutions”, in partnerships with industry and regions (Gouvernement français, 2017) | • Provide support to private technological projects • Provide support to industrial companies’ modernisation (strategic diagnosis and funding) • Provide training for industry-relevant skills • Strengthen international cooperation (EU level) • Promote the Industry of the Future (attractive pilot projects…) | Mixed (public investments, provision of services, training, advocacy, ecosystem consolidation) | Largely resources from the PIA3, Bpifrance etc.

Poles de compétitivité | National and regional authorities, poles de compétitivité and their members | • Support industrial growth, innovation and attractiveness with a strong territorial basis (DGE, 2018). | Main operational objectives of the poles include: • Create Partnerships between local stakeholders • Conduct R&D collaborative projects • Consolidate the regional ecosystem (e.g. cooperation for business development, access to finance…) | Public investments, ecosystem consolidation | The 7 regional poles will benefit from public funding for their governance: a share of the total national funding (EUR 14 million for 2019) (Ministère de l’Economie, 2018) and complementary regional funding

Territoires d’industrie | National, regional and local authorities, their partners and industry leaders | • Support territories with a strong industrial orientation, in a decentralised way (led by regional and local authorities) | Develop measures according to 4 main themes (mainly reorientation of existing measures towards specific territories): • Human Resources (incentive young engineers to work in industrial SMEs, investment plan in skills…) • Innovation (accelerators for SMEs, enhanced access to existing instruments…) • Attractiveness (mobilisation of financial engineering, accelerators, high-speed internet development…) • Simplification (experimental exemption of administrative/regulatory obligations…) | Mixed (public investments, provision of services, training, advocacy, ecosystem consolidation…) | Share of the national budget of EUR 1.36 billion (9 territories on a total of 124 are in the region)

**Source:** Authors based on regional and national documents
2.2.3 Governance arrangement, coordination mechanisms and stakeholders’ involvement

Lack of funding and limited coordination between stakeholders have been explicitly identified as shortcomings of the previous Plan Industries by regional authorities (Conseil Régional d’Île-de-France, 2017). In particular, the existence of several different stakeholders (public operators, private subcontractors etc.) and many different instruments mobilised by the regional industrial policy posed problems of visibility for enterprises and limited the consistency and efficiency of public support. As a consequence, the Smart Industrie strategy was drafted in a concertation process and is monitored by a strategic industry committee (Conseil Régional d’Île-de-France, 2017). This committee associates industrial stakeholders (e.g. medium-sized enterprises, sectoral associations…) in order to tailor the policy to the beneficiaries’ needs and to reach/orient them more easily. Moreover, specific working groups have been set up on issues that are critically relevant to regional industries, such as real estate.

More generally, the Smart Industrie strategy is coordinated with the overall economic and innovation strategy of the region (SRDEII), which is facilitated by the fact that both strategies are under the responsibility of a single Department within the regional authority. As the Smart Industrie strategy and the SRDEII use European funds, there are linkages between the Economic Development Department and the Europe Department of the regional authority, but with a focus on funding rather than strategic aspects. There is thus potential room for more explicit coordination between the different strategies, in order to secure more benefits (e.g., enhanced cascade funding using EU funds).

Even if recent regional efforts attempt to streamline the policies and support targeting economic and industrial development, Île-de-France is still characterised by a very high number of relevant instruments and stakeholders (e.g., regional and local authorities, chambers of commerce, attractiveness agencies, innovation associations etc.), which makes overall coordination and multilevel governance particularly challenging.

Finally, coordination of regional policy with national policies and initiatives in favour of industry is still relatively limited, because national actions are in an emerging phase (e.g. Nouvelle France Industrielle, Territoires d’Industrie…) and regional authorities require some time to assess whether these actions are adapted to the specificities of identified challenges (e.g. real estate costs, reaching out to companies…).
2.2.4 Main strengths and weaknesses of the regional industrial policy approach

Box 7. Strengths and weaknesses of the regional industrial policy approach in Ile-de-France

**Strengths**
- Adoption of a transversal/holistic approach of industrial policy mobilising the main competences of the region
- Governance involving industrial stakeholders
- De facto coordination between the industry-specific strategy and the overall economic strategy of the region
- Alignment between the regional characteristics and industrial policy priorities (focus on SMEs, technological integration rather than cost-competitiveness)
- Emergence of an integrated support for industrial companies (from diagnosis to investment)
- De facto complementarity between different policies and funding sources (including EU ones)

**Weaknesses**
- Moderate coordination with recent national industrial policy initiatives
- Coordination between the different regional strategies (including EU ones) focusing on operational rather than strategic aspects
- Difficulties to coordinate the multiple stakeholders and initiatives involved in economic and industrial development at the regional level
- Difficulties to provide support to the companies with the strongest needs (deployment aspect)
- Difficulties to retain industrial companies (real estate costs and opportunities)
- Restrictions in support instruments compared to other French regions (e.g. intensity of funding)

2.3 The EU contribution to the regional industrial policy in Ile-de-France

2.3.1 What is the contribution of the EU industrial strategy policy to the regional policy paradigm?

According to the evidence retrieved, it seems that the direct influence of the EU in shaping the regional (industrial) policy paradigm is rather limited, compared with e.g., national and regional policy influences and political debates. Regional stakeholders may follow relevant developments at the EU level, but there is no direct impact on regional strategies. However endogenously developed regional policies supporting industry are targeting objectives that are consistent with the overarching EU priorities, e.g. support to innovation or entrepreneurship, etc. Finally, the ambition of regional authorities to adopt a holistic/transversal policy targeting industry, though developed independently, is fully in line with the approach of the 2017 EU industrial strategy.

2.3.2 What is the contribution of the EU industrial strategy policy to governance, policy capacity and coordination?

There is no clear evidence of a direct contribution of the EU industrial policy strategy to regional governance, policy capacity and coordination between levels of government in the field of regional industrial policy. However, some indirect EU influences can be observed, though a more in-depth assessment would be required to weight them against other factors.

The region is contributing to different EU initiatives relevant to economic and industrial policies, such as:

- **Networks/labels** (e.g. the European Entrepreneurial Region label (Committee of the Regions, 2019))
- **Platforms**, such as the S3 platform for industrial modernisation – mobility
- **Workshops** (e.g. contribution to the EU industry days)
This can bring about several potential effects:

- Favour the exchange of information and good practices, with potential spillovers on regional industrial/economic policy capacity.

- Increase the visibility of the regional actions at the EU level (especially on its economic and innovation policies in general, though a focus on their industrial dimension is sometimes highlighted), allowing both regional and EU stakeholders to increase their mutual awareness of their actions. It may favour improved coordination between levels of government.

- Favour cooperation and coordination between the different Departments of the regional authority, especially the Economic Development and Europe ones. It may favour an enhanced governance of the different policies.

- Favour cooperation and coordination between the different public and para-public bodies involved in economic development in the region, through their contribution to common EU networks, such as the Europe Enterprise Network.

Moreover, the support granted by regional authorities to stakeholders (private companies, universities, R&D centres) to access EU initiatives or funding, such as H2020, may develop the policy capacities of some private beneficiaries.

2.3.3 Which instruments, initiatives and funding ascribable to the EU industrial policy are mobilised in the region?

In the region, four main channels of EU instruments, initiatives and funding are mobilised with linkages to the regional and EU industrial policies:

- The European Structural and Investment Funds (ESIF), even though there is no strong industrial orientation of the OP, several Thematic Objectives do contribute to economic and industrial goals. It leads to the ESIF being the major source of EU funding that is ascribable to industrial policy in the region.

- The Juncker Plan, facilitating access to finance for companies.

- H2020 and COSME, with regional support to favour the access of relevant stakeholders to these funds and related benefits. Regional authorities complement the action of national authorities to orient and help project leaders (e.g., to constitute consortia…). In particular, a high priority is set on digitalisation by the regional authorities, with a strong focus on H2020/Digital Innovation Hub projects. Regional authorities closely cooperate with the leader of the Île-de-France DIH, the CEA. Clustering actions of EASME are also mobilised.

- Involvement of the region in networks, labels, and other similar activities that are relevant to economic and industrial policies (e.g., S3 platform on industrial modernisation, EU industry days, Enterprise Europe Network etc.). These initiatives are usually funded in the framework of other EU programmes (e.g., EEN by COSME, S3 platforms by H2020…).
### Table 6. Main EU policies and instruments contributing to regional industrial development in Ile-de-France

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
</table>
| **Cohesion Policy (ERDF, ESF, YEI)** | The regional OP targets four major regional priorities (Conseil Régional d’Île-de-France, 2016b):  
• Balanced development and solidarity (focus on the lagging-behind urban areas)  
• Social and professional inclusion  
• Regional competitiveness, in the context of deindustrialization (focus on R&D, SMEs, innovation)  
• Sustainable development and environmental quality | Multiple operational objectives to be achieved by 2020, including some that are strongly related to industrial and economic policy:  
75% employment rate, 3.2% of the regional GDP for R&D, 282,493 people lifted out of poverty, 11% share of renewables in final energy consumption, 4.13 Mtep reduction in final energy consumption, 28% reduction in GHG emissions compared to 1990 levels, 50% of 30-34 y.o. with higher education diplomas, 10% reduction of school-dropping | Mixed (public investments for multiple projects: provision of services, infrastructures, training, advocacy, ecosystem consolidation…) | Total ERDF-ESF/YEI budget managed by regional and local authorities for 2014-2020: EUR 490 million  
Total ERDF-ESF/YEI budget targeting the region managed by national authorities for 2014-2020: EUR 340 million  
Authors’ estimates on the amounts closely contributing to industrial and economic policy: about EUR 560 million | Direct involvement of national and regional authorities through the OPs (regional one, and share of the national ESF OP)  
De facto contribution of the ESIF to regional policies and initiatives (economic policy, Smart Industrie strategy), mostly as a source of complementary funding and for training/human capital |
| **Junker Plan (EFSI)** | The Juncker Plan aims at facilitating the mobilisation of private funding for risky investments, thanks to public support (e.g., loans, guarantees…). It notably targets (Conseil Régional d’Île-de-France, 2018b):  
• Strategic infrastructures  
• Education, training, innovation, R&D  
• Renewables and energy efficiency  
• Environment, urban planning and social development  
• SME support | In the region, the focus is put on support to SMEs as well as large projects (Conseil Régional d’Île-de-France, 2018b). | Mixed (public investments for multiple projects: development of SMEs, provision of services, infrastructures, training…) | As of November 2018, the Juncker Plan’s approved operations amounted to EUR 11.5 billion of financing in France, expected to trigger an additional mobilisation of EUR 57 billion in investments (European Commission, 2018).  
Regional estimates are not consolidated, but Île-de-France is the first beneficiary region in France (Conseil Régional d’Île-de-France, 2018b). | Regional support to potential beneficiaries (e.g. through networks…) |
| **Horizon 2020** | At the EU level, the H2020 programme has three strategic objectives (Ministère de l’Enseignement Supérieur, de la Recherche et de l’Innovation, 2013):  
• Develop R&D projects and their socio-economic benefits, contribution to the S3’s innovation priorities (e.g.,) | Lack of solid regional estimates  
Authors’ estimate for H2020 funding targeting France for 2014-2020: about EUR 7.7 billion  
It is likely that a majority | Strong support to the digitalisation aspects by regional authorities through H2020, by helping the relevant stakeholders to |

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8 Estimate based on the selection of the most relevant thematic objectives (1, 2, 3, 4, 8, 10) for the regionally managed funds, and by applying a correction factor of 0.4 for the nationally managed ESF (corresponding to the ratio of the national ESF OP dedicated to thematic objectives 8 and 10).

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSME</td>
<td>Excellent Science • Industrial Leadership • Societal Challenges</td>
<td>Robotics, complex systems…).</td>
<td></td>
<td>of this national envelope will benefit the region.</td>
<td>access funding and build partnerships (e.g. DIH), in collaboration with the CEA and other regional stakeholders</td>
</tr>
<tr>
<td>Rural development programme (EAFRD)</td>
<td>COSME has three main strategic objectives at the EU level (Bpifrance, 2014): • SMEs’ access to finance • Access to EU markets’ development • Entrepreneurship promotion</td>
<td>Focus on access to markets and networking activities for mature enterprises, clustering…</td>
<td>Mixed (guarantees, networks, training and advocacy…)</td>
<td>Lack of solid regional estimates, significantly smaller than H2020 funding (EUR 2.3 billion at the EU level for 2014-2020) (Bpifrance, 2014)</td>
<td>De facto complementary to other EU, national and regional actions (e.g. involvement in the Enterprise Europe Network)</td>
</tr>
<tr>
<td></td>
<td>Four main strategic axes (Conseil Régional d’Île-de-France, 2015): • Investments in farms to develop their economic and environmental performance • Support to young farmers • Environmental issues in agricultural and rural contexts • LEADER approach of local development</td>
<td>Activities that are the most relevant to industrial and economic development are investments targeting the economic performance of farms and other rural development projects</td>
<td>Public investments with multiple goals</td>
<td>EUR 57.6 million from the EAFRD for 2014-2020, including about EUR 20 million for the most relevant activities to economic development (Conseil Régional d’Île-de-France, 2015)</td>
<td>Limited evidence of formal coordination and synergies with other regional initiatives for industrial development</td>
</tr>
</tbody>
</table>

**Source:** Authors based on EU, national and regional documents, interviews
Other EU programmes, instruments and initiatives could contribute to the economic and industrial development at the regional level, but on a much more limited scale (e.g., EGF, EaSI...).

2.4 Conclusions and lessons learnt

2.4.1 How does the European industrial policy help the region to face future challenges?

According to the collected evidence, the EU industrial policy has a limited direct influence on the regional paradigm, in terms of approach and priorities. However, the region has recently developed a formal strategy specifically targeting industry, with a holistic/transversal approach. This is fully coherent with the most recent developments at the EU level, and tends to address the critical issue of regional deindustrialisation.

Regarding governance, coordination and policy capacity, the EU industrial policy might contribute to some improvement at the regional level, especially by favouring linkages between the regional stakeholders at different levels (e.g., between EU and regional stakeholders, between the different Departments of the regional authorities etc.).

There is an extensive mobilisation of EU funds and initiatives that contribute to the economic and industrial development of the region, in particular the ESIF, Juncker Plan, Horizon 2020 and softer tools (Smart Specialisation Platforms, Enterprise Europe Network...). They are mainly used to complement national or regional sources of funding to achieve regional economic and industrial priorities (including digitalisation of enterprises and technological diffusion). In particular, as the region is highly developed, it benefits from limited funding from the Structural Funds, which thus do not constitute a principal source of funding. Some EU initiatives can also cover areas of intervention that are not often possible through other channels (e.g. funding for operating expenses or networking activities). This complementarity with national and regional policies and instruments is a clear added-value of the EU.

However, the contribution of EU funds and initiatives is largely built on operational imperatives with relatively limited emphasis on strategic aspects. Indeed as different strategies and stakeholders are relevant to the regional economic and industrial policies, there are somewhat different priorities (though largely overlapping de facto) and knowledge/awareness of EU’s initiatives.

Moreover, some EU rules can also restrict the ability of the region to conduct its industrial and economic policy, such as limitations of public aids to companies (European Commission, 2012). In particular, regional state aid rules restrict maximum aid intensity in Île-de-France, with few areas eligible to aid compared with other French regions (European Commission, 2014b, 2014c). It may alter the competitiveness of the region in regard to its specific challenges, such as high real estate costs.

2.4.2 Scope for improving the EU contribution to regional industrial policy

The main lever to improve the EU contribution to the regional industrial policy seems to be to raise awareness of the EU actions and facilitate coordination between the different regional strategies. Indeed, the involvement of several stakeholders and the coexistence of different strategies that are relevant to industrial development mean that there are heterogeneous levels of awareness of the potential of EU funds and initiatives. Recent regional actions (e.g. contribution to the EU industry days, S3 platform...) are in line with this lever. For instance, it may lead to an improved development of cascade funding / access to EU markets for companies that are supported by measures of the industrial strategy.
References

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“How to tackle challenges in a future-oriented EU Industrial Strategy?”

- Régions de France (2016a). La Région, une longue histoire.
- Régions de France (2016b). Quelles sont les Compétences d’une région ?

**List of stakeholders interviewed**

- Project officer - Economic Development Department of the regional authority (04/02/2019)
- Project officer - Europe Department of the regional authority (13/02/2019)
3 IRELAND

3.1 National economy and framework conditions in Ireland

3.1.1 Historical background

Weakly endowed in raw materials but situated in a strategic position between the US and Europe, Ireland has seen its economic structure evolving since the Second World War. **Different macro-phases may be identified:**

- **End of World War II to early 1960s: the agricultural economy:** Accounting for more than 40 per cent of the total workforce (CSO, 1951) and largely contributing to the Gross Domestic Product (GDP) and exports especially towards the United Kingdom, agriculture was the economy’s leading sector until the beginning of the 1950s (Breen and Dorgan, 2013). The less prosperous manufacturing sector, mainly composed of “geriatric” and inefficient industries (Görg and Ruane, 1997), was instead only specialised in consumer goods and technically mature intermediate products (O’Malley, 1992).

- **Early 1960s to early 1990s: the first wave of industrialisation.** A radical change in Ireland’s industrial fabrics has been favoured by the country’s external openness and attraction of Foreign Direct Investments (FDI) starting from the 1960s. Causing the shift from a rural-based economy, the investment of Foreign-owned Firms (FoFs) in the Irish manufacturing has been the main driver for the development of the industry sector. As a result, employment growth was spread across specific industry sectors such as electronics, chemicals/pharmaceuticals and other high-technology industries, with Foreign-owned firms, predominantly US-owned enterprises, dominating employment (Jacobson, 2015). However, this strong emphasis on FDI increased the gap between FoFs and indigenous companies. In fact, while the former, generally Multinational Enterprises (MNEs), were concentrated in the more “advanced” sectors, the latter, mostly SMEs, remained specialised in the more traditional ones (Andreosso-O’Callaghan and Lenihan, 2012).

- **Early 1990s to 2000s: the economic boom and the consolidation of the industry sector:** The wave of industrialisation as well as the steady economic growth characterising the Irish economy since the 1960s, culminated during the 1990s economic boom, which prompted the naming of Ireland as the “Celtic Tiger”. Key explaining factors are high in-flows of FDI, investment in infrastructures and other projects through the EU Structural Funds, a favourable macroeconomic context and improved education levels (Anyadike-Danes et al., 2010). Although not involving further changes in the industrial structure in terms of sectoral composition, this period saw first improvements in Irish-owned firms, with the increase of employment in export-oriented technology sectors (Görg and Ruane, 1997) to the detriment of the more traditional food and beverages industry which, until then, had dominated manufacturing employment (Andreosso-O’Callaghan and Lenihan, 2012).

- **2000s onwards: the development of the knowledge-based industry and a first shift to services:** A new focus on innovation, seen as a key driver for economic growth, has marked Ireland’s transition to a knowledge-based economy (Gorman and Cooney, 2007). Industry has seen some new entrants in software development, the e-business sector and bio-pharmaceutical. Moreover, as other developed economies, the country has started to register an upward trend in the gross output in services as share of the total output. On the contrary, the share of manufacturing, which had risen steadily from 1980s, has started to briefly decline (Andreosso-O’Callaghan and Lenihan, 2012), in particular in computer and related electronics manufacturing (O’Riain, 2013).
3.1.2 Current national industrial structure, innovation system and international linkages

Ireland is currently a country with a strong industrial base, low unemployment rate and high innovative capacity. Innovation plays a key role in fostering economic growth as shown by the increase in R&D per capita expenditure between 2011 and 2015. The level of these expenditures is above the EU average by nearly 13 per cent (see Table 7). In this context, the share of the population with tertiary education accounts for 43.6 per cent of the total (see Table 7). The Irish higher education system is deemed to be a fundamental contributor to the development of entrepreneurial career paths for graduates (OECD, 2017b), ranking Ireland as the 6th highest in Europe for the rate of entrepreneurship among graduates (Enterprise Ireland, 2017). However, some regulatory barriers still hinder the creation of new firms, such as costly regulations related to commercial property and legal services and the high costs of business failure. It implies the need to reform the banking sector in order to improve access to finance for young firms and enhance performance in entrepreneurship (OECD, 2018).

The industry sector still constitutes a critical component of the Irish economy despite the growing importance of services in the last decades. The share of industry in the Gross Value Added (GVA) is nearly twice the share observed in the EU average (see Table 7) and provides employment for 15.2 per cent of the total workforce (CSO, 2018b). The most important manufacturing sector in terms of employment (CSO, 2018a) and specialisation (Russu, 2015) is the traditional food and beverage industry followed by pharmaceuticals, machinery equipment and computer, electronics and optical products. However, differences should be highlighted between indigenous firms, predominantly SMEs specialised in more traditional industrial sectors (e.g., food products and beverages, textiles and clothing and paper products), and FoFs dominating knowledge-intensive industries, such as pharmaceuticals, chemicals, electronic and optical products (European Commission, 2017).

The Irish export-led economy and the strong presence of FoFs in its relatively small economy are reflected in the high integration of the country in Global Value Chains (GVCs), as measured in terms of its ratio of traded goods/services to GDP/GNP. However, the very high export ratios observed in the Irish manufacturing sector among FoFs (Gorman and Cooney, 2007) shows that Ireland’s strong position in the GVCs is a direct consequence of its over-reliance on inward investment (OECD, 2013). In line with this, the current structure of the economy reveals that while FoFs accounts for only 1.5 per cent of the number of firms and 24.3 per cent of employees, they represent nearly 52 per cent of the gross value added (GVA) (European Commission, 2017).

The highly-globalised nature of the Irish economy and its over-reliance on exports have also been key reasons for the strong impact of the 2008 global financial crisis in the country. The consequent recession period started with the dramatic decline of GDP by nearly 4 per cent between 2000 and 2007 (Eurostat, 2019). In 2010, the economy started to recover but it was not until 2014 that pre-crisis levels were reached again, facilitated by the openness of the Irish economy and the strong multinational sector and exports. The more recent data on the domestic economic performance reveal a higher value of GDP per capita and a lower unemployment rate compared to the EU average (see Table 7). However, the importance of globalisation characterising the Irish economy presents significant challenges in the interpretation of standard economic indicators such as the GDP or the Gross National Income (GNI) (CSO, 2017). It is demonstrated by the abnormal rise of GDP in 2015 (+26.3 per cent) and the consequent extremely high ratio GDP/GNI. As a consequence, in 2017 the Central Bank of Ireland proposed the creation of a new indicator, the Modified Gross National Income (Modified GNI or GNI*), with the aim of excluding the globalisation effects that disproportionately affect the measurement of the size of the Irish economy (see Figure 6). The use of this GNI* shows much more limited growth.

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10 In 2015, Irish GDP was over 150% of GNI, whereas for the EU-28 aggregate, GDP was equal to GNI.
Figure 6. Comparison of Gross Domestic Product, Modified GNI and Net National Income in Ireland between 2009 and 2017

Source: CSO (2017)

Table 7. Economic, industrial and innovation ecosystem in Ireland

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>EU</th>
<th>IRELAND</th>
<th>Value</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (2016)</td>
<td>29,200 (EUR per capita)</td>
<td>58,800 (EUR per capita)</td>
<td>+56.3% (2011-2016)</td>
<td></td>
</tr>
<tr>
<td>Unemployment rate (2016)</td>
<td>8.6%</td>
<td>8.4%</td>
<td>-7.0 p.p. (2011-2016)</td>
<td></td>
</tr>
<tr>
<td>Share of employment in high and medium high-tech manufacturing (2016)</td>
<td>5.8%</td>
<td>4.4%</td>
<td>-0.2 p.p. (2011-2016)</td>
<td></td>
</tr>
<tr>
<td>Exports medium and high tech manufacturing (2017)</td>
<td>N/A</td>
<td>0.582 (range 0-1, 1 is best; simple average of Irish regions)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Quality of Governance Index (2013)</td>
<td>50.5 (range 0-100, 100 is best)</td>
<td>63.5 (range 0-100, 100 is best)</td>
<td>-15.9 (2010-2013)</td>
<td></td>
</tr>
<tr>
<td>Share of population with tertiary education (2016)</td>
<td>30.7%</td>
<td>43.6%</td>
<td>+5.1 p.p. (2011-2016)</td>
<td></td>
</tr>
<tr>
<td>Patent applications per million inhabitants (2011)</td>
<td>113</td>
<td>81</td>
<td>+7.7 (2008-2011)</td>
<td></td>
</tr>
<tr>
<td>Non-RD innovation expenditure (2017)</td>
<td>N/A</td>
<td>0.295 (range 0-1, 1 is best)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>SMEs innovating in-house (2017)</td>
<td>N/A</td>
<td>0.660 (range 0-1, 1 is best)</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors based on Eurostat, Quality of Governance Institute, Regional Innovation Scoreboard
3.1.3 Synthesis in the form of a SWOT analysis

Box 8. SWOT analysis of the national economy in Ireland

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strategic position with respect to the USA and Europe</td>
<td>• Lack of raw materials at the basis of the initial slow industrialisation</td>
</tr>
<tr>
<td>• Widespread territorial presence of a system of small and medium-sized enterprises</td>
<td>• Limits in accessing finance and need for a reform of the financial/banking sector</td>
</tr>
<tr>
<td>• High share of population with a high level of education and high R&amp;D expenditure</td>
<td>• High exposure to external shocks due to a strong dependency on Foreign-owned companies and exports</td>
</tr>
<tr>
<td>• Strong attention to Multi-National Enterprises and a friendly business environment, with a strong ability to attract investments</td>
<td>• Vulnerability to downturns in high-tech markets due to the presence of firms active in these sectors</td>
</tr>
<tr>
<td>• High GDP growth rate and employment rate</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increasing demand for services and increasing role of the services sector</td>
<td>• Changes to broader international taxation and trade arrangements (e.g. in the US)</td>
</tr>
<tr>
<td>• New employment opportunities offered by technology developments of the information society</td>
<td>• Evolution of the EU fiscal policy (e.g. EU Commission's 2018 &quot;digital tax&quot;)</td>
</tr>
<tr>
<td></td>
<td>• Brexit and the potential consequences for those sectors with a high dependency on exports</td>
</tr>
</tbody>
</table>

3.2 Industrial policy approach adopted in Ireland

3.2.1 The evolution of the national industrial policy approach

Ireland’s industrial policy, although generally described as oriented towards a strong recourse to Foreign Direct Investments (FDI), has been historically characterised by different types of industrial policy approaches. **Three major phases can be distinguished:**

- **From the Great Depression to the end of the 1950s: the import-substituting industrialisation policy.** With the objective of pushing the industrialisation of the country (Jacobson, 2015), industrial policy was conceived in a protectionist perspective as a means for providing strong support to indigenous firms and infant industries.

- **From the late 1950s to the early 1990s: the export-oriented industrialisation policy and the attraction of Foreign Direct Investment (FDI).** Ireland’s poor economic growth together with its underperformance in raising standards of living and in terms of job creation led to a rethink of the Irish industrial policy. The seminal 1958 Economic Development report’s suggestion of opening the Irish economy to FDI and trade was decisive in that process (Ruane, 2008). The rationale was that FDI would generate employment and income and that resulting linkages and spillovers would favour indigenous firms’ growth as well (Andreosso-O’Callaghan and Lenihan, 2006). Therefore, incentivised by Ireland’s fifteen year ‘tax holiday’ on profits from export sales introduced in the mid-1950s11 (Terjesen and Acs, 2007), a wave of firms, predominantly from the United States, started to set up manufacturing facilities in Ireland with the specific aim of exporting most of their output (Gorman and Cooney, 2007). However, an economic decline during the 1980s led to an overall scepticism about Ireland’s heavy reliance on FDI, further fuelled by the publication in 1992 of the Culliton Report.

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11 In 1980, tax relief on export sales was replaced by a corporation tax rate of 10%, which applied to manufacturing and a limited range of internationally-traded services.
This report highlighted the failure of Irish industrial policy to create linkages between FoFs and indigenous firms (Hogan and Rourke, 2014) and suggested the importance of developing a competitive business environment for indigenous enterprises as well as the promotion of clusters (Van Egeraat and Doyle, 2018).

- From the early 1990s-onwards: the stronger attention towards indigenous firms and the enhancement of framework conditions. From the 1990s to the early 2000s, the Irish government has taken several steps to favour the development of the international trading position of indigenous firms as well as the creation of business and research infrastructures around enterprises. Support, delivered through the industrial development agencies, has changed with a higher attention towards the “scaling up” and internationalisation of Irish SMEs. Moreover, grant aid for capital equipment or employment grants have been put aside in favour of grant towards research and innovation (O’Riain, 2010). Thus, the new approach introduced in the new millennium dedicates a special focus to the promotion of a knowledge-driven industrial structure and to balanced regional development (Jacobson, 2015), with an increasing attention to the development of clusters. In spite of this context of higher consideration of the indigenous firms, a favourable corporate tax regime aimed at further attracting FDI is still the basis of the national industrial policy.

3.2.2 The current policy mix for national industrial development: strategic objectives, priorities, specific measures and instruments

In the current context, Ireland’s industrial policy has been re-defined during the last decade using the broader term “enterprise policy” to better reflect the policy mix to support enterprise investments, jobs and growth (Department for Jobs, Enterprise and Innovation, 2015), rather than focusing only on sector specificities. Conceived as “any type of intervention attempting to improve the business environment or to alter the structure of the economic activity toward sectors, technologies or activities expected to offer better prospects for economic growth” (Department for Jobs, Enterprise and Innovation, 2015), enterprise policy includes horizontal policies as well as more thematic/targeted initiatives.

In Ireland this new concept of enterprise policy, however, is not designed within a single strategy, rather there are different policy documents (see Table 8) providing strategic frameworks for the delivery of sustainable enterprise growth and jobs and setting out the main objectives at the national level. Still largely affected by the polarised structure of the economy (indigenous SMEs vs multinational FoFs), the recently introduced dual approach to industrial/enterprise policy, focus both on attracting FDI and strengthening indigenous firms’ trade position. Its implementation is carried out through the strategies proposed by the concerned development agencies, IDA (Industrial Development Authority) Ireland and Enterprise Ireland. Moreover, the historical need for creating linkages between FoFs and indigenous firms is tackled through the joint Enterprise Ireland and IDA Ireland ‘Global Sourcing’ initiative, aimed at establishing networking and partnerships opportunities between the two groups of enterprises.

Alongside the more general policy documents on enterprise policy, a number of more targeted initiatives or measures, aimed at underpinning the main objectives identified (foster economic growth and employment), have been introduced (see Table 9). Regardless of whether they are horizontal and thematic strategies or more specific measures, their common objective is to improve the general business environment in which Irish firms operate, with a focus on innovation, entrepreneurship, infrastructures, digitalisation, green technologies and SMEs’ access to finance. Other initiatives, instead, entail a focus on specific sectors of the economy (e.g. agriculture and food, tourism, aviation services, international financial services and construction and manufacturing sectors).
(see Table 9). However, **sectoral initiatives are generally promoted linked to regional development concerns**, with an **emerging cluster policy** increasingly applied in regional or sectoral terms (Van Egeraat and Doyle, 2018). As an example, one of the most recent Action Plans (Department of Jobs, Enterprise and Innovation, 2017) highlights specific areas of focus for different regions and targets particular clusters to be strengthened. In addition, the eight Regional Plans for Jobs (see Table 8) set out the actions that will be driven locally and regionally to exploit distinctive strengths, assets and champions within the regions.
### Table 8. Strategies contributing to industrial development under the framework of the Irish enterprise policy

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational Objectives/priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
</tr>
</thead>
</table>
| Enterprise 2025: Innovative, Agile, Connected and Enterprise 2025 Renewed: Building resilience in the face of global challenges | Department Business, Enterprise and Innovation (DBEI) | • Set out Ireland’s National Enterprise Policy 2015-2025 for enterprise growth and job creation over the coming decade and Ireland’s medium-term national enterprise strategy | • Drive export-led growth – and deliver sustainable employment, especially in Irish owned enterprises  
• Support enterprises to navigate their way through Brexit impacts  
• Place a spotlight on innovation and talent and leverage strengths in disruptive technologies  
• Invest in quality physical infrastructures  
• Harness the distinctive characteristics of foreign and Irish owned enterprise mix through  
• Collaboration and clustering  
• Optimise regional potential - place-making | Different measures and schemes at national and regional level | N/A |
| Annual Action Plan for Jobs | Department Business, Enterprise and Innovation (DBEI) | • Support job creation | 2018 objectives:  
• Prepare for Brexit  
• Further stimulate Regional Development  
• Enhance participation, employment, and meeting skills needs  
• Boost productivity, competitiveness and innovation | Different schemes providing grants or loans | N/A |
| Future Jobs Ireland – Preparing Now for Tomorrow’s Economy (under discussion) | Department Business, Enterprise and Innovation (DBEI) in partnership with the Department of an Taoiseach | • Drive Ireland’s development as a resilient, innovative, and globally connected economy, capable of coping with technological and other transformational changes ahead | • Increase productivity, particularly in SMEs  
• Innovate for the new economy  
• Enhance skills and developing and attracting talent  
• Increase participation in the labour force  
• Favour the transition to a low carbon economy | To be defined | N/A |
| IDA strategy - Winning: Foreign Direct Investment 2015-2019 | IDA Ireland | • Increase exports in the industry sector | • Encourage investment into Ireland by FoFs (attraction of FDI) | Support through investments and tax reductions (e.g. corporate tax rate of 12.5%) | N/A |
| Enterprise Ireland strategy 2017-2020 - Build Scale, Expand, Reach | Enterprise Ireland | • Increase exports in the industry sector | • Improve Irish-owned firms trading position through a focus on leadership, competitiveness, export diversification, innovation, research collaboration and access to finance  
• Strengthen the connections with Foreign-owned enterprises | Support through funding, investments and tax reductions | N/A |

**Source:** Authors based on national policy documents
“How to tackle challenges in a future-oriented EU Industrial Strategy?”

Table 9. Targeted initiatives and measures contributing to industrial development under the framework of the Irish enterprise policy

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational Objectives/priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
</tr>
</thead>
</table>
| Innovation 2020 strategy        | Department Business, Enterprise and Innovation (DBEI) | • Increase the amount of public investment to leverage a greater amount of private investment | • Increase Ireland’s RDI intensity (increase total investment in R&D led by the private sector to 2.5% of GNP)  
• Increase the number of significant R&D performers  
• Secure EUR 1.25 billion from Horizon 2020 funding between 2014 and 2020 | Direct support through grants and R&D tax credits | EUR 751.7 million (2018 R&D budget) |
| National Policy Statement on Entrepreneurship in Ireland 2014 | Department Business, Enterprise and Innovation (DBEI) | • Promote entrepreneurship | • Increase the numbers and quality of startups  
• Increase the survival rate in the first five years  
• Improve the capacity of startups to grow to scale | Direct support and adoption of favourable tax policies | N/A |
| National Skills Strategy 2025 - Ireland’s Future | Department of Education and Skills | • Ensure a more dynamic, responsive and high-quality system that provides all learners with the knowledge and skills they need to participate fully in society and the economy | N/A | N/A | N/A |
| National Digital Strategy (under discussion) | Department Business, Enterprise and Innovation (DBEI) | • Provide a structure and set of principles to give shape to Ireland's digital transformation | • Promote digital transformation of business with a focus on SMEs, development of a Manufacturing 4.0 strategy and Digital Skills | N/A | N/A |
| White Paper “Ireland’s Transition to a Low Carbon Energy Future 2015-2030” | Department of Communication, Climate Action and Environment (DCCAE) | • Increase the use of low-carbon technologies | • Guarantee a reliable supply of energy at competitive cost  
• Lessen the dependence on imported fossil fuels  
• Reduce Irish emissions  
• Embrace the transition to a low carbon and climate resilient future | Schemes supporting businesses through tax incentives, loans and direct subsidies | N/A |
<p>| Infrastructure and Capital Investment Plan to 2021 | Department Public Expenditure and Reform (DPER) | • Enhance the level of infrastructure | • Provide major infrastructure projects | Government’s direct support | N/A |</p>
<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational Objectives/priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Broadband Plan</td>
<td>Department Communications, Climate Action and Environment (DCCAE)</td>
<td>• Enhance the level of infrastructure</td>
<td>• Deliver high speed broadband services to all premises</td>
<td>Commercial investment by the telecommunication sectors and direct support through State intervention</td>
<td>N/A</td>
</tr>
<tr>
<td>Ireland’s Smart Specialisation Strategy for Research and Innovation</td>
<td>Department Business, Enterprise and Innovation (DBEI)</td>
<td></td>
<td>• Support investments on key national/regional priorities and needs for knowledge-based development</td>
<td>Investment in innovation in identified sectors</td>
<td>N/A</td>
</tr>
<tr>
<td>Making it in Ireland: Manufacturing 2020</td>
<td>Forfás for the Department Business, Enterprise and Innovation (DBEI), IDA Ireland and Enterprise Ireland</td>
<td>• Provide sector-specific support</td>
<td>• Support new manufacturing start-ups, capital investment by manufacturing companies and R&amp;D investment specifically targeted at engineering firms</td>
<td>Funding opportunities especially in the forms of direct grants</td>
<td>N/A</td>
</tr>
<tr>
<td>International Financial Services (IFS) 2020 Strategy</td>
<td>• Department of Finance, • Enterprise Ireland</td>
<td></td>
<td>• Grow the level of direct employment in the IFS sector • Drive continuous improvement in the operating environment and competitiveness of Ireland’s IFS sector as well as Research, Innovation &amp; Entrepreneurship</td>
<td>Government’s targeted actions</td>
<td>N/A</td>
</tr>
<tr>
<td>Food Wise 2025</td>
<td>Department Agriculture, Food and Marine (DAFM)</td>
<td></td>
<td>• Increase agri-food exports and the value of primary production</td>
<td>Coordinated approach by primary producers, industry, Departments and State agencies</td>
<td>N/A</td>
</tr>
<tr>
<td>Construction 2020 Strategy</td>
<td>Department of Housing, Planning and Local government</td>
<td></td>
<td>• Deliver a competitive, dynamic, safe and sustainable construction sector</td>
<td>Government’s targeted actions</td>
<td>N/A</td>
</tr>
<tr>
<td>Regional Action Plans for Jobs</td>
<td>Department Business, Enterprise and Innovation (DBEI) and Local Authorities</td>
<td>• Provide a homogeneous regional development</td>
<td>• Raise employment levels in the regions and allow them to achieve their economic potential • Identify strengths, assets and champions within the regions</td>
<td>Schemes providing grants (e.g. Regional Enterprise Development Fund) and direct investments</td>
<td>N/A</td>
</tr>
<tr>
<td>Action Plan for Rural Development 2017-2019</td>
<td>Department of Rural and Community Development (DRCD)</td>
<td>• Provide a homogeneous regional development</td>
<td>• Increase opportunities for employment locally • Increase access to public services and social networks that support a high quality of life</td>
<td>Schemes providing grants (e.g. Town and Village Renewal Scheme and National Rural Development Schemes)</td>
<td>N/A</td>
</tr>
<tr>
<td>SMEs credit guarantee scheme</td>
<td>• Department Business, Enterprise and Innovation (DBEI) • Delivered by the Strategic Banking Corporation of Ireland (SBCI)</td>
<td>• Support SMEs and their access to finance</td>
<td>• Encourage additional lending to SMEs</td>
<td>Funds in the form of loans, guarantee or grants</td>
<td>EUR 84.4 million (2012-2017)</td>
</tr>
<tr>
<td>Name of the measure, initiative</td>
<td>Authorities designing and implementing the measure</td>
<td>Strategic Objectives</td>
<td>Operational Objectives/priorities</td>
<td>Type of instrument</td>
<td>Funding</td>
</tr>
<tr>
<td>--------------------------------</td>
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</tr>
</tbody>
</table>
| Microenterprise Loan Fund     | • Department Business, Enterprise and Innovation (DBEI)  
                                  • Microfinance Ireland |                   | • Support newly-established start-ups or growing microenterprises | Funds in the form of loans | EUR 22.6 million (2012-2017) |
| Brexit Loan Scheme             | • Department Business, Enterprise and Innovation (DBEI)  
                                  • Department Agriculture, Food and Marine (DAFM)  
                                  • Delivered by the Strategic Banking Corporation of Ireland (SBCI) |                   | • Provide affordable financing to Irish businesses currently or in the future impacted by Brexit | Funds in the form of loans | EUR 300 million (2018-2020) |
| Future Growth Loan Scheme      | Department Business, Enterprise and Innovation (DBEI) |                   | • Support strategic long-term investment in a post Brexit environment of Irish businesses and the primary agriculture and seafood sectors | Funds in the form of loans | EUR 300 million (from 2019 with a term of 8-10 years) |

*Source: Authors based on national policy documents*
3.2.3 Governance arrangement, coordination mechanisms and stakeholders’ involvement

Enterprise policy in Ireland is initiated and framed in the national context, with the distinction between the actors playing a key role in the two phases of design and implementation. Concerning the design of both the general and the more targeted strategic frameworks, the Department for Business, Enterprise and Innovation (DBEI) is the principal governmental advocate of the enterprise sector. However, many other government departments are involved in the adoption of complementary policy actions as well as in the consultation process during the design phase. With respect to this latter aspect, government departments generally co-operate during the development of the policy strategies. As illustrative examples, agreements between the DBEI as well as other departments and the Department of Taoiseach have been part of the design of the forthcoming Future Jobs Ireland framework and of the future National Digital Strategy. Moreover, the development of Enterprise Policy 2025 has involved a close engagement between DBEI and other Government Departments with the aim of realising a greater degree of coordination in policy formulation with respect to past experiences (DBEI, 2015).

In view of the governance structure which implies co-operation between different government departments, the different strategies elaborated for the development of an Irish enterprise policy framework should prove to be interconnected. However, this has not always been the case and in some instances, as for example for the 2013 Action Plan for Job, higher coordination mechanisms between government departments would have favoured a better implementation (OECD, 2014). The potentially divergent policy objectives that could arise in the design of the different strategies composing the Irish framework, have been considered in the recent Enterprise 2025 strategy. In fact, advocating for more aligned approaches to achieve primary policy objectives, this document further highlights the need for coordination mechanisms between the related and interconnected horizontal policies involved in the more general enterprise policy (DBEI, 2015).

In implementing the strategies defined by the enterprise policy frameworks, government departments work with and fund, fully or partially, a number of agencies providing support to enterprises. Amongst them, Enterprise Ireland is responsible for the development and growth of Irish-owned exporters firms, supported locally by 31 Local Enterprise Offices. IDA-Ireland, instead, works to attract FDI and has the objective of partnering with FoFs to help them establish or expand their operations in the country. Finally, Science Foundation Ireland funds scientific research that assists industry while other bodies, such as Teagasc and Bord Bia provide support respectively to primary production or food products.

In this context, the involvement of relevant stakeholders is generally taken into account in the consultation process preceding the design of the different strategies. Consultations with stakeholders have been foreseen for example for the development of the forthcoming National Skills Strategy. Representatives from education and enterprise have been grouped in a high-level Steering Group aimed at supporting the initiative. In a similar vein, the consultation held for the forthcoming Future Jobs Ireland framework has resulted in a summit bringing together key stakeholders from academia, government, industry, representative bodies and other interested parties.

3.2.4 Main strengths and weaknesses of the national industrial policy approach

The characteristics of Ireland’s industrial policy approach, summarised in the box below, have some interrelations with the strengths and weaknesses identified in Section 3.1.3. concerning the country’s economic structure. In particular, linkages can be detected between the strong presence of SMEs in the Irish industrial fabric and the consequent focus of Irish enterprise policy on enhancing the business environment in which these indigenous firms operate in general, and on the promotion of
innovation, entrepreneurship and access to finance in particular. In a similar vein, the strong dependence on exports and on Foreign-owned firms operating in the national industrial sector has resulted in a policy framework devoted to preventing the economy from particular (external) threats, such as the forthcoming Brexit. However, other changes at the international level, for example new developments in taxation (e.g. in the USA or EU), are not really taken into account in the enterprise policy framework, even though they could strongly threaten the operation of FoF installed in the country.

Box 9. Strengths and weaknesses of the industrial policy approach in Ireland

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Culture of innovation and entrepreneurship with a strong attention to SMEs, microenterprises and start-ups and to their difficulty in accessing finance</td>
<td>• Lack of a single policy document setting out the enterprise policy framework. This can lead to some overlaps or inconsistencies between the different strategies</td>
</tr>
<tr>
<td>• Good consideration of the future threats linked to the Brexit or the development of new disruptive technologies</td>
<td>• Limited attention towards specific sectors (higher consideration only towards the one that could suffer from disruptive technologies)</td>
</tr>
<tr>
<td>• Good involvement of public and private stakeholders in the design and implementation of the enterprise policy</td>
<td>• Persistent strong focus on FDI and exports reveals a continued exposure towards international developments which could threaten Ireland’s economic structure</td>
</tr>
<tr>
<td>• Good consideration of regional authorities and local specificities</td>
<td>• A focus on a place-making approach which will further develop the nascent cluster policy</td>
</tr>
</tbody>
</table>

3.3 The EU contribution to the industrial policy in Ireland

3.3.1 What is the contribution of the EU industrial strategy policy to the policy paradigm?

The Irish enterprise policy framework can be considered as indirectly influenced and consistent with the latest EU industrial policy strategy in terms of policy paradigm.

Indeed, in general the Irish stakeholders involved in the national enterprise policy have a partial knowledge of the EU industrial policy and consider it as an overarching initiative with limited direct implications on national and regional actions in this field (Authors based on interviews, 2019). However, clear evidence of the EU influence on the Irish enterprise policy can be retrieved, both for general principles through the European Semester, and on more specific aspects, such as digitalisation.

Irish stakeholders have highlighted the influence of the European Semester and of the EC’s country-specific recommendations (Authors based on interviews, 2019). The most recent recommendations that are relevant to the enterprise policy, dating back to 2018, advocated:

- The promotion of productivity growth of Irish firms, especially of SMEs, by stimulating research and innovation with targeted policies
- More direct forms of funding and more strategic cooperation with foreign multinationals, public research centres and universities
- An effective implementation of the National Development Plan guiding the national, regional and local planning and investment decisions was requested, with implications in terms of clean energy, transport and digital skills.

With respect to the theme of digitalisation, the EU has a great impact on Ireland’s enterprise policy. Among the initiatives targeting specific objectives within the Irish policy framework, the forthcoming National Digital Strategy, currently under consultation, is strongly linked to the recent EU Digital Single
Market. As an illustrative example, an “EU Digital Single Market and Digital Economy” unit has been created within the DBEI in order to ensure a whole government approach and cross-government coordination for the implementation of the Digital Single Market in Ireland. Moreover, beyond the question of causality of the EU influence, the Irish enterprise policy adopts an approach that is in line with the EU industrial policy. It includes attention to both horizontal and sectoral aspects, as well as the prioritisation of investments in education, research and innovation and environmental considerations (Department for Jobs, Enterprise and Innovation, 2015).

However, the Irish enterprise policy approach still lacks a comprehensive and integrated strategy enclosed in a single policy document, as highlighted also by some the Irish stakeholders (Authors based on interviews, 2019). Ireland’s enterprise policy framework indeed consists of several policy documents such as Enterprise 2025, the annual Action Plan for Jobs and the forthcoming Future Jobs, all setting out the main objectives and the overall approach of enterprise policy. In this respect, the EU may further influence the future design of Ireland’s enterprise policy, by promoting the adoption of a comprehensive national industrial/enterprise policy strategy in order to achieve a complementarity between the national approach and the European strategy, as suggested by one of the interviewed stakeholders.

3.3.2 What is the contribution of the EU industrial strategy policy to governance, policy capacity and coordination?

The historical evolution of Ireland’s industrial policy approach reflects its experience in this policy field and its quite developed institutional policy capacity (Ó Riain, 2014). Evidence of this mature policy capacity can be found both at national and local level. Concerning the national level, Ireland participates as one of the leading countries to the National Contact Point Academy12 trans-national network (Authors based on interviews, 2019). With respect to the local level instead, an example is the Irish counties’ involvement in the Enterprise Europe Network (EEN), under the leadership of the Donegal Country Council. The Network, being the world’s largest support network for SMEs with international ambitions, helps businesses innovate and grow on an international scale.

Despite its experience in terms of policy capacity, the EU still supports the country in further consolidating it. An illustrative example is in the field of research and innovation, through the Horizon 2020 Policy Support Facility. This programme is conceived as a new instrument that gives Member States practical support to design, implement and evaluate reforms that enhance the quality of their research and innovation investments, policies and systems. In particular, the support is provided through Mutual Learning Exercises. With the aim of identifying good practices, lessons learnt and success factors, these exercises address topics such as the implementation and monitoring of R&D tax incentives or the evaluation of business R&D grant schemes.

The influence of the EU on Irish policy capacity for the design and implementation of its enterprise policy can also be detected regarding monitoring and evaluation. The EU Structural Funds and Cohesion Policy are indeed the main driver for the development of the evaluation use and culture in the country, not only for regional policy but also more generally (Bachtler and Polverari, 2004; Boyle, 2014).

Regarding the governance of the Irish industrial policy, the EU has not yielded substantial changes. Indeed, the governance and coordination mechanisms are already considered as quite effective regarding this policy. The different EU initiatives that are relevant to the enterprise policy are typically

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12 The National Contact Point Academy is a national network supporting projects within the H2020 programme and offering assistance to potential applicants and project beneficiaries. It is the main interface to the European R&D community for Member States, Associated Countries and the European Commission.
followed and implemented by individual Irish departments, on the basis of policy fields (e.g. research and innovation department for aspects related to H2020). The governance of transversal aspects is ensured by the department of finance and the department of Taoiseach.

3.3.3 Which instruments, initiatives and funding ascribable to the EU industrial policy are mobilised in Ireland?

The Irish enterprise policy framework is affected by the EU not only in the design phase of its several policy documents but also in the implementation of measures to reach its goals. EU funding represents a considerable part of the overall funding opportunities especially at the local level, where EU funds account for nearly half of them. Nevertheless, the main European instruments ascribable to the integrated EU industrial policy strategy also play an important role at the national level.

In particular, when analysing the different measures implemented with EU funds by Enterprise Ireland 13, it can be noticed that several programmes are mobilised at the national level to achieve industrial policy objectives: Horizon 2020, COSME, the European Fund for Strategic Investments (EFSI) and the EU Programme for Employment and Social Innovation (EaSI). It complements the continuing importance of the regional EU Structural Funds in the country (see Table 10).

13 Agency responsible for the development and internationalisation of Irish-owned enterprises
<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with national initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizon 2020</td>
<td>• Support innovative SMEs</td>
<td>• Build capacities and develop innovative ways of connecting science to society</td>
<td>Grants</td>
<td>EUR 1.25 billion (target set out for 2014-2020)</td>
<td>Science with and for Society (SwafS) 2018-2020 Programme</td>
</tr>
<tr>
<td>COSME</td>
<td>• Make it easier for SMEs to access finance in all phases of their lifecycle</td>
<td>• Provide highly flexible loans to farmers at an interest rate of 2.95 per cent for a term of up to six years</td>
<td>Loans</td>
<td>N/A</td>
<td>Agri Cashflow Support Loan Scheme</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Help Irish companies to make the most of business and technology opportunities in the EU and other major global markets</td>
<td>Services</td>
<td></td>
<td>Enterprise Europe Network (EEN)</td>
</tr>
<tr>
<td>ERDF</td>
<td>• Support programmes addressing regional development, economic change, enhanced competitiveness and territorial co-operation throughout the EU</td>
<td>• Develop new or substantially improved products, services or processes which will have a competitive advantage in their market</td>
<td>Grants</td>
<td>EUR 410 million (2014-2020)</td>
<td>Research, Development &amp; Innovation (RD&amp;I) Fund</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide up to 80% of the cost of research work to develop new and improved products, processes, or services or generate new knowledge and know-how</td>
<td>Grants</td>
<td></td>
<td>Innovation Partnership Programme</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Support established companies to address their competitive challenges and growth opportunities through investments in business innovation, capital equipment or capability building</td>
<td>Grants</td>
<td></td>
<td>Operational Excellence Offer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Support new or incremental investment in capital assets and job creation, R&amp;D, training</td>
<td>Grants</td>
<td></td>
<td>Tailored Company Expansion Packages</td>
</tr>
<tr>
<td>ESF</td>
<td>• Enhance access to employment and participation in the labor market, reinforcing social inclusion by facilitating access to the labor market for disadvantaged people and promoting partnership for reform in the fields of employment and inclusion</td>
<td>• Promote employment, social inclusion and skills</td>
<td>Grants</td>
<td>EUR 610 billion (2014-2020)</td>
<td>Irish Operational Programme &quot;Employability, Inclusion and Learning&quot;</td>
</tr>
<tr>
<td>EAFRD</td>
<td>• Invest in rural development across the European Union</td>
<td>• Foster knowledge transfer and innovation in agriculture, forestry and rural areas</td>
<td>Grants</td>
<td>EUR 2.19 billion (2014-2020)</td>
<td>Ireland’s Rural Development Programme</td>
</tr>
</tbody>
</table>
### Name of the measure, initiative

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with national initiatives</th>
</tr>
</thead>
</table>
| EMFF                           | • Foster a dynamic fishing industry and ensure a fair standard of living for fishing communities | • Help fishermen transition to sustainable fishing  
• Support coastal communities and help diversify their economies  
• Create jobs and improve the quality of life along European coastlines  
• Make it easier for applicants to access finance | Grants | EUR 147.6 million (2014-2020) | EMFF Operational Programme for Ireland |
| EaSI                           | • Support EU’s objective of high level employment, adequate social protection, fighting against social exclusion and poverty and improving working conditions | • Increase availability and accessibility of microfinance loans for vulnerable people who wish to start up or develop their own micro-enterprise and existing micro-enterprises that meet certain eligibility criteria. | Loans | EUR 22.6 million (2012-2017) | Microenterprise Loan Fund |
| EFSI                           | • Provide funding for economically viable projects, especially for projects with a higher risk profile than usually taken on by the Bank | • Secure finance for projects with a higher risk profile  
• Deploy more capital to European SMEs | Multiple (e.g. loans, guarantee, equity) | EUR 1.3 billion (until 2018) | 21 Infrastructure and innovation projects  
8 agreements with intermediary banks for Small and medium enterprises (SMEs) |

**Source:** Authors based on national policy documents
3.4 Conclusions and lessons learnt

3.4.1 How does the European industrial policy help Ireland to face future challenges?
In the context of a dual economic structure (indigenous firms versus FoF) and of a historical (over-)reliance on FDI, Ireland’s current enterprise policy framework aims at improving the business environment in which Irish firms operate through a combination of horizontal and thematic initiatives, with a regional development perspective as well. The Irish priorities are thus consistent with the EU approach. In order to meet the objectives of the Irish enterprise policy (especially enhancing the position of indigenous enterprises), the EU industrial policy helps the country through the mobilisation of several policy instruments with associated funding, which contribute to various policies coordinated at the national level in the fields of research and innovation (e.g. H2020), entrepreneurship, infrastructures (e.g. ERDF), SMEs’ access to finance (e.g. COSME or training (e.g. ESF, EaSI…)).

Beyond this provision of resources, the EU also consolidates other aspects of the Irish industrial policy. For instance, the introduction of an evaluation culture is largely attributable to the EU. Moreover, some of the priorities of the Irish enterprise policy are directly influenced by the EU, such as digitalisation with the role of the EU Digital Agenda in the national policy. As the Irish governance and policy capacity are considered of high quality, the influence of the EU on these aspects is more limited than in other less developed areas. However, patterns of indirect influence can be observed, for instance in the framework of the European Semester.

3.4.2 Scope for improving the EU contribution to Irish industrial policy
Due to its deep inclusion in global value chains and historical and political ties to Britain, the issue of Brexit is of high relevance to Ireland, especially for the industrial and economic aspects. While Ireland has already dedicated specific attention to this topic through the Brexit Loan Scheme, the EU latest industrial strategy does not explicitly tackle the preparation to Brexit. Thus a future improvement of the EU industrial policy’s contribution to the Irish enterprise policy could be a strategy or initiative to address the consequences of Brexit, with potential benefits for other Member States with important trade ties with Britain as well.

Moreover, some stakeholders have highlighted the potential to consolidate the EU contribution to the Irish industrial policy by dedicating more attention to national and regional specificities. Indeed, the EU industrial policy is perceived as overarching and pan-European, with some priorities not fully applicable to particular realities, suggesting the importance of adopting a more territorial perspective.
References


List of stakeholders interviewed

- Project Officer – DBEI, Strategic Policy Division, Enterprise Policy, Trade Strategy, Tax and Infrastructure Unit (05/02/2019)
- Project Officer – DBEI, Innovation Policy Division (06/02/2019)
- Project Officer – Local Enterprise Office of Donegal, Head of Enterprise (07/02/2019)
4 PODKARPACKIE

4.1 Regional economy and framework conditions in Podkarpackie

4.1.1 Historical background

The Podkarpackie region has a long industrial tradition. It was part of the Central Industrial District (COP)\(^{14}\), the second largest Polish government development programme in the 1930s after the coastal development scheme which included the construction of a seaport in Gdynia (Pomerania). The initial goals of the COP were strategic and military: to build a military-oriented heavy industrial centre in the very middle of the then Poland - at the bifurcation of the Vistula and the San rivers, as far as possible from its borders. The overriding objective was to strengthen the Polish economy, bring down unemployment and reduce the disparities between the Polish regions resulting from the Partitions of Poland. The overall investment outlays (including private ones) exceeded PLN 1 billion. The concentration of funds in the COP was extensive: in the period from 1937 to 1939, the COP consumed approximately 60% of all Polish investment funds (Kowalski, 2017; Winiarski, 1979; Zawadzki, 1963). On the eve of WWII, 45 large and medium-sized enterprises had been launched, and 60 small enterprises were under construction in the territory covered by the COP. As a result of COP investments, 100,000 new jobs were created. The COP was an important city-forming factor, and therefore the rural landscape of Podkarpackie was gradually changed, together with the socio-professional structure of its economy.

The COP led to the establishment of several important enterprises, some of which operate until today in the Podkarpackie region: a steel mill and a power plant (Huta Stalowa Wola) in the brand new city of Stalowa Wola, a rubber factory in Dębica, an aircraft factory in Mielec, an aircraft engine, an artillery factory and a machinery tool plant in Rzeszów. At the same time, as a result of the COP scheme, Podkarpackie and its surrounding areas were provided with technical infrastructure which was virtually absent: roads and railways, power plants and electric power grids, telecommunication infrastructure and gas pipelines. In this way, the Polish state policy created infrastructure facilities and set up several industrial branches which are still present in the region (see the following section).

Interestingly, after WWII, the general idea of the COP was maintained. Although the role of the COP’s architect, Deputy Prime Minister of Poland Eugeniusz Kwiatkowski, was marginalised and the achievements of the interwar Poland were generally denied, the principles and industrial goals of the COP were actually in line with the so-called “socialist industrialisation”, i.e. the development of heavy and armaments industry. After the post-war reconstruction period of the 1940s, most of the enterprises built before the war restarted to operate, but their profiles had been changed from military to civil purposes. In addition to the expansion of the largest aircraft, machinery and military enterprises established in the COP period, new plants of the engineering industry were launched, with the flagship Zelmer (formerly: Rzeszowska Fabryka Sprzętu Gospodarskiego). New enterprises in the timber, furniture, pharmaceutical, optical industries were built. The development of nationalised establishments of food and textile industries could also be observed. Several important infrastructural investments are the legacy of the Polish People’s Republic, among them the Solina Dam, the powerplant in the Bieszczady Mountains and the Rzeszów - Kolbuszowa–Dęba railway line (Grata, 2015).

\(^{14}\) The COP (Centralny Okręg Przemysłowy) was located in the territories of the following voivodships: Świętokrzyskie, Podkarpackie, Lubelskie, Małopolskie and Mazowieckie.
4.1.2 Current regional industrial structure, innovation system and international linkages

Today, the Podkarpackie Voivodship is one of the less developed regions in Poland and in Europe. Its geographical peripherality, resulting from its location at the external EU border, goes hand in hand with economic weaknesses. Some growth in the GDP per capita was observed from 2011 to 2016. However, the regional GDP per capita still only amounted to 70% of the Polish average and 27% of the EU average in 2016 (See Table 11). According to Eurostat data, in 2016 the Podkarpackie Voivodship was ranked 261st among all the 276 EU NUTS-2 regions for this indicator.

Table 11. Economic, industrial and innovation ecosystem in Podkarpackie

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>EU</th>
<th>POLAND</th>
<th>PODKARPACKIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (2016)</td>
<td>29,200 (EUR per capita)</td>
<td>11,100 (EUR per capita)</td>
<td>7,800 (EUR per capita)</td>
</tr>
<tr>
<td>Unemployment rate (2016)</td>
<td>8.6%</td>
<td>6.2%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Share of employment in high and medium high-tech manufacturing (2016)</td>
<td>5.8%</td>
<td>5.7%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Exports medium and high tech manufacturing (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.632 (range 0-1, 1 is best)</td>
</tr>
<tr>
<td>Quality of Governance Index (2013)</td>
<td>50.5 (range 0-100, 100 is best)</td>
<td>40.5 (range 0-100, 100 is best)</td>
<td>38.2 (range 0-100, 100 is best)</td>
</tr>
<tr>
<td>Share of population with tertiary education (2016)</td>
<td>30.7%</td>
<td>28.7%</td>
<td>27.5%</td>
</tr>
<tr>
<td>Patent applications per million inhabitants (2011)</td>
<td>113</td>
<td>10.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Non-R&amp;D innovation expenditure (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.649 (range 0-1, 1 is best)</td>
</tr>
<tr>
<td>SMEs innovating in-house (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.186 (range 0-1, 1 is best)</td>
</tr>
</tbody>
</table>

Source: Authors based on Eurostat, Quality of Governance Institute, Regional Innovation Scoreboard

The 2008 financial crisis has not negatively affected the GDP dynamics in Podkarpackie. Nevertheless, during the 2009-2010 period, the GDP dynamic was weaker in the region than at the national level. Interestingly, despite a strong involvement of the automotive and aviation sectors located in Podkarpackie in the international value chains, the crisis has not adversely affected the gross value added (GVA) dynamics in manufacturing. On the contrary, post-2008 the GVA growth in the manufacturing sector has been higher, and after a drop in 2011-2012 it has remained at a high and stable level (7%-9% per year) (see Figure 7). This lack of negative impact of the European crisis is also confirmed by the growth in the investments of enterprises in Podkarpackie by 30% between 2010 and 2015.
The level of entrepreneurship in Podkarpackie is very low. To some extent, it might be the result of a low level of governance quality in the region. The European Quality of Governance Index, which captures the average citizens’ perceptions and experiences with corruption, and the extent to which they rate their public services as impartial and of good quality in their region of residence, is very low in the region in comparison to the average values for Poland and the European Union (See Table 1, 38 points for Podkarpackie on a 0-100 scale). Moreover, enterprises are unevenly distributed within the region. A strong concentration of entrepreneurial activity is typical for the capital of the region (Rzeszów), where almost one fourth of the region’s enterprises are located. This results from a higher level of urbanisation, good accessibility by different modes of transport, the presence of academic institutions and business support organisations, as well as a relatively higher level of income. On the other hand, the Przemyśl and Lubaczów counties (powiats) located in the Eastern part of the region are characterised by the lowest level of entrepreneurship. The same refers to the investment attractiveness of the region, which again is very low in comparison with the rest of Poland: since 2010, Podkarpackie has been ranked 10th out of 16 regions for this criterion in Poland. However, the region is the most attractive one for investments among Eastern Polish regions. The Rzeszów subregion is regarded as a highly attractive investment location for high-tech industrial and service activity.

An important feature of the Podkarpackie region is that the share of industry in the GVA is 4 percentage points (p.p.) higher than in Poland on average and 11 p.p. higher than in Europe. Moreover, the share of industry in the GVA is increasing. Similarly, the share of employment in industry grew by more than 5 p.p. during the 2005-2017 period (from 28.3% to 33.5%). However, it is the agriculture sector that still employs the largest share of the workforce in Podkarpackie (30.5% compared to 15.5% in Poland), while generating the lowest share of the GVA (1.5% in 2016).

According to the data on the sold production of goods for 2017, the most important regional industrial sectors are: motor vehicles, trailers and semi-trailers (12.9%), rubber and plastic products (12.8%), metal products (11.6%), other transport equipment (11.5%), also food products (7.8%), products of wood, cork, straw and wicker (7%), chemicals and chemical products (6.1%). Such an industrial structure is further corroborated by the analysis of the employment distribution, which is dominated by: manufacturing of metal products (13.1%), rubber and plastic products (11.9%), food products (8.5%)
motor vehicles, trailers and semi-trailers (7.5%), other transport equipment (7.5%) and furniture (6.7%). In the last 17 years, the industrial structure of the region has undergone several changes (see Table 15, Appendix). The share of the production of transport equipment, motor vehicles and trailers and metal products has increased from 2000 to 2017, while the share of the manufacturing of rubber, plastic products, and other mineral products, chemical products, electrical equipment, machinery and equipment and furniture has decreased. Employment data confirm these tendencies.

Podkarpackie is particularly oriented towards aviation, automotive, electromechanical, biotechnology, Information Technologies and chemical industries. It is a region with an exceptionally strong presence of the aviation industry, which concentrates almost 90% of the Polish production in this sector. There are several major companies located in the region which collaborate within the Aviation Valley Association – an aviation cluster unique in Central and Eastern Europe. It notably includes: Pratt & Whitney-WSK Rzeszów, UTC Aerospace Systems, Heli-One, PZL Aircraft Mielec – Sikorsky, and MTU Aero Engines. Another strong sector located in Podkarpackie is the automotive industry, with enterprises such as: Pilkington Automotive Poland, Lear, Federal Mogul, Kirchhoff, Goodyear, and Uniwheels, etc. Aviation and automotive are highly integrated in global value chains. For instance, more than 40% of the total value of regional exports is related to machinery and equipment, electrical and electrotechnical equipment, whereas almost one fifth of the value of Podkarpackie’s exports comes from turbo jets, turbo helicopters and other gas turbines (Klimczak et al., 2018).

Advanced industries are an important component in the economy of the Podkarpackie region. More than 17% of industrial firms are in the high-tech sector (ranked 4th in Poland), generating 30% of the regional GVA. Moreover, the weight of mid-tech and high-tech products sales in net revenues is higher at the regional than at the national level (43% compared to 34%, see Figure 8).

Figure 8. Share of net revenues from sales of high and mid-tech products in Podkarpackie

Source: Authors’ calculations based on Statistical Office of Poland (2019)

In spite of this presence of medium and high-tech industries, the overall regional effort dedicated to R&D remains low, representing only 3.8% of the total R&D expenditure in Poland (2017) and 1.4% of the regional GDP (2010-2017 average). Moreover, R&D per capita amounted to a mere EUR 95 in 2017, which was less than 70% of the country’s average and almost 6 times less than the EU average. Interestingly, the weight of the business enterprise sector in regional R&D is one of the highest in Poland (second after Małopolskie in 2016), in line with the industrial structure. It is worth noticing that, for many years, Podkarpackie has been the leader in that respect (Figure 9).
In general, innovative activities are limited in the region. For instance, the number of patent applications per million inhabitants was only 3.1 in 2011, which represented only one third of the average value for Poland and 2.6% of the EU average. Moreover, during the last 12 years, some negative trends have been visible. Indeed, similarly to the overall situation in Poland, the weight of innovative firms in the total number of enterprises recorded a market fall in Podkarpackie between 2006 and 2017, from 25% to just 15%. This drop has triggered a decrease in the share of the net sales revenues coming from new or significantly improved products, by almost 2.5 p.p. (from 15.4% to 12%). However, this decrease was lower than the average for Poland (a 8 pp. decline, down to 8% in 2017).

Box 10. SWOT analysis of the regional economy in Podkarpackie

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Industrial culture based on the region's historic heritage in the electrotechnical and chemical sectors</td>
<td>• Poorly developed technical physical infrastructures in some sectors (including insufficient transportation)</td>
</tr>
<tr>
<td>• Diversified economic structure of the region, with a substantial share of medium and high-tech industries</td>
<td>• Wide infra-regional disparities regarding industrial policy indicators</td>
</tr>
<tr>
<td>• Dynamic development of the aviation, automotive and IT sectors (human resources, enterprises, education)</td>
<td>• Low level of R&amp;D expenditure, even compared to the Polish average</td>
</tr>
<tr>
<td>• Important exports and integration in global value chains for some sectors (e.g., automotive)</td>
<td>• Low level of entrepreneurship and innovativeness in SMEs</td>
</tr>
<tr>
<td>• Significant weight of the business sector in R&amp;D funding</td>
<td>• Improving innovation indicators but without concrete translation into effects in terms of patenting activity of economic development yet</td>
</tr>
<tr>
<td>• High attractiveness for investments compared to the other Polish Eastern regions, growing significance of foreign capital (inward investments)</td>
<td>• Deficiencies of education in teaching creativity and entrepreneurship at all levels</td>
</tr>
<tr>
<td>• Low costs of business activity</td>
<td>• Low number of academic teachers</td>
</tr>
<tr>
<td>• High student enrolment in technical university courses</td>
<td>• External migration of individuals with professional/vocational qualifications gained in Podkarpackie due to low pay levels</td>
</tr>
</tbody>
</table>
### Opportunities
- Development of stronger links between prosperous enterprises with foreign capital and regional subcontractors
- Increase in the share of foreign companies bringing their R&D activities to the region
- Diffusion of ICT technologies applications for promoting regional entrepreneurship and innovativeness (Industry 4.0)

### Threats
- Failure in the development of promising manufacturing and service sectors, e.g. due to the equity gap
- Reduced role of the region’s enterprises in global value chains due to the dwindling demand abroad (such as slowdown of the Chinese economy or Brexit)
- Brain drain affecting the regional R&D sector (due to more attractive locations in Poland and abroad)
- Continued outflow of highly-qualified workers and specialists in search of more attractive jobs
- Further destabilisation of the political situation in Ukraine

**Source:** Authors’ elaboration based on strategic documents, statistical data and interviews with regional stakeholders
4.2 Industrial policy approach adopted in Podkarpackie

4.2.1 The evolution of regional industrial policy approach

The regional industrial policy of Podkarpackie is relatively recent and its approach and development are strongly linked to the EU (e.g., adoption of a regional strategic approach, smart specialisation...). It follows an era of centralised industrial policy, as mentioned in the section 4.1.1.

The framework of the regional industrial policy of the Podkarpackie region was first formulated in the Regional Development Strategy (Podkarpackie 2020) published by the Marshal’s Office of the Podkarpackie Voivodship in August 2013. The main objective was aimed at building a competitive and innovative economy. The following five top priorities were indicated:

1. **Industry**: modern technology industry, strengthening the competitiveness of the regional economy
2. **Science, research and university education**: development of a competitive university education and R&D activity stimulating development of the region
3. **Tourism**: building a competitive, attractive market offer based on significant tourist potential of the region
4. **Agriculture**: improvement of the competitiveness in the agri-food sector
5. **Business environment institutions**: development of entrepreneurship by creating business environment institutions.

The actions envisaged within each priority were oriented towards the “key sectors” or the “domains of competitive advantage of the region”, which were identified in the analytical part of the Strategy. It included the aeronautical or IT industry, due to the involvement of multinational corporations (Marshal’s Office of the Podkarpackie Voivodship, 2013b). Moreover, the potential for agriculture activity and ecological farming was also included, together with active and health tourism.

In addition to the directly industry-oriented priorities, considerable emphasis was placed on creating an environment that is favourable to entrepreneurial development, e.g. telecommunication infrastructures, IT access and supporting the development of a power industry with renewable energy sources.

The regional industry strategy was updated and further elaborated in 2015 as part of the Regional Innovation Strategy (RIS). The main motivation for that was to adjust the regional policy to the new Smart Specialisation approach adopted by the European Commission. The regional catalogue of Smart Specialisation domains was further updated in 2016 (Marshal’s Office of the Podkarpackie Voivodship, 2016b).

The RIS3 had to be updated because of the need, identified as a result of an entrepreneurial discovery process, to expand the catalogue of regional Smart Specialisation domains with the inclusion of the automotive sphere. Currently, the document identifies four main sectors of major importance for the development of the Podkarpackie Voivodship, reflected in the region’s Smart Specialisation. It includes: aviation and space industry, quality of life, automotive industry and ICT, to which four strategic objectives have been ascribed (Marshal’s Office of the Podkarpackie Voivodship, 2016b):

1. Development of the Podkarpackie Voivodship as a leading innovation centre of aviation, space and communication technologies in Poland
2. Development of the Podkarpackie Voivodship as a region with a **superior quality of life**, with special concern for its **energy resources and pro-ecology activities** being initiated in the energy sector

3. Development of the Podkarpackie Voivodship as a **leading region for generating and implementing innovative automotive technologies and manufacturing of top quality vehicles and auto parts**

4. Widespread application and development of **information and communication technologies**

The updated **Regional Innovation Strategy 2014-2020** of the Podkarpackie Voivodship has not specified the financing options or the expected amounts for specific operational initiatives. It has only generally pointed out the programmes and priorities which in the future could provide financing for the implementation of specific operations. It was, however, clearly stated that the basic financing for the initiatives envisaged would be provided from the resources of the Regional Operational Programme for the Podkarpackie Voivodship (Cohesion Policy). The financial resources available under the national and trans-regional operational programmes were also considered, as well as the possibility to apply for financing from the Horizon 2020 Programme.

To complement the regional industrial policy approach defined in the Podkarpackie 2020 Strategy, **regional authorities introduced area-specific programmes**, to account for the uneven territorial distribution of entrepreneurial activity and enterprises active in Smart Specialisation domains (see Map 1). The first one is dedicated to the development of the Bieszczady Mountains, the second to the development of the municipalities located along the San River (Marshal’s Office of the Podkarpackie Voivodship, 2016a; 2013a). It suggest an adaptation of the policy approach to account for infra-regional difficulties.

Map 1. Spatial distribution of enterprises active in the Smart Specialisation domains of Podkarpackie

![Map 1: Spatial distribution of enterprises active in the Smart Specialisation domains of Podkarpackie](source: Wais, P. (2018))
The aim of both these strategies is the effective use of endogenous potential of the regions for the sake of economic growth and improvement of the quality of life. There is no dedicated budget for these strategies, they are implemented as part of state and regional operational programmes. For instance, projects carried out by beneficiaries located in the two identified infra-regions get preferential points in the competitive procedures under the Regional Operational Programme (Cohesion Policy). Recently the Programme for the Bieszczady Mountains has been also introduced at the state level (see Section 4.2.2).

The territorial aspects of the regional industrial policy have been further consolidated recently. The newest initiative related to the industrial policy of the Podkarpackie Voivodship is indeed the establishment of the Polish Cluster of Industry 4.0 in October 2017. The founder members of the cluster include the Rzeszów University of Technology and five enterprises located in the Podkarpackie Voivodship: Dopak, Splast, SVLR, GenPlast and RDC Materials. The aim of the cluster is to support enterprises in terms of information, competencies and technologies in the process of the implementation of Industry 4.0 solutions, as well as integration of enterprises among themselves and with the scientific sector. One of the cluster’s initiatives was a conference organised in February 2018 on innovative applications for enterprises, with rapid prototyping as the leading topic (Krajowy Klaster INDUSTRY 4.0, 2018; Gospodarka Podkarpacka, 2017).

Based on the analysis of the Regional Operational Programmes for the period 2007-2013 and 2014-2020, which are the basis of the regional industrial policy, the major evolutions can be summarised as:

- **Greater focus on innovations** in the enterprise sector, at the expense of e.g., purchases of basic equipment by small enterprises
- **Higher selectivity and concentration** of the Programme’s funds – reduced number of domains of Smart Specialisation
- **Focus on equalising educational opportunities** of children and youth; modernisation and adaptation of vocational education and training processes to the needs of the regional labour market
- **Increased significance of environmental and energy-related issues**, primarily including improved energy efficiency and increased share of renewable energy sources in the energy balance

### 4.2.2 The current policy mix for regional industrial development: strategic objectives, priorities, specific measures and instruments

The policy mix corresponding to the regional industrial policy is laid down in the Podkarpackie’s Regional Operational Programme 2014-2020 (addressed with more details in section 4.3, see Table 14). The sources of the Programme funding, and thus of the overall regional industrial policy, are largely stemming from the EU Cohesion Policy (plus national co-financing). Therefore, it can be concluded that the present industrial policy of the region is closely aligned with EU priorities, and in particular with the Cohesion Policy priorities.

At the regional level, there are no specific programmes that directly contribute to the policy mix for industrial development without EU funding. However, the region uses funding and instruments from the national and local levels which indirectly shape its industrial policy. It is for instance the case through local tax reliefs for investors, provision of basic infrastructure funded from municipal budgets, provision of education and training, including vocational training, comprehensive support measures addressed to investors or planning activities (preparing land development plans).
As part of the present study, it is not possible to estimate the amounts earmarked for these activities/measures during the 2014-2018 period.

Moreover, some initiatives directly led by the national level shape, to different degrees, the industrial policy of Podkarpackie:

- **Special Economic Zones (Polish: SSE).** They can be considered as the first instrument which has significantly affected the formulation of Podkarpackie’s industrial policy and still has a bearing on it. There are two such zones in the Podkarpackie Voivodship: SSE Euro-Park Mielec and SSE EURO-PARK WISŁOSAN in Tarnobrzeg. The former is the oldest Special Economic Zone in Poland, established in 1995 on the premises of the PZL-Mielec Transport Equipment Factory (Wytwórnia Sprzętu Komunikacyjnego) and aimed to sustain the manufacturing capacity of the aviation industry in the region and allow for its diversification. The SSE instrument offers greenfield areas with full infrastructures and communication access, brownfield-free production facilities and “build-to-suit” – turnkey projects. The presence of the Technology Park Aeropolis located in the Rzeszów part of the SSE offers additional opportunities for firms. The SSE Euro-Park Mielec is indeed a magnet for investors in Podkarpackie. As of November 2018, PLN 11.5 billion of investment expenditure has been realised and 46,200 jobs have been created and maintained in this SSE. The SSE EURO-PARK WISŁOSAN in Tarnobrzeg is territorially dispersed and since only a part of it is located in the Podkarpackie Voivodship, it is impossible to assess the actual results of the SEE’s operation without an in-depth study (see Table 12 and Map 2 for details).

Map 2. Polish Economic Zones in 2017 (left) compared with Polish Investment Zone in 2018 (right)

**Source:** EY, Polish Investment and Trade Agency and Colliers International (2018)
Table 12. Effects of the SSE operating in Podkarpackie (from the beginning of the activity)*

<table>
<thead>
<tr>
<th>Information</th>
<th>Euro-Park Mielec</th>
<th>Euro-Park Wisłosan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading sectors</td>
<td>Aviation, automotive, plastics</td>
<td>Automotive, metal processing, glassware, machinery, aluminium</td>
</tr>
<tr>
<td>Investment value</td>
<td>PLN 11.5 billion</td>
<td>PLN 8.01 billion</td>
</tr>
<tr>
<td>Number of investors</td>
<td>393</td>
<td>142</td>
</tr>
<tr>
<td>Number of permits issued</td>
<td>449</td>
<td>373</td>
</tr>
<tr>
<td>New jobs created</td>
<td>21,227</td>
<td>15,134</td>
</tr>
<tr>
<td>Maintained jobs</td>
<td>24,982</td>
<td>7,041</td>
</tr>
<tr>
<td>Selected largest investors in Podkarpackie (by investment expenditure)</td>
<td>Kronospan Mielec MTU Aero Engines Poland Goodrich Aerospace Poland BORGWARNER POLAND</td>
<td>-</td>
</tr>
<tr>
<td>Selected largest investors in Podkarpackie (by number of employers)</td>
<td>Pratt&amp;Whitney Rzeszów Lear Corporation Poland II KIRCHHOFF POLSKA Polskie Zakłady Lotnicze BURY</td>
<td>Federal-Mogul Gorzyce Thoni Alutec</td>
</tr>
</tbody>
</table>

*Note: Data refer to the entire SSE area, which is larger than Podkarpackie Voivodship in particular in the case of EURO-PARK Wisłosan (See Map 2)


- **State aid for domestic and foreign companies.** In the Podkarpackie voivodship, the **highest rates of public aid intensity** (50%) and the **longest period of validity of the decision on support** (15 years) apply, compared with the EU and Poland. Income tax exemption is calculated based on the eligible investment costs of a new investment, which include: the cost of land acquisition, acquisition of fixed assets, extension or modernisation of fixed assets, acquisition of intangible assets, or two-year labour costs of newly hired employees.

- **State grants for domestic and foreign companies.** The regional industrial policy is **indirectly shaped by national government grants** which are currently being awarded under the **Programme to support investment projects of considerable significance for the Polish economy in the years 2011-2023**. It is the continuation of the previous Government Multiannual Programme 2007-2011. Currently, only entrepreneurs who plan investments in the **priority sectors**, i.e. automotive, electronics, household appliances, aviation, biotechnological, agri-food, high-tech services and R&D activity, can apply for support. Such support can also be sought by entrepreneurs who plan investments in **other sectors with conditions of high significance**: minimum eligible costs of PLN 750 million and creation of at least 200 new jobs, or minimum eligible costs of PLN 500 million and creation of at least 500 new jobs. The Programme offers support to investment projects to cover the costs of creating new jobs (**employment grants**) or to cover the eligible costs of the new project (**investment grants**). Two enterprises in the aviation sector, headquartered in the Podkarpackie region, have been awarded government grants for national strategic investments, on the condition of providing the required level of private funding and employment (See Table 13).
Table 13. Government grants awarded to enterprises located in the Podkarpackie Voivodship between 2007 and 2018

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme to Support Investment Projects with Considerable Significance for the Polish Economy in the Years 2011-2023</td>
<td>Ministry of Enterprise and Technology</td>
<td>Support investments and employment</td>
<td>Public aid for investment project by Eme Aero Sp. z o. o. in 2018-2022 involving the construction of an aircraft engine maintenance, repair and overhauls plant in Jasionka</td>
<td>Special-purpose grant</td>
<td>PLN 62 million</td>
</tr>
<tr>
<td>Government Multiannual Programme 2007-2011</td>
<td>Ministry of the Economy</td>
<td>Support investments and employment</td>
<td>Financial support to investment project by MTU Aero Engines Polska Sp.z o.o. in Tajęcin, entitled: Manufacturing centre for aircraft engine parts, servicing centre and engineering (R&amp;D) centre in 2009 – 2012</td>
<td>Special-purpose grant</td>
<td>PLN 12.48 million</td>
</tr>
</tbody>
</table>

Source: Authors based on Ministry of Enterprise and Technology (2018) and Prime Minister of Poland (2009)

- **National Programme for the Bieszczady Mountains.** It was launched as part of the Strategy for Responsible Development for the period up to 2020 by Jerzy Kwieciński, Minister of Investment and Economic Development, in October 2018. Similarly to the Programme for Silesia, the scheme is **dedicated to a Polish territory with specific needs.** It is worth noticing that there is **no separate budget** allocated the Programme, but around 60 different projects valued at PLN 1 billion are going to be implemented under the Programme (using other sources of funding). Accessibility, quality of life and development of entrepreneurship are the most important priorities (Huk, 2018).

- **Strategic research and development programmes of the NCBiR.** They are funded by the National Centre for Research and Development (Polish: NCBiR) and could potentially support innovation in the region. These strategic programmes, enshrined in the state research and innovation policy, are aimed to **consolidate the best research teams and integrate academia and business around issues which are of key importance to Poland’s development.** The programmes are developed on the basis of the National Research Plan, adopted by a resolution of the Council of Ministers on 16 August 2011. To date, the NCBiR has launched four types of strategic projects: Techmatstrateg (materials technologies, total national budget: PLN 550 million), Biostrateg (natural environment, agriculture and forestry, total national budget: PLN 500 million), Strategmed (prevention and treatment of civilisational diseases, total national budget: PLN 800 million) and Infostrateg (advanced information, telecommunication and mechatronic technologies, budget: unknown) (NCBiR, 2011). According to the information provided by the NCBiR, there were **no enterprises from the Podkarpackie Voivodship in any of the consortia** (as at 25 January 2019). However, the programmes are still accepting applications under a call for projects procedure.

- **National public procurement rules.** Podkarpackie’s enterprises operating in the strategic sectors can **build their potential based on public procurement.** One of the documented examples is the steel mill in Stalowa Wola (Polish: Huta Stalowa Wola), which takes part in the Programme of Technical Modernisation of the Armed Forces of the Republic of Poland for the years 2017-2012.
Under the programme, the Huta Stalowa Wola has signed a contract for the production of army equipment worth PLN 1.5 billion, which is one of the biggest contracts in the history of the Polish arms industry.

This catalogue of national measures might be not exhaustive, as each of the instruments is implemented by a different state agency, the information about them is dispersed. These nationally managed instruments and policies are usually not coordinated with the regional level (with the exception of the Special Economic Zones), in spite having an impact on the de facto regional industrial policy.

4.2.3 Governance arrangement, coordination mechanisms and stakeholders’ involvement

As the core of the regional industrial policy is related to the EU Cohesion Policy, the governance and partnerships active in its design and implementation are critical. These issues have been investigated under the Horizon 2020 COHESIFY project - Understanding the Impact of EU Cohesion Policy on European Identification (Cohesify, 2019). The results show that the partnership principle is actively implemented in the Regional Operational Programme of the Podkarpackie Voivodship. Engagement of various stakeholders is secured by EU regulations, as well as by national, regional and local practices. Moreover, stakeholders are involved during different stages of the preparation and implementation of the Regional Operational Programme and by different policy measures and structures. At the preparatory stage (draft and negotiation of the programme), non-governmental partners were invited to participate in the work of the Marshal’s Office. For the most part, active social partners came from the group already involved in the previous implementation of the European funds in the region, namely those involved in the Monitoring Committee of the former programme for the 2007-2013 programming period. Concretely, the involvement of stakeholders during the preparatory stage ranged from formal engagement in the activities of working groups to participation to consultations events (targeted and public), as well as informal discussions. Also, the Monitoring Committee working on the 2007-2013 programme formed a platform to allow the different stakeholders to participate in the drafting of the programme. Based on the information included in the ROP, these consultations involved 61 local authorities, five national authorities (ministries), five education providers (Higher Education institutions), and 45 civil society organisations and economic & social partners (including stakeholders from the business sector). At the implementation stage, the Monitoring Committee plays a key role in fulfilling the partnership principle. This body consists of 61 individuals representing regional and local authorities (18 people), national authorities (11 people), partners from business, non-governmental organisations, higher education and R&D, labour unions, etc. (17 people). These three groups have voting rights – i.e. they can directly influence the decision of the Monitoring Committee. Additionally, the Committee is supplemented by observers (with no voting rights): 12 national observers (for the most part from the regional institutions) and 3 emissaries for the European Commission. In general, the composition, operation and the role played by the Monitoring Committee have not changed considerably between the programming periods 2007-2013 and 2014-2020. Moreover, a number of members of the Monitoring Committee for 2014-2020 have been involved in the previous one. This is seen as a positive feature – mainly because this allows for accumulation and transfer of knowledge and good practices between programming periods. In addition, stakeholders are involved in the discussion on the state of the Regional Operational Programme carried on during sessions of the regional assembly (the Sejmik). However, this mechanism of involvement is far less critical than the Monitoring Committee. The Board of Public Benefit Organisation (Rada Działalności Pożytku Publicznego) can also be a potentially useful platform for discussing the Regional Operational Programme between governmental and non-governmental sectors. However, this opportunity remains largely underused at the moment (Smętkowski, 2018).
Moreover, the regional governance and coordination mechanisms also concern each of the national instruments described in Section 4.2.2, requiring an involvement of different groups of stakeholders. The comprehensive assessment of the governance, coordination and involvement of stakeholders on these aspects would require separate in-depth studies. Nevertheless, it seems that there is a sufficient awareness of the different national policies that are relevant to industrial policy in Podkarpackie and that the collaboration between the different levels of stakeholders does take place (Authors based on interviews, 2019). For instance in case of the Special Economic Zones, the general coordination and rules originate from the national government, and contacts with foreign investors are ensured by special state agencies. However regional authorities and agencies are responsible for the SSE policy implementation, with close daily collaboration with interested enterprises and triple-helix institutions such as technology parks and clusters (e.g. Podkarpackie Science and Technology Park Aeropolis, Rzeszów Regional Development Agency, Aviation Valley). The use of the different available measures and their effectiveness vary. This is why the factors behind the lack of involvement of Podkarpackie’s enterprises in the strategic research and development programmes of NCBiR require further examination.

### 4.2.4 Main strengths and weaknesses of the regional industrial policy approach

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Weaknesses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Good regional governance and involvement of stakeholders</td>
<td>• Various levels of coordination between national and regional instruments</td>
</tr>
<tr>
<td>• Continued development of the regional infrastructures, especially for transportation (North-South)</td>
<td>• Lack of national strategic documents tackling new trends relevant to industry such as industry 4.0</td>
</tr>
<tr>
<td>• Consolidation of the role of industries in Podkarpackie, especially in key strategic sectors and value chains (e.g. EU internationalisation)</td>
<td>• Scattered knowledge on the financial resources related to industrial policy from the country budget</td>
</tr>
<tr>
<td>• Realisation of investment projects funded from domestic resources targeting the infra-regional underdeveloped areas (e.g. the planned winter sports centre in the Bieszczady Mountains, financed by the Ministry of Sport)</td>
<td>• Insufficient cooperation between academia and businesses regarding innovative solutions (limited to cluster-related activities)</td>
</tr>
<tr>
<td>• Operation of several business-friendly areas: Special Economic Zones (Mielec, Tarnobrzeg), Technology Parks (Mielec Industrial Park, ‘Stare Miasto’ Industrial Park, AEROPOLIS – The Podkarpackie Science and Technology Park)</td>
<td>• Limited efficiency of policies promoting innovation and entrepreneurship</td>
</tr>
<tr>
<td>• Dynamic development of cluster initiatives related to regional Smart Specialisation domains, and recently in Industry 4.0</td>
<td>• Stagnation or reduction of funding for R&amp;D activities and support to enterprises from EU and domestic funds, due to the phasing out of assistance programmes</td>
</tr>
<tr>
<td>• Increase in funding for entrepreneurship (not directly R&amp;D) from EU funds</td>
<td>• Low satisfaction of residents (and entrepreneurs) with the quality of public services</td>
</tr>
<tr>
<td>• Consistency of the educational profiles with the region’s Smart Specialisation domains</td>
<td>• Dependency on EU funds due to the insufficient capacity of regional and local governments to provide financing from their own resources</td>
</tr>
<tr>
<td>• Strong EU support (e.g, available fund) decisive to outline the regional industrial policy</td>
<td>• Reduced absorption capacity of EU funds for innovation due to low regional potential (lack of ideas, no resources for private contribution)</td>
</tr>
<tr>
<td></td>
<td>• Shift in EU priorities to focus on the most promising European innovative drivers of growth (lack of potential beneficiaries in Podkarpackie)</td>
</tr>
</tbody>
</table>

Source:
4.3 The EU contribution to the regional industrial policy in Podkarpackie

4.3.1 What is the contribution of the EU industrial strategy policy to the regional policy paradigm?

Based on the case study (see section 4.2.2.), it is clear that the EU industrial policy influences the regional one through Cohesion Policy. Indeed, Cohesion Policy has had a decisive impact on the formulation of strategic goals and priorities with regard to the industrial strategy of the Podkarpackie Voivodship. As stated by the interviewees (Authors based on interviews, 2019):

"Industrial policy at the regional level is wholly outlined by the European Union"

"The EU and its financing are highly visible. The EU focuses the attention [of the regional authorities]. (...) One could ask the question: Is Polish regional policy an autonomous policy or is it merely a reflection of the European one? (...) It is quite natural for me that we are seeking to formulate our own regional policy, as we read the strategies (...) but the bottom line invariably is that these are European funds or some national budget contribution as an addition. (...) I keep hearing that dream, about an autonomous, independent policy – and the EU does not forbid us to have one – but the problem is that we tend to concentrate on the financial aspects (...)"

4.3.2 What is the contribution of the EU industrial strategy policy to governance, policy capacity and coordination?

It is not possible to fully assess whether the EU industrial policy has had a substantial contribution to the policy capacity and governance structure at the regional level. What can be said with certainty based on the available research results is that the Cohesion Policy has triggered important learning processes within the territorial administrations in Central and Eastern European countries at all levels (e.g., Bachtler and McMaster, 2008; Baun and Marek, 2008). However, the adjustment to Cohesion Policy norms in these countries was not an easy process – as it was hampered by insufficient administrative capacity and institutional legacies (e.g. EPRC, 2009).

Marek Dąbrowski (2012) has studied the influence of the EU Cohesion Policy on the Polish subnational policy stakeholders in the Lower Silesia and Lubelskie regions who are involved in its implementation, in three areas: administrative capacity, strategic planning, and governance. Results have shown that adjustments to the EU Cohesion Policy norms initially tend to be stimulated by cost–benefit calculations or constraints, which may involve ‘shallow’ adjustment. However, provided that the EU-imported norms are in line with the actors’ preferences, socialisation and learning mechanisms can become more prominent in the longer-term. Naturally, the subnational impact of the EU Cohesion Policy remains uneven and differentiated depending on the actors’ preferences, attitudes and capacities. Therefore, these results may not fully apply to Podkarpackie.

4.3.3 Which instruments, initiatives and funding ascribable to the EU industrial policy are mobilised in the region?

The instruments, initiatives and funds ascribable to the EU industrial policy mobilised in the Podkarpackie Voivodship are presented in Table 14. As expected, the most important sources of funding include the Cohesion Fund and the European Social Fund, mobilised under the Podkarpackie Regional Operational Programme. However, several other programmes are used in the region, such as: COSME, Horizon 2020 (FP7), Junkers Plan, national Operational Programmes (OP Infrastructure and Environment, OP Smart Growth, OP Digital Poland, OP Eastern Poland, OP Knowledge. Education. Development, OP Rural Development).
Access to funding under the Regional Operational Programme was facilitated by the limited competition in this context. On the contrary, regional enterprises participated to a very limited extent to more competitive programmes, such as Horizon 2020.
Table 14. Main EU policies and instruments contributing to regional industrial development in the Podkarpackie Voivodship*

<table>
<thead>
<tr>
<th>Name of the measure, initiative Programme</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
</table>
| COSME                                    | • Favour access to market  
• Support entrepreneurship and entrepreneurial culture | • Enterprise Europe Network  
• Entrepreneurship and entrepreneurial culture | Enterprise Europe Network South Poland  
Support young innovative companies from Southern Poland in scaling-up their activities in the Single Market | EUR 0.99 million | Yes |
| Horizon 2020                             | • Boost energy Efficiency  
• Deploy EIC Fast Track to Innovation  
• Develop Innovation in SMEs (EIC SME Instrument) | • Innovation (IA)  
• Innovation (IA)  
• Public sector innovation  
• Biotechnology  
• Energy  
• Engineering and technology | SME instrument  
SME instrument  
SME Instrument  
SME Instrument  
SME Instrument | EUR 0.05 million  
EUR 0.31 million  
EUR 0.05 million  
EUR 0.05 million  
EUR 0.05 million | yes |
| Framework programme                      | • Support R&D (FP6- INNOVATION) | • INNOVATION-2 - Encouraging transregional cooperation  
• INNOVATION-2002-2.1 - Development of regional innovation strategies | Specific Support Action | EUR 0.99912 million | yes |
| EFSI / EIB (Juncker’s Plan)             | • Finance enterprises (including Start-ups and SMEs, agricultural companies) | • High-Yielding Soy Varieties with Unique Traits  
• EASA Certification of AT5 and AT6 aircraft | Industry for SMEs & Mid-Caps Agriculture and rural development, forestry and bio-economy  
Industry for SMEs & Mid-Caps Vehicles and Transport Systems | EUR 2.4 million  
EUR 5 million | yes |
| Operational Programme Infrastructure and | • 1. Low-emission economy | • 1.1 Promote the production and distribution of energy derived from renewable sources;  
Non-repayable subsidy Support through financial | Non-repayable subsidy Support through financial | EUR 0.775 million | yes |
<table>
<thead>
<tr>
<th>Name of the measure, initiative Programme</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment 2014–2020</td>
<td></td>
<td>• 1.3 Support energy efficiency, smart energy management and renewable energy use in public infrastructure</td>
<td>instrument: loan or equivalent</td>
<td>EUR 3.644 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.6 Promote the use of high-efficiency co-generation of heat and power based on useful heat demand.</td>
<td></td>
<td>EUR 4.682 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>• 5. Development of the railway transport in Poland</td>
<td>• 5.2 Support railway transport besides TEN-T</td>
<td>Non-repayable subsidy</td>
<td>EUR 75.783 million</td>
<td>yes</td>
</tr>
<tr>
<td>Operational Programme Smart Growth 2014–2020</td>
<td>• 1. Increase in the R&amp;D activity of enterprises</td>
<td>• 1.1. R&amp;D projects of enterprises</td>
<td>Non-repayable subsidy</td>
<td>EUR 47.466 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.2. Sectoral R&amp;D programmes</td>
<td>Support through financial instrument: venture and equity capital or equivalent</td>
<td>EUR 26.227 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>• 2. Support for the environment and capacity of enterprise for R&amp;D&amp;I activity</td>
<td>• 2.1. Support for investments in R&amp;D infrastructure of enterprises</td>
<td>Non-repayable subsidy</td>
<td>EUR 70.737 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2.3. Pro-innovation services for enterprises</td>
<td>Support through financial instrument: venture and equity capital or equivalent</td>
<td>EUR 9.850 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>• 3. Support for innovation in enterprises</td>
<td>• 3.1. Finance innovative activity of SME from venture capital funds</td>
<td>Non-repayable grant</td>
<td>EUR 0.125 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3.2. Support for R&amp;D results implementation</td>
<td>Support through financial instrument: venture and equity capital or equivalent</td>
<td>EUR 119.960 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3.3. Support for promotion and internationalisation of innovative enterprises</td>
<td>Support through financial instrument: loan, guarantee or equivalent</td>
<td>EUR 2.826 million</td>
<td>yes</td>
</tr>
</tbody>
</table>
### How to tackle challenges in a future-oriented EU Industrial Strategy?

<table>
<thead>
<tr>
<th>Name of the measure, initiative Programme</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Digital Poland Operational Programme 2014-2020</strong></td>
<td>• 1. Common access to high-speed internet</td>
<td>• 1.1. Eliminate territorial differences in terms of access to high-speed broadband Internet</td>
<td>Non-repayable subsidy</td>
<td>EUR 55.535 million</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Operational Programme Eastern Poland 2014-2020</strong></td>
<td>• 1. Entrepreneurial Eastern Poland</td>
<td>• 1.1. Start-up platforms for the new ideas</td>
<td>Non-repayable subsidy</td>
<td>EUR 8.250 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.2. Support the internationalisation of SMEs</td>
<td></td>
<td>EUR 4.738 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.3. Support for supra-regional cooperation</td>
<td></td>
<td>EUR 37.196 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.4. Pattern for innovation</td>
<td></td>
<td>EUR 15.872 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>• 2. Modern transport infrastructure</td>
<td>• 2.1. Sustainable urban transport networks</td>
<td></td>
<td>EUR 80.333 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2.2. Road infrastructure</td>
<td></td>
<td>EUR 65.903 million</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Knowledge. Education. Development Operational Programme 2014-2020</strong></td>
<td>• 1. Young people on the labour market</td>
<td>• 1.1. Support of unemployed young people on the regional labour market - non-competition projects</td>
<td>Non-repayable subsidy</td>
<td>EUR 67.597 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.2. Support of unemployed young people on the regional labour market - competition projects</td>
<td></td>
<td>EUR 13.193 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>• 2. Effective public policies for the labour market, economy and education</td>
<td>• 2.18. High quality administrative services</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• 2.19. Improve the investment and construction process, and spatial planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2.2. Support of strategic management in enterprises and the development of competitive advantage on the market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2.4. Modernisation of public and non-public labour market institutions and their better adjustment to the labour markets needs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Podkarpackie Regional Operational Programme 2014-2020 (Cohesion Policy)</strong></td>
<td>• 1. Competitive and Innovative Economy</td>
<td>• 1.1. Support of R&amp;D infrastructure of scientific entities</td>
<td>Non-palliable grant</td>
<td>EUR 2.804 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.2. Industrial research, development works and their implementation</td>
<td></td>
<td>EUR 44.239 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1.3. Entrepreneurship promotion</td>
<td></td>
<td>EUR 20.073 million</td>
<td>yes</td>
</tr>
<tr>
<td>Name of the measure, initiative Programme</td>
<td>Strategic Objectives</td>
<td>Operational objectives / priorities</td>
<td>Type of instrument</td>
<td>Funding</td>
<td>Coordination, synergy with regional initiatives</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------</td>
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<td>---------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>• 1.4. SME support</td>
<td></td>
<td>• 1.4. SME support</td>
<td>EUR 101.583 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>• 1.5. Entrepreneurship promotion – Integrated Territorial Investments</td>
<td></td>
<td>• 1.5. Entrepreneurship promotion – Integrated Territorial Investments</td>
<td>EUR 4.092 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>• 2. Digital Podkarpackie</td>
<td>2.1. Improve effectiveness and access to e-services</td>
<td>Non-payable grant</td>
<td>EUR 55.570 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>• 3. Clean energy</td>
<td>3.1. Development of renewable energy sources</td>
<td>Non-payable grant</td>
<td>EUR 87.275 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.2. Energy modernisation of buildings</td>
<td>Non-payable grant</td>
<td>EUR 77.752 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.3. Improvement of air quality</td>
<td>Non-payable grant</td>
<td>EUR 11.366 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.4. Development of renewable energy sources – Integrated Territorial Investments</td>
<td>Non-payable grant</td>
<td>EUR 12.679 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>• 5. Transport infrastructure</td>
<td>5.1. Road infrastructure</td>
<td>Non-payable grant</td>
<td>EUR 140.802 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.3. Rail infrastructure</td>
<td>Non-payable grant</td>
<td>EUR 25.405 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.4. Low-emission urban transportation system</td>
<td>Non-payable grant</td>
<td>EUR 31.943 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.5. Low-emission urban transportation system – Integrated Territorial Investments</td>
<td>Non-payable grant</td>
<td>EUR 20.493 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>• 7. Regional labour market</td>
<td>7.1. Improve the situation of unemployed people on the labour market - competition projects</td>
<td>Non-payable grant</td>
<td>EUR 42.954 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.2. Improve the situation of unemployed people on the labour market - non-competition projects of Poviat’s Labour Offices</td>
<td>Support through financial instrument: loan or equivalent</td>
<td>EUR 25.866 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.3. Support of entrepreneurship development</td>
<td>Non-payable grant</td>
<td>EUR 25.282 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.5. Development of competences of SME employees</td>
<td>Non-payable grant</td>
<td>EUR 5.075 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>• 9. Quality of education and competences in the region</td>
<td>9.3. Improvement of competences of adults in the field of ICT and foreign languages</td>
<td>Non-payable grant</td>
<td>EUR 5.430 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.4. Quality improvement of vocational training</td>
<td>Non-payable grant</td>
<td>EUR 16.244 million</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.5. Improvement of competences of adults in the non-school forms</td>
<td>Non-payable grant</td>
<td>EUR 19.933 million</td>
<td>yes</td>
<td></td>
</tr>
</tbody>
</table>
### Name of the measure, initiative Programme

<table>
<thead>
<tr>
<th>Programme</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Development Operational Programme 2014-2020 (Community Agriculture Policy (CAP) – Pillar II)</td>
<td>• Development of farms and business activity</td>
<td>• 6.2 Support of non-agricultural business activity in rural area</td>
<td>Non-payable grant</td>
<td>EUR 0.727 million</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 6.4 Support of investment on initiation and development of non-agricultural business activity in rural area</td>
<td></td>
<td>EUR 0.201 million</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*The priorities of industrial policy were selected based on Table 15 in the Appendix*

**Source:** Authors based on Marshal’s Office of the Podkarpackie Voivodship (2018), Portal of European Funds of Poland (2019), Statistical Office of Poland (2019) and European Commission (2018)
4.4 Conclusions and lessons learnt

4.4.1 How does the European industrial policy help the region to face future challenges?

The EU policy has a considerable influence in shaping the regional industrial policy. As its pivotal component, it sets the directions and provides sources of funding. This applies both to direct support to enterprises and to creating conditions conducive for entrepreneurship. It is less the case for support to the human resources for industry and enterprises (where the national and regional funds play a major role). Podkarpackie’s industrial strategy has been tailored to the size of the funding available to the region, mostly under the Cohesion Policy. Although other EU programmes implemented in the region (Horizon 2020, COSME, Junkers Plan, CAP) are of lesser importance, they also shape its industrial policy and outline the directions for the activities of the regional authorities. It can be assumed that, in the next multiannual financial framework, the role of EU’s policy in the shaping of the region’s industrial policy will not be diminished. It is also likely that the EU has contributed to a learning process in the region (e.g., in terms of policy capacity), though it would require dedicated in-depth studies to confirm it.

4.4.2 Scope for improving the EU contribution to regional industrial policy

From the perspective of the Podkarpackie region, the territorial dimension should be emphasised more strongly by the EU industrial policy, in order to support marginalised areas, i.e. territories frequently bypassed by the EU industrial policy since they fail to satisfy the required support criteria, e.g. due to the lack of advanced enterprises (in terms of technology, labour organisation etc.). Additionally, these areas often lack the necessary basic infrastructure for pursuing business activity. The answer to these needs are the national programmes such as the Programme for the Bieszczczady Mountains. However this kind of programme is broad and covers various projects, including some financed by the EU.

Regarding measures and instruments, the element of risk inherent in industrial activities should be more extensively taken into account. No room for experiments or failure, which is de facto implied by the need to achieve the planned results, makes the EU funds well suited to support “safe” rather than innovative solutions. Furthermore, the instruments should focus on building the absorption capacity of enterprises. At present, there are problems with spending the funds earmarked for innovative activities not only from regional but also from national sources (NCBiR, 2018). On the one hand, many programmes offer competitive financing, but on the other hand the group of potential beneficiaries of such funds is rather small. Enterprises still lack the knowledge of available programmes and the skills needed to apply for funding or support. However, as mentioned before, in many cases their level of innovative development is too low to meet the support criteria.

Regarding cooperation mechanisms in the context of industrial policy, the EU should include businesses more widely in order to formulate future directions of support and to set instruments available to them.

Last but not least, there is a need of more comprehensive analysis of the EU industrial policy implementation at the regional level, with the use of micro-data and innovative techniques (e.g. text mining).
References


List of stakeholders interviewed
- Director - Podkarpackie Science and Technology Park Aeropolis; Rzeszów Regional Development Agency (25/01/2019)
- Deputy Director - Department for Regional Development. Marshal’s Office of the Podkarpackie Voivodship in Rzeszów (26/01/2019)
# Appendix

## Table 15. Industrial structure (manufacturing) in the Podkarpackie Voivodship in 2017

<table>
<thead>
<tr>
<th>Industry Specification</th>
<th>Sold production</th>
<th>Average paid employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share (%)</td>
<td>Change in the share</td>
</tr>
<tr>
<td></td>
<td>Change in the share</td>
<td>2010=100</td>
</tr>
<tr>
<td>food products</td>
<td>7.82</td>
<td>-0.50</td>
</tr>
<tr>
<td>beverages</td>
<td>0.08</td>
<td>-0.29</td>
</tr>
<tr>
<td>textiles</td>
<td>0.27</td>
<td>0.05</td>
</tr>
<tr>
<td>wearing apparel</td>
<td>0.44</td>
<td>-0.10</td>
</tr>
<tr>
<td>leather and related products</td>
<td>0.04</td>
<td>-0.04</td>
</tr>
<tr>
<td>products of wood, cork, straw and wicker</td>
<td>6.98</td>
<td>-0.02</td>
</tr>
<tr>
<td>paper and paper products</td>
<td>0.76</td>
<td>0.01</td>
</tr>
<tr>
<td>printing and reproduction of recorded media</td>
<td>0.58</td>
<td>0.04</td>
</tr>
<tr>
<td>chemicals and chemical products</td>
<td>6.12</td>
<td>-1.09</td>
</tr>
<tr>
<td>pharmaceutical products</td>
<td>0.52</td>
<td>-</td>
</tr>
<tr>
<td>rubber and plastic products</td>
<td>12.83</td>
<td>-2.03</td>
</tr>
<tr>
<td>other non-metallic mineral products</td>
<td>3.82</td>
<td>-1.06</td>
</tr>
<tr>
<td>basic metals</td>
<td>4.54</td>
<td>-0.41</td>
</tr>
<tr>
<td>metal products</td>
<td>11.60</td>
<td>3.44</td>
</tr>
<tr>
<td>computer, electronic and optical products</td>
<td>2.00</td>
<td>-</td>
</tr>
<tr>
<td>electrical equipment</td>
<td>1.15</td>
<td>-1.16</td>
</tr>
<tr>
<td>machinery and equipment n.e.c.</td>
<td>4.22</td>
<td>-0.45</td>
</tr>
<tr>
<td>motor vehicles, trailers and semi-trailers</td>
<td>12.91</td>
<td>3.36</td>
</tr>
<tr>
<td>other transport equipment</td>
<td>11.53</td>
<td>4.93</td>
</tr>
<tr>
<td>furniture</td>
<td>4.00</td>
<td>-0.78</td>
</tr>
<tr>
<td>other manufacturing</td>
<td>1.47</td>
<td>0.53</td>
</tr>
</tbody>
</table>

*Source:* Authors’ calculations based on Statistical Office of Poland (2019) and Statistical Office in Rzeszów (2018)
5 PIRKANMAA

5.1 Regional economy and framework conditions in Pirkanmaa

5.1.1 Historical background

The capital city of Pirkanmaa in South-Western Finland, Tampere has a proud history of industrial development, renewal and innovation. The city is home to some of the largest industrial concerns in Finland. Tampere is a ‘big industry’ town in both senses of the term, i.e. weight of industry in the economic ecosystem and size of involved companies. Industrial development was relatively stable between 1870-1970.

Since the 1970s, the region has however faced continuous processes of disruptive change and renewal in terms of sectors: from its original cotton and textile base to machine tools and mechanical engineering (1970-1990) and thereafter to ICT (1990-2010). Related changes in product specialisation have been becoming more pronounced over time.

The key elements in these continuous change processes, at least since the first ‘renewal’ period, have been the city administration and the higher education institutions (HEI): “without the universities (and VTT – Technical Research Centre), nothing would have happened here” (See also Raunio et al., 2016). Together, these two stakeholders have contributed to the evolution of the region’s industrial culture by establishing various platforms and organisations to support R&D and industrial linkages. Examples of such organisations include the oldest technology transfer company in Finland, Tamlink Ltd./Hermia (founded in 1986) and the medical technology centre, Finnmedi. These technology centres have become the cornerstone of the platform network, producing new establishments such as the New Factory, an open innovation platform for students and enterprises.

5.1.2 Current regional industrial structure, innovation system and international linkages

In terms of employment (see Table 16), the most important industrial sectors in Pirkanmaa are the Manufacture of machinery and equipment (6,175 employees in 2017) and the Manufacture of fabricated metal products, except machinery and equipment (4,055). The Manufacture of rubber and plastic products, paper and wood products, food products and computer, electronic and optical products are also important sectors, with more than 1,500 employees each.

In terms of turnover (see Table 17), the Manufacture of machinery and equipment clearly distinguishes itself at the regional level, with a EUR 2.8 billion turnover. The Manufacture of paper and paper products and the Manufacture of rubber and plastic products also very important according to that metric.

15 Concerns are a type of business group resulting from the merger of several legally independent companies into a single economic entity under unified management.
Firms located in the region are deeply integrated into global value chains with industry producing 94.4% of Pirkanmaa’s exports, compared with the national average of 81.2% in 2016 (Council of Pirkanmaa region, 2017a). However, the position of regional industries within these value chains is generally supplier-based. This is an issue for the broader regional economy, as “service companies do not produce end products” (Izsak and Romanainen, 2017). Nevertheless, the foreign trade balance for Pirkanmaa is +14% (Pirkanmaan talous, 2018b).

The current regional economic structure has been widely affected by the 2008 crisis, with short to medium-term aspects. The direct consequences of the crisis were declines in national level funding, business investments and local tax receipts. In particular, R&D investments dropped by 50% after 2008. More critically, the business environment was significantly affected with the machine-building sector initially suffering the most (Lahtinen, 2014). The crisis has also accelerated the decline of Nokia, traditionally a major company in Finland and the region16, but which has been facing deep and structural problems since the early 2000s (Kurikka et al., 2017)17.

---

16 In 2000, Nokia alone accounted for 4% of the Finnish GDP, 33% of R&D expenditure and 20% of exports (Kurikka et al., 2017).
17 The evolution of Nokia can be analysed in the framework of a long-term “pathexhaustion”, accelerated by the crisis. Despite its increasingly poor performance in the mobile handset market since the 2000s, Nokia struggled on, shedding jobs slowly until it was taken over by
Recovery from the crisis has been allowed and facilitated by broader changes in the business environment which now favours small, agile companies creating immaterial services rather than large producers of consumer goods. There has thus been a partial transition towards an open creation and innovation environment, in contrast with the rather closed business networks of the traditional industrial model represented by Nokia. This process of positive structural change in the region can also be detected in various policy fields, with the development of a “bridge contract”, i.e. a process between the state and the regional authorities committing both parties to enhancing the possibilities for growth in Pirkanmaa. However, this transition is incomplete, with cultural attitude towards R&DI and entrepreneurship still an open question. Indeed, Tampere’s reputation remains that of a “big industry” town with large companies dominating the business environment and “not a start-up community”, in spite of the increase in creation of new enterprises by 15% during the last 2018 trimester (Suomen virallinen tilasto, 2019).

Concretely, this recovery process from the crisis is observable thanks to several metrics though the respective numbers are often far from those reported during the pre-2008 era (Pirkanmaan talous, 2018a), with GDP per capita only matching 2008 levels in 2016 (Suomen virallinen tilasto, 2017). Moreover, latest national trends show a slowdown both in private investment and in economic growth more generally, which could weaken this recovery (Valtiovarainministeriö, 2018). Employment in Pirkanmaa has still risen steadily since 2016 to 70.9% of the working age population in 2018. In December 2018, the unemployment rate was estimated at 7.5%, a reduction of 2.3 percentage points in 12 months (Official Statistics of Finland, 2018). Pirkanmaa’s core technology industrial sector has also been recovering, with an increase in turnover by 10% and of exports by 13.3% in 2017, though it is still slow after the rapid decline associated with the demise of Nokia/Microsoft (Kurikka et al., 2017).

Table 18: Economic, industrial and innovation ecosystem in Pirkanmaa

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>EU</th>
<th>FINLAND</th>
<th>WESTERN FINLAND/PIRKANMAA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (2016)</td>
<td>29,200 (EUR per capita)</td>
<td>39,200 (EUR per capita)</td>
<td>36 044* (EUR per capita)</td>
</tr>
<tr>
<td>Unemployment rate (2016)</td>
<td>8.6%</td>
<td>8.8%</td>
<td>10.8 %*</td>
</tr>
<tr>
<td>Share of industry in the GVA (2015)</td>
<td>20%</td>
<td>21%</td>
<td>26%</td>
</tr>
<tr>
<td>Share of employment in high and medium high-tech manufacturing (2016)</td>
<td>5.8%</td>
<td>4.8%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Exports medium and high-tech manufacturing (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.559 (range 0-1, 1 is best)</td>
</tr>
<tr>
<td>Quality of Governance Index (2013)</td>
<td>50.5 (range 0-100, 100 is best)</td>
<td>78 (range 0-100, 100 is best)</td>
<td>77.7 (range 0-100, 100 is best)</td>
</tr>
</tbody>
</table>

Microsoft in 2013. After the failure of the new mobile phone platform, Microsoft sold Nokia again in 2016. The related job losses were “managed” in cooperation between Nokia/Microsoft, the city of Tampere and the HEIs in the region.
### Table: Key Indicators of EU Industrial Strategy

<table>
<thead>
<tr>
<th>Indicator</th>
<th>EU</th>
<th>FINLAND</th>
<th>WESTERN FINLAND/PIRKANMAA*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Change</td>
<td></td>
</tr>
<tr>
<td>Share of population with tertiary education (2016)</td>
<td>30.7%</td>
<td>43.1%</td>
<td>41.2% (+5.0 p.p. (2011-2016))</td>
</tr>
<tr>
<td>Patent applications per million inhabitants (2011)</td>
<td>113</td>
<td>249.2</td>
<td>242 (+19.6 (2008-2011))</td>
</tr>
<tr>
<td>RD expenditure per capita (2015)</td>
<td>594 (EUR per capita)</td>
<td>1,080 (EUR per capita)</td>
<td>887 (EUR per capita)</td>
</tr>
<tr>
<td>Non-RD innovation expenditure (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.292 (range 0-1, 1 is best)</td>
</tr>
<tr>
<td>SMEs innovating in-house (2017)</td>
<td>N/A</td>
<td>N/A</td>
<td>0.643 (range 0-1, 1 is best)</td>
</tr>
</tbody>
</table>

**Source:** Authors based on Eurostat, Quality of Governance Institute, Regional Innovation Scoreboard and Official Statistics of Finland (2018)

**Note:** * indicates data at the Pirkanmaa level. No * indicates data at the Western Finland level.
5.1.3 Synthesis in the form of a SWOT analysis

Box 12. SWOT analysis of the regional economy in Pirkanmaa

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Central location, spatial and geographical advantages</td>
<td>• Focus on mature markets rather than on dynamic, high-risk sectors</td>
</tr>
<tr>
<td>• Specialisation in key industrial areas (e.g., machinery and equipment, electronics...)</td>
<td>• Decline of Nokia, traditionally a major regional economic stakeholder</td>
</tr>
<tr>
<td>• Combination of advanced manufacturing and services</td>
<td>• Lagging private investments and declining public investments</td>
</tr>
<tr>
<td>• Strong university-industry linkages and collaboration</td>
<td>• Structural unemployment (long-term &amp; youth)</td>
</tr>
<tr>
<td>• Highly educated and skilled workforce</td>
<td>• Conservative business culture, especially in traditional sectors</td>
</tr>
<tr>
<td>• Social mobility, national culture of compromise</td>
<td>• Limited entrepreneurial culture and scarcity of high-growth companies</td>
</tr>
<tr>
<td>• Regional capacity to adapt, renew and reinvent itself when facing a new business context... with an ongoing transition towards a more open and agile ecosystem</td>
<td>• Limited expertise of SMEs in exports and internationalisation</td>
</tr>
<tr>
<td>• Good living environment / quality of life</td>
<td>• Underperformance in lobbying both in Helsinki and Brussels</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Large and improved infrastructure projects, especially in transportation, favouring growth (e.g., tram, local trains, long distance trains)</td>
<td>• General deterioration of the economic situation and lack of investment funds</td>
</tr>
<tr>
<td>• Potential leadership in servitisation, moving from products to integrated solutions</td>
<td>• Risks of skill mismatch</td>
</tr>
<tr>
<td>• Diffusion and mainstreaming of an innovation culture</td>
<td>• Potential failure to build an innovative environment (with an “open” culture)</td>
</tr>
<tr>
<td>• Emerging start-up ecosystem</td>
<td>• Increased competition in global networks, with difficulties to retain its position in value chains</td>
</tr>
<tr>
<td>• Stronger cross-disciplinary learning and research (new university structure backing it)</td>
<td>• Lack of internationalisation excepting major companies and universities</td>
</tr>
</tbody>
</table>

5.2 Industrial policy approach adopted in Pirkanmaa

5.2.1 The evolution of regional industrial policy approach

The term “industrial policy” is rarely used at the regional level, as the policy discourse is rather framed in the context of innovation, economic and/or development policies (Izsak and Romanainen, 2017). As a consequence, the regional “industrial policy” in Pirkanmaa is not undertaken in the context of a specific political programme or policymaking arena. Rather, it is a loose set of different goals, policy measures, and funding instruments coordinated in the intertwining multi-level governance networks that permeate the region.

Schematically, the recent evolution of the regional approach can be analysed in three phases:

- A traditional one before the accession of Finland to the EU and the 1990s Nordic economic crisis
- A renewed approach between the early 1990s and the 2008 crisis, characterised by the key importance of the ICT sector, relatively closed business networks and strong industry-university cooperation.
- Another ongoing renewal of the regional approach since the aftermath of the crisis. Indeed, the 2008 crisis has had a pivotal role in how innovation policy is conceived and implemented in
the region, especially in line with the evolution of the ICT sector (demise of Nokia and the ICT hardware sector).

The evolution of the regional approach has programmatic as well as institutional dimensions. Before EU membership, Finland’s approach to regional and industrial policy was fairly traditional.

The Nordic economic crisis of the early 1990s, quickly followed by EU accession signalled fundamental change. In Tampere, the early 1990s crisis stimulated an industrial renewal process which focused on the rise of ICT. Higher Education Institutions were a key factor in the growth of place-based or regionally-oriented innovation, illustrated by the various national-level Centres of Expertise (I, II and III) Programmes, running concurrently between 1994 and 2013. Cluster policies dominated with rather closed business networks and a relatively conservative culture, essentially aimed at creating a mutually beneficial symbiotic relationship between the city, the HEIs and large companies (primarily Nokia). The initiatives based on “partnership-thinking”, such as the CoE (Centres of Expertise) and later the SHOKs (Strategic Centres for Science, Technology and Innovation, since 2008) have played an important role in regional specialisation. However, a negative side effect has been tensions between the mid-sized cities on what was left after Helsinki had made its choices. This was further aggravated by Tampere’s need for private investments, as the region views itself as a “traditional under-performer” in terms of securing national funding.

The policy approach developed since the 1990s was “incremental rather than radical”. However, the impact of globalisation, the demise of Nokia/Microsoft and the 2008 crisis have all contributed to the promotion of policy change and to the emergence of a new model, with renewed institutions and policy ideas. Policy has evolved in two ways after the 2008 crisis:

- Firstly through an increased reference to “entrepreneurship”
- Secondly through support for Open Innovation Platforms (OIPs), such as Demola, Mediapolis and Campus Area etc.

The focus is thus entirely different to the orientations of the pre-crisis era, as the regional level now promotes “frugal innovation”, i.e. innovation through the involvement of students, the unemployed etc. (Raunio et al., 2016), though with low funding. There is a clear shift away from cluster-based policies and sectoral specialisation, towards cross-cutting platforms supporting more open innovation processes (Vallance, 2016). Accordingly, Pirkanmaa’s smart specialisation spearheads are digital manufacturing, smart city solutions, circular economy, well-being and health services and systems. However, it remains unclear whether there is sufficient private capital available to make a success of this approach according to the regional stakeholders (Authors based on interviews, 2019).
5.2.2 The current policy mix for regional industrial development: strategic objectives, priorities, specific measures and instruments

The current regional policy mix shall be apprehended in the framework of a multi-layer governance and strategic structure. In Pirkanmaa, there are indeed regional, sub-regional and local actors that are active in industrial policy-related activities. As a consequence, the mentioned strategies are interconnected and often incorporate both an intra-organisational dimension (goals and policy instruments applicable to the main designing and implementing body) and a cooperation dimension (alignment of goals between stakeholders and consideration of the needs of the wider policy network).

Table 19. Strategic objectives, priorities and instruments of the regional industrial policy in Pirkanmaa

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirkanmaa regional development program 2018 – 2020 (Council of Pirkanmaa region, 2017b)</td>
<td>Regional council of Tampere</td>
<td>Bright Pirkanmaa: • Knowledge and education • Research, Development and Innovation • Business and industry • Technology and smart solutions</td>
<td>• Raise and encourage entrepreneurship • Utilise major challenges as development platforms • Reinforce the active linkages of the new university with the regional ecosystem • Strengthen the growth and internationalisation capabilities of start-up companies and generate and bolster capital and growth communities that support them • Deploy foreign funding for investments and development in the region and ensure links with international value networks</td>
<td>Direct allocation of funding (EU regional funds), indirect and communicative practices and public-private-partnerships</td>
<td>Bright Pirkanma objective EUR 3.9 million (ERDF, ESF, National regional development programme for innovative regions AIKO)</td>
</tr>
<tr>
<td>Economic programme of the Tampere city-region 2017-2021</td>
<td>Business Tampere (main stakeholder designing and implementing) / Eight municipalities of Tampere region (cooperation)</td>
<td>• Renewing industry • Smart City Solutions • Health and Well-being • Event and Experience Economy</td>
<td>• Support the connection between regional planning and economic policy • Integrate marketing and development efforts at the city-region level • Extend the use of innovative public procurement • Develop services for enterprises, innovation platforms and the wider ecosystem for growth and internationalisation • Support the service economy, exports and digitalisation • Develop Higher education and research, as well as occupational 2nd degree education • Acquire investments &amp; skilled workforce</td>
<td>Various instruments</td>
<td>Municipal funding (Business Tampere), project funding from various sources</td>
</tr>
<tr>
<td>Six city strategy</td>
<td>6 largest cities in Finland</td>
<td>• Open Data and Interfaces • Open Participation Customerhip • Open Innovation Platforms</td>
<td>• Develop networks, partnerships and project funding related to open data, participation and innovation, including spearhead projects and experiments • Communicate and diffuse project results</td>
<td>Cooperative &amp; project funding instruments</td>
<td>ERDF: EUR 80 million for 6 cities ESF: various amounts</td>
</tr>
</tbody>
</table>
## Name of the measure, initiative

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Authorities designing and implementing the measure</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of Instrument</th>
<th>Funding</th>
</tr>
</thead>
</table>
| Tampere city strategy 2030      | City of Tampere                                    | • Effective economic and innovation policy  
• Innovation environment and platforms | • Renew main industries of Tampere  
• Strengthen the growth of new industries e.g. through support to entrepreneurship or internationalisation  
• Strengthen regional innovation | Various instruments | Municipal funding, project funding from various sources |
| Bridge contract                | State and the Regional Council of Tampere (cooperation strategy) | • Enhance the cooperation between national and regional authorities on key topics | • Reinforce the availability of workforce  
• Consolidate the competitiveness of industries  
• Make improved use of the potential of employment and R&D platforms  
• Support a fluid and environmentally friendly traffic  
• … | Various instruments (cooperation contract) | EU, national, regional and municipal funding, universities, secondary education, companies |

**Source:** Authors based on regional and national policy documents
5.2.3 Governance arrangement, coordination mechanisms and stakeholders’ involvement

Even if the EU has provided an impetus for change in relation to Finland’s vertical Multilevel Governance arrangements (Bache, 2008), the country has a clear endogenous tradition of horizontal multilevel governance, highlighting collaboration, inclusion and strength of civil society and openness of political and administrative actors to new policy ideas and tools. The Finnish “industrial policy” is thus largely conceived at the national level, even though regional and local stakeholders are able to provide constant feedback into the policymaking process while also preparing their own initiatives. The regional level notably coordinates the initiatives of the different municipalities. This effectively creates a system where the national level sets the general policy direction but local implementation remains the key determinant of policy shape and effectiveness on the ground.

On regional development, industry and employment policy, there are thus two main stakeholders in Pirkanmaa:

- The regional council, a statutory joint municipal authority, based on municipal democracy and operating according to the principles of local self-government
- The Centre for Economic Development, Transport and the Environment (ELY Centres), responsible for the regional implementation and development tasks of the central government.

Under the prospective regional reform, these two bodies will be merged into an independent regional authority structure. In addition, there are sub-regional bodies based on voluntary municipal cooperation: the joint authority of Tampere city region and Business Tampere, the Tampere region economic development agency, both of which operate in the economic development field.

As mentioned in previous sections, Tampere-based HEIs and the local business community are also highly relevant in the success of the economic ecosystem, using formal and informal networks (clusters, open platforms...). However, third sector groups (such as NGOs or trade unions) are completely excluded from traditional networks and only able to exercise limited influence at the national level. The transition from a traditional cluster-based policy to an open platform approach has slightly improved the situation. However in the context of these more open networks, the power and linkages between traditional stakeholders has been diluted. For instance, the influx of non-native Professors into Tampere’s HEIs has adversely impacted the traditional links with industry because most of them could not speak Finnish and are thus not seen as useful partners for local industry.
5.2.4 Main strengths and weaknesses of the regional industrial policy approach

Box 13. Strengths and weaknesses of the regional industrial policy approach in Pirkanmaa

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination of different policy approaches (entrepreneurship, innovation, regional development)</td>
<td>Multiple policies with a risk of scattered governance and distribution of resources</td>
</tr>
<tr>
<td>High quality networks of actors, cooperating through formal and informal linkages</td>
<td>Lack of determination to carry out major reforms, tendency to support incremental changes with risks of path-dependency/lock-in</td>
</tr>
<tr>
<td>Establishment of concrete platforms of cooperation</td>
<td>Concerns on access to funding and investments at least in the short-term</td>
</tr>
<tr>
<td>Adaptation to new challenges such as innovation and entrepreneurship, while retaining good aspects of previous interventions (e.g., industry-academia linkages)</td>
<td></td>
</tr>
<tr>
<td>Adopted approach matching the requirements of the emerging business ecosystem</td>
<td></td>
</tr>
</tbody>
</table>

5.3 The EU contribution to the regional industrial policy in Pirkanmaa

5.3.1 What is the contribution of the EU industrial strategy policy to the regional policy paradigm?

The EU contribution to the regional industrial policy is a process of slow and indirect diffusion rather than direct transfer. The 2017 EU strategy envisages broad actions, but the EU competence in this policy area is limited as the national level is effectively allowed to define its own approach within the context of EU Competition Policy and Internal Market rules. The region considers that “the concrete OECD initiatives, the DARPA model in the USA or ideas permeating form Silicon Valley have tended to be more central in terms of influences” than the slow evolution of EU Industrial Policy. As such, the regional paradigm on industrial policy is shaped by global rather than purely European forces (Authors based on interviews, 2019).

The regional industrial policy in Pirkanmaa is endogenously crafted but is coherent with the new EU approach for industrial policy developed since the 2000s, i.e. focusing on horizontal actions covering multiple sectors of the economy and its primarily innovation-based and business-driven initiatives. Moreover, recent regional priorities are consistent with the EU support to thematic-based interventions, for instance with regional platforms linking industry to societal problem-solving through servitisation and new product development.

In governance terms, a partnership approach is prioritised both between the governance layers and between funders and recipients, consistently with the EU priorities, but without evidence of causation. For instance, the City of Tampere is active in various implementation bodies. As Pirkanmaa/Tampere is not a major destination for EU financing, and in any case the major Structural Funds instruments are negotiated at the national level, the EU influence on the regional policy paradigm using that channel is very limited.
5.3.2 What is the contribution of the EU industrial strategy policy to governance, policy capacity and coordination?

Policy capacity is high across all levels of government in Finland, though some questions remain on the degree of flexibility and agility of the governance structures (Authors based on interviews, 2019).

The governance system is indeed well developed and in the Finnish tradition is specifically designed to guarantee coordination between different levels of government. Pirkanmaa and Tampere have extensive experiences of programme coordination and implementation under national and EU frameworks, proving their level of policy capacity. In particular, regional stakeholders had to develop such capacities to make the best use of limited resources provided by the national and EU level.

The extent to which the overall regional policy capacity and quality of governance is a result of the EU industrial policy is minimal, as they are primarily endogenously developed capabilities as noted in section 5.2.3. above. However, there is evidence that the EU industrial policy contributes to the consolidation of the regional horizontal governance capacities.

5.3.3 Which instruments, initiatives and funding ascribable to the EU industrial policy are mobilised in the region?

Pirkanmaa, and the Tampere area in particular, is a relatively wealthy region. It has thus limited access to Cohesion Policy funding, compared for example with Eastern and Northern Finland. The consequence is that the EU funding and instruments directly mobilised to achieve regional strategies are limited.

Moreover, there is limited available information on the use of different sources of EU funding, as regional priorities tend to focus on network-building, collaboration and achievement of policy goals, rather than on the use of instruments (limited follow-up on that aspect, in the context of a governance involving several different stakeholders).

In Finland, many EU instruments such as CEF are used primarily on national level policy projects. As such, they do not relate to regional policies and efforts. This does not mean that they do not also have an effect on the regional industrial ecosystem, simply that the strategies and goals are set on the national level.

Finally, in terms of additionality, EU funding is not used as a replacement of national funding. It thus clearly delivers a specific added-value to the regional industrial policy mix.
Table 20. Main EU policies and instruments contributing to regional industrial development in Pirkanmaa

<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
</table>
| ERDF                            | Contribution to the Bright Pirkanmaa Strategy:  
  - Knowledge and education  
  - Research, development and innovations  
  - Business and industry  
  - Technology and smart solutions | Support cooperative projects of HEIs  
  - Boost product development and the internationalisation of companies in the city-region  
  - Emphasise R&D on core fields and low-carbon innovations  
  - Support thematic development and cross-industrial / cross-technological development  
  - Develop transportation, with emphasis on main road and railroad network | Various / funding | EUR 11.5 million (allocated by regional strategy for 2017-18 only) | Regional strategy |
| ESF                             | Increase the digital and technological competence of SMEs | Various / funding | EUR 0.6 million (allocated by regional strategy for 2017-18 only) | Regional strategy |
| Rural development fund          | Contribution to the Bright Pirkanmaa/Accessible Pirkanmaa Strategies | Develop optical fibres networks for rural areas | Various / funding | EUR 1.7 million (allocated by regional strategy for 2017-18 only) | Regional strategy |
| Horizon 2020                    | De facto contribution to regional strategies | For the 2014-2019 period, projects under the following instruments/objectives:  
  - Coordination and Support Actions (CSA): 13 projects  
  - European Research Council (ERC): 8 projects  
  - Innovative Action (IA): 30 projects  
  - Joint Technology Initiative (JTI): 18 projects  
  - Marie Skłodowska-Curie actions (MSCA): 21 projects  
  - Research and Innovation Actions (RIA) + Specific Agreements (SGA-RIA): 41 projects  
  - SME: 14 projects | Various (R&D) / funding | For the 2014-2019 period:  
  - CSA: EUR 1.1 million  
  - ERC: EUR 9.4 million  
  - IA: EUR 11.6 million  
  - JTI: EUR 3.6 million  
  - MSCA: EUR 9.1 million  
  - RIA+SGA-RIA: EUR 15.1 million  
  - SME: EUR 1.1 million  
  - Total: EUR 57.9 million | Regional initiatives provide support to the capabilities of H2020 applicants |
<p>| COSME                           | Not used in the region | Not used in the region | Funding for SMEs | Not used in the region | Not coordinated regionally |</p>
<table>
<thead>
<tr>
<th>Name of the measure, initiative</th>
<th>Strategic Objectives</th>
<th>Operational objectives / priorities</th>
<th>Type of instrument</th>
<th>Funding</th>
<th>Coordination, synergy with regional initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIC SME</td>
<td>De facto contribution to regional strategies</td>
<td>EU priorities (no specific regional ones for this instrument): - Support top class innovators, entrepreneurs and small companies with funding opportunities and acceleration services - Develop market-creating innovations that shape new markets and generate jobs, growth and higher standards of living.</td>
<td>Funding for innovation and SMEs</td>
<td>EUR 12.6 million for the 2014-2019 period</td>
<td>Not coordinated regionally</td>
</tr>
<tr>
<td>CEF</td>
<td>Contribution to national strategic objectives</td>
<td>Development of national projects in the fields of energy, telecoms or transportation</td>
<td>Funding / through national initiatives and actions</td>
<td>No direct regional beneficiaries, though some national participants may have relations to the regional industrial policy</td>
<td>Not coordinated regionally</td>
</tr>
</tbody>
</table>

**Source:** Authors based on regional and national policy documents
5.4 Conclusions and lessons learnt

5.4.1 How does the European industrial policy help the region to face future challenges?

As noted in the previous sections, the EU industrial policy clearly adds value to the regional framework, by complementing regional initiatives (e.g. through additional funding) and by promoting the consolidation of horizontal governance capacities, resulting in improved regional resilience.

However, the primary driver of this resilience remains domestic factors, related to its position within the innovation cycle (Kurikka et al., 2018). In particular, when Nokia was well positioned in the innovation cycle, resilience seemed strong. It however declined significantly when new entrants disrupted the mobile handset market. By the mid-2000s, Nokia had thus entered in a “path exhaustion” phase which was costly for Tampere because of its increasing dependence on this single actor (Davoudi, 2012).

As a consequence, the post-2008 iteration of Pirkanmaa’s regional industrial policy has consciously eschewed reliance on a few number of large sectors in order to promote a broader approach and this is reflected for instance in the current “Bright Pirkanmaa: Knowledge and Education” strategy.

EU resources (e.g. ERDF) are mobilised to implement this new approach, consistently with the most recent developments at the EU level. As a consequence, the EU plays an active role in addressing key future challenges for the region, such as sustainability and competitiveness (primary points of interest in the ERDF-related funding).

5.4.2 Scope for improving the EU contribution to regional industrial policy

The strengths of the EU industrial policy relate to some extent to the diffusion of ideas but primarily to the provision of funding and how it is used by national and regional stakeholders. The main weaknesses and scope of improvement of the EU contribution to the regional industrial policy are thus related to these aspects.

In particular, limited funding volumes, as well as administrative and accounting burdens are generally associated with EU funding at the level of individual businesses. It clearly discourages companies, especially SMEs and new start-ups (Authors based on interviews, 2019). At the same time, the “project-based” system is viewed by some stakeholders (usually larger companies) as “too small and inefficient”, providing for interventions which often quickly dissipate in terms of having a minimal long-term impact (Authors based on interviews, 2019). This suggests that there are actually cross-cutting problems relating to both capacity and governance among the potential beneficiaries of EU funding at the regional level. It is partly related to the gap between EU support and the high expectations of Finnish firms that were used to benefit from very advantageous national support in the past (e.g. national funding reducing the risk burden of R&D by up to 50% in some cases).

Finally, in terms of prospective improvements to delivery mechanisms and coordination arrangements, there is a broad alignment between the EU policy projections and the Pirkanmaa experience (Authors based on interviews, 2019). It is not surprising, given the level of Pirkanmaa-based input into the Report of the Independent High-Level Group on maximising the impact of EU Research and Innovation Programmes, e.g. on the publication “LAB-FAB-APP: Investing in the European Future we want” (European Commission, 2017). This publication provides an assessment of current programmes and makes a number of suggestions for significant change and improvement which were coherent.
with the views of interviewed regional stakeholders (Authors based on interviews, 2019). The salient points are the following:

- **Future funding should focus on “value creation”**
- **Implementation** should be **measured in terms of outcomes** rather than simply activity
- **Success should be reinforced/rewarded and failure to deliver punished**
- **Broader citizen involvement** in the innovation process should be mobilised via actions in relation to co-creation and co-design
- **A much broader set of innovative ecosystem** should be fostered involving radical cross-disciplinary cooperation in order to **create the “solutions” of the future**

Pirkanmaa/Tampere is **already following and implementing many of these ideas**, for instance through Open Innovation Platforms and a strategic focus on servitisation etc. There is **likely a regional influence on the EU approach in this field**. Future focus on collaboration could help to develop and implement these ideas more efficiently on the ground.
References

- Kostiainen, J. and Sotarauta, M. (2003). Great Leap or Long March to Knowledge Economy: Institutions, Actors and Resources in the Development of Tampere, Finland (European Planning Studies Vol. 11(4)).

List of stakeholders interviewed

- Professor of Regional Development Studies - Tampere University, Faculty of Management and Business
- CEO - DIMECC Ltd. Innovation Platform
- Director - Council of Tampere Region, Innovation and Foresight
This study provides a critical assessment of the 2017 EU industrial strategy and of the policy measures it comprises. Even though the EU industrial strategy is still a “meta-policy”, it successfully promotes a more integrated and innovative approach. However, it should more clearly identify mission-oriented strategic goals and mobilise the necessary effort and means to reach them.

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