



# Pomorskie case study: Developing regional industrial policy capacity

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**Future of Manufacturing in Europe**

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## Contents

Preface.....	1
Executive Summary .....	2
Industrial profile.....	8
Key economic, social and geographic specificities of the region .....	8
Key sectors, clusters and value chains .....	12
Uptake of advanced manufacturing .....	14
Strengths and weaknesses .....	15
Challenges and opportunities for the future of manufacturing .....	16
Industrial policy objectives .....	18
The scope and objectives of regional industrial policy .....	18
Links to other policies.....	24
Industrial policy governance .....	26
Institutional set-up and responsibilities.....	26
Institutional capacity .....	30
Agenda setting processes .....	31
Policy coordination mechanisms .....	33
Use of policy intelligence .....	34
Policy implementation.....	36
The industrial policy mix .....	36
Policy implementation process .....	40
International cooperation .....	43
Monitoring and Evaluation.....	44
Monitoring process .....	44
Evaluation of policy .....	46
Lessons from previous policy cycles .....	46
Assessment of the regional industrial policy capacity and its transferability.....	48
Policy pointers.....	50
References .....	51
Appendix A: Key economic indicators for Pommorskie region .....	52

## Preface

The objective of this case study is to map and assess the industrial policy capacity in the Pomorskie region and to analyse the processes of the overall regional policy design and implementation by identifying good practices.

This work is prepared in the framework of the Pilot Project ‘The Future of Manufacturing’, proposed by the European Parliament and delegated to Eurofound by the European Commission (DG Internal Market, Industry, Entrepreneurship and SMEs). The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency, whose role is to provide knowledge in the area of social and work-related policies. The study on ‘Developing Regional Industrial Policy Capacity’, of which this case study is part, is one of several studies being conducted as part of the Future of Manufacturing Project.

The specific research questions addressed by the study include:

- What is the existing industrial policy capacity in EU regions? Among the EU regions, what is the existing industrial policy capacity of the EU regions managing industrial restructuring processes related to manufacturing?
- For identified regions, what are the industrial policy capacity key components (involved actors, policy areas and instruments)?
- What are the good practices in regional industrial policies, with focus on a future-oriented manufacturing eco system, including (if applicable) reconversion and structural change towards new (potentially more service oriented) regional economic structures?
- What are the success factors in regional industrial policy (capacity) and factors that facilitate/hinder regional industrial policy success and capacity building?
- How to further develop the current industrial policy capacity to match the identified good practices?

In the context of this study, industrial policy is defined as ‘the set of strategic measures targeted at improving the competitiveness of the regional economy, taking into consideration the specific characteristics of the region’ (Warwick, 2013). Policy capacity is defined as the ‘capacity of government and other public actors to plan, develop, implement, and evaluate purposeful solutions to collective problems’ (Denis et al, 2014).

The study team has conducted eight in-regional case studies across selected EU Member States. Case studies are meant to illustrate how regional industrial policy is interpreted in different regional settings, how it is governed, implemented and evaluated. Case study regions have been selected on the basis of an extensive literature review and indicator analysis, expert interviews and the use of a number of selection criteria (such as geographic, economic, demographic) in order to ensure a good balance of the sample. An open definition of ‘regions’ has been adopted for this study, with most of the selected regions corresponding to NUTS II regions.

This case study is based on half-standardised qualitative interviews with 13 representatives of institutions involved in the regional policy process. Interviews have been conducted in October 2016.

## Executive Summary

### *Development driven by the Tri-City metropolitan area and relatively intensive in terms of jobs' creation*

The Pomorskie voivodeship<sup>1</sup>, is situated in the northern part of Poland, on the coast of the Baltic Sea. The region occupies 18,000 square kilometres (5.9% of the country's total territory) and is divided into 20 districts and 123 municipalities among which there are 25 urban municipalities, 17 urban-rural and 81 rural municipalities. Pomorskie's GDP per capita is somewhat lower than Poland as a whole and it is considerably lower than the EU28 average. The so-called Tri-City metropolitan area composed of Gdansk, Gdynia and Sopot is the main centre of economic growth and recorded the highest GDP per capita as well as the lowest unemployment rate (4.5%) in 2015.

In 2015 in Pomorskie, the number of economically active people showed a remarkable 18.3% increase since 2010 whereas the Polish average was 1.4% (this rate is among the highest also in the EU). Interviews revealed that there is a general feeling of success in the region in terms of job creation. According to regional governmental statistics, Pomorskie has shown the most considerable decline in unemployment since 2006. In 2015 the unemployment rate of Pomorskie hit a record-low at 6.6%, compared to the 8.5% national average of Poland. Nonetheless, Pomorskie shows substantial disparities at sub-regional levels. Another drawback is that the increasing demand for skilled employees resulted in a lack of qualified labour force and the challenge arises to match the adequate skills to the actual needs of companies.

### *A diversified economic structure relying both on traditional and emerging new industries*

The region has a diversified economic structure together with a well-developed industrial base and port activities. The region is especially known for its historically longstanding shipbuilding, petrochemical and reloading equipment manufacturing sectors. The economic potential is based both on traditional and emerging new industries. Traditional manufacturing activity includes maritime, oil refining, food processing, machinery and furniture. Great potential for growth is shown by sectors such as logistics and business process off-shoring/shared service centre, information and communication technologies, energy, light chemicals and the automotive sector. Since 1989, the Pomorskie region's economic structure has been characterised by a visible growth in the service sector, even though the production sector still constitutes the core of economic activities.

The maritime industry lives its renaissance in Pomorskie. It is narrowly specialised, it employs around 32,000 people and represents 3,600 companies. The sector has undergone substantial structural changes. There has been a gradual decrease in the number of ships built since the 1990s (Wrobel and Frankowski, 2016). The global competition from shipbuilding companies in China, South-Korea or Japan have turned the simple low-tech vessel production unprofitable in Pomorskie. The shipbuilding industry was also hit hard by the economic and financial crisis in 2008. However, it started to recover quite quickly. As a reaction to these challenges, the maritime industry shifted from a basic production scheme to a specialised production of maritime equipment (such as advanced vessels, offshore wind farms construction, ferries, other offshore products).

### *Opportunities in the strategic location*

Pomorskie also has several opportunities to develop its economy and its manufacturing industries. With more and more tonnage handled every year, the ports of Gdansk or Gdynia are becoming a gateway to East European and Asian markets. Effective multimodal corridors along the north-south and east-west axis are strengthening the territorial cohesion and improve the competitiveness of the European Union's metropolitan regions network. The cooperation within the Baltic Sea Region are seen as a good opportunity for the future economic development but also in terms of culture and

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<sup>1</sup> A voivodeship is the highest-level administrative subdivision of Poland.

infrastructure. The private sector is relatively active in research and development activities compared to the rest of Poland, which is both a strength and an opportunity for the future development of the manufacturing industry.

***Improving the value chain position of regional industry: a key policy objective***

The regional economic development policy has been focused on improving the value chain position of the region, increasing the level of investment in enterprises and supporting the development of specific industrial clusters since 2005. Interviewees pointed out that since there have been no major political changes in the regional government, a continuity in policy design has been ensured. The regional government has also recognised the importance of innovation in the economy, and sees the need to create a strong innovative culture in the region. This policy focus has been kept but at the same time more emphasis is put on technological niches and inter-sectoral activities. In this respect smart specialisation has been taken seriously in the region. The interviewees stressed, however, that Pomorskie looks at smart diversification rather than smart specialisation. Some high-technological or new industrial development paths are out of reach and instead the policy focus is put on aspects where the region has a unique expertise and almost irreplaceable resources. The most recent policy has also shifted more towards fostering internationalisation of innovative regional undertakings. Regional development and economic policy is closely coordinated with investment promotion and trade policies. During the previous programming period (2007-2013), the region turned very much towards China fostering emerging economic opportunities, but currently, the horizon of the investment policy has become broader and includes more international markets.

***High ambitions to develop the regional industrial base***

The regional strategy sets important targets for the manufacturing industry. In terms of the share of innovative manufacturing companies, the region wishes to reach the country average of 6.1% (compared to 4.8% in 2015) by the end of 2020. The strategy outlines that support is planned to be provided for those economic activities which could be characterised by either outstanding development level, high value added, high-quality jobs and export orientation (existing and well established) or favourable conditions for dynamic growth due to regional specificity (with the greatest growth potential).

The sectors which are considered to be especially attractive for external investments and of strategic importance for the development of Pomorskie region include manufacturing related activities such as maritime industries/off-shore technologies, petrochemicals/energy, electrical engineering, automotive, wood and furniture and pharmaceuticals/biotech and cosmetics as well as several services industries such as ICT, logistics, business services and creative industries, which can, however, also contribute to the competitiveness of manufacturing (in the form of advanced manufacturing technologies). This is much in line with the industries that already now are of particular importance for the regional economy.

The two key policy objectives formulated in the regional strategic programme called the ‘Pomorskie Port of Creativity’ are the following:

- Effective enterprises: fostering business development (business research and innovation activities, export, regional cooperation networks),
- Competitive higher education: investment in higher education institutions and higher vocational training.

The shortage of the appropriately skilled workforce due to growing industrial needs is a challenge which is in the remit of education and vocational policies to address. Pomorskie as many other Central-Eastern European regions face the middle income trap meaning that it cannot compete anymore based on low wages, however, it is hard to break this circle and reach an advanced level of knowledge-based economic development. In order to increase the quality of regional human resources,

the Department of Education and Sport of the Marshal Office took the initiative to launch skills improvement programmes instead of waiting for a national-level reform.

### ***Regional economic development policy mainly funded through European sources***

The objectives of the regional development strategy and the strategic programmes are funded through different sources mainly coming from the EU operational programmes (43.5%) but also from national sources (42.5% through the territorial contracts), from the regional budget and through other instruments (such as the Joint European Support for Sustainable Investment in City Areas financial instrument of the European Commission).

The main instrument to implement the regional development policy is the Regional Operational Programme for the Pomorskie region, which is a partnership agreement that has been adopted by the EU Commission and the national authority. The total budget of this operational programme amounts to €2,193,896,122 with the EU contribution amounting to €1,864,811,698 for the time period of 2014-2020. In the 2007-2013 Structural Funds programming period, the Marshal Office was the Managing Authority of this programme. Regional stakeholders were more optimistic at that time that useful developments can be accomplished, however, they felt that the regional development goals were not fully addressed through the support measures actually launched. There are also concerns that there has been too much harmonisation among the regional operational programmes of Poland. Interviewees noted that there are too many guidelines for the implementation of the operational programmes issued by the Ministry of Regional Development. Even if conformity is important to the national government, this is not seen effective at regional level..

### ***Regional government as an investor, coordinator and inspirer***

Polish regions have a medium level autonomy in setting their regional development goals including industrial policy<sup>2</sup>. The main bodies of the regional government are the Regional Assembly and the Executive Board serviced by the Marshal Office. As set in the most recent regional development strategy the regional government intends to play three basic roles:

- Investor – act as the entity directly implementing and co-financing actions identified in the strategy through its own projects or projects undertaken together with the partners;
- Coordinator and leader of development activities – act as the entity compiling and updating the strategy, responsible for its implementation, defining the obligations, coordinating the implementation process and monitoring the implementation, as well as managing external resources (including those of the EU) aimed at achieving the objectives;
- Inspirer – act as the originator and supporter for the region's key development projects arising from the strategy that are implemented at other levels of public governance, particularly at the national and European level.

At regional level, the so-called Tri-City area including the city governments of Gdansk, Gdynia and Sopot plays also an important role in shaping regional industrial policy.

Despite a certain degree of autonomy at the regional level, the central government plays an important role in the area of regional economic development policy. The national Ministry of Regional Development coordinates the preparation of Regional Operational Programmes. It also leads the preparation of the so-called 'demarcation line' related to the European Structural and Investment Fund programmes for 2014-2020, which is a document defining both the types of instruments eligible for funding and their budgets at both the national and regional levels. Based on these principles and specific conditions set out in this document, the national Minister of Regional Development concludes the so-called 'Territorial Contracts' with the regional Executive Board. This type of contracts also

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<sup>2</sup> <https://www.espon.eu/main/>

existed during the previous 2007-2013 programming period, the objective of which was to regulate the aspects concerning the implementation of the Regional Operational Programme.

### ***Unique competition-based strategy design in the framework of the S3 strategy***

The agenda-setting of the smart specialisation strategy in Pomorskie (conducted in 2012-2013) has been unique in the sense that it was the only Polish region where an open competition for the identification of target areas was published and a transparent bottom-up approach was adopted. Pomorskie successfully applied a negotiating approach based on the participation and involvement of various partner institutions, entities and communities. Overall, some 400 entities have been involved in the process. The available financial resources have been an important incentive to ensure the participation of stakeholders. The selection of smart specialisation areas was coordinated by the Marshal Office's Department of Economic Development. The proposals were evaluated by experts from outside the region, and abroad, with international business and research experience.

The entrepreneurial discovery process involved various regional partners representing businesses, schools, colleges and universities, business development and innovation agencies, chambers of commerce and non-governmental organisations, while trade unions have not been involved. Around 300 companies participated in the smart specialisation policy design process. To highlight some representatives of the maritime industry, the Polish Maritime Cluster and the Polish Chamber of Maritime Commerce were actively involved in preparing the regional strategic programmes and joint statements. This level of involvement was seen as positive. As the interviews stressed, potential beneficiaries should be involved directly in preparing the proposals as much as possible and this should not completely be outsourced to consulting companies.

### ***Limited institutional capacities but proactive policy-making***

The institutional capacity of regional actors is considered to be rather limited both in terms of human resources and operational budget. Both in the operational departments of the Marshal Office and in the implementing agencies stakeholders see a constraint in capacities compared to the planned tasks and activities. The Pomeranian Development Agency's human resources have been growing steadily in the recent years and well-trained staff is at the disposal of enterprises seeking support for investments or innovation (typically with a background in economics or in political sciences). Employees dealing with Structural Funds programmes have been participating in several training schemes supported through the technical assistance budget of the operational programmes and have been also actively participating in Interreg projects that provided scope for professional development.

Despite of its constraints Pomorskie's regional authority is considered among the innovative ones that dares to experiment with new policy approaches. This has been shown in implementing a new competitive procedure for identifying smart specialisation areas, but also in being proactive to initiate new policy instruments and programmes such as a development fund or a new vocational curricula. Another example of its pro-active position is its policy intelligence practice. The Pomeranian Development Agency put in place and Economic Observatory in order to provide an in-depth knowledge about the SME needs, barriers and growth opportunities.

The region is also actively preparing itself for post 2020 since the programming period 2014-2020 is viewed to be the last opportunity for receiving such a high level of external aid and afterwards it is most likely that the financial allocations will be substantially reduced.

### ***Shift to thematic investments***

The industrial policy mix of Pomorskie region is composed of a range of direct and indirect measures implemented at regional or national level. Since the main funding source for the policy implementation comes from the EU and national level, the key programmes include the Regional Operational Programme and the Territorial Contract. During the 2007-2013 programming period, the



policy measures in support of industrial development and innovation activities were rather horizontal instruments. During the 2014-2020 programming period, a greater focus is placed on thematic measures concentrating the investments in areas with the highest innovation and development potential. Similarly to other Polish regions, the key challenge is to ensure that future activities are linked and relate to each other in such a way that the new investments contribute to the development of advanced manufacturing activities in the region.

The latest policy approach represents a shift from the support for individual projects towards integrated strategic projects. It has been considered that competition between companies does not stimulate ‘strategic thinking’, whereas integrated projects have better chances of success as interviewees pointed out.

The main regional development tools include the following:

- Regional investment aid (for investment promotion);
- Financial instruments (such as favourable loans or credit facilities offered to SMEs through banks or financial institutions, but with public support);
- Regional development grants;
- Special economic zone (granting a special permit for enterprises investing in the region);
- Diverse supports of special institutions at central and regional level agencies (training, advice, information etc.);
- National sectoral programmes.

#### ***Challenge to overcome complex implementing administrative procedures***

Policy measures are implemented through open calls for proposals in the majority of the cases. Given that the main source of funding is the EU Structural and Investment Funds, the implementation procedure follows EU and national regulations. The evaluation of proposals happen in four phases, which takes a couple of months. Regional authorities make use of external experts when required. The selection mechanisms usually focus on the strongest offer favouring demand-driven and partnership-based initiatives. In general there has been an oversubscription for the published calls for proposals so far.

Putting the strategic plans into action has often been coupled with challenges in the Pomorskie region. Policy implementation under the current Regional Operational Programme was judged by interviewees to be relatively more difficult than in the previous programming period. Several barriers exist both at national and EU level. The requirements are seen to be getting longer, where each word is subject to interpretation in legal cases. It is hard to make sure that businesses and entrepreneurs are not lost in the complicated procedure. Overall, the European Structural and Investment Fund programmes are complicated instruments but still allow for the realisation of interesting innovative projects.

#### ***Monitoring and evaluation procedures***

The regional development strategy Pomorskie 2020 is subject to a review every two years and there is an additional full assessment once every four years. The reporting documents of the annual plans of the regional strategic programmes serve also as a monitoring mechanism.

The system of monitoring and evaluation is internal and is based on the inputs of the respective departments of the Marshal Office. This aims to consolidate the activities of various departments concerning the evaluation of actions. The Executive Board of Pomorskie receives the information about the progress and makes a decision about any changes if necessary. The advantage of such a system is that it allows to obtain continuous feedback about policy implementation and the commissioning of the same redundant evaluation studies is avoided. The evaluation studies each cost approx. €23,000 (100,000 PLN) annually.

At the time of writing this case study (October 2016), the regional government was preparing itself for the full assessment of its regional development strategy. This assessment will be carried out internally with the consultation of internal stakeholders. A series of questions will be asked to the leaders of the respective regional strategic programmes. The socio-economic analysis, in addition to a macro-economic model will be included in the assessment. There will be close cooperation with several institutions and the Regional Statistical Office.

## Industrial profile

### Key economic, social and geographic specificities of the region

The Pomorskie voivodeship<sup>3</sup> is situated in the northern part of Poland, on the coast of the Baltic Sea. The region occupies 18,000 square kilometres (5.9% of the country's total territory) and is divided into 20 districts and 123 municipalities among which there are 25 urban municipalities, 17 urban-rural and 81 rural municipalities.

Pomorskie has 2,271,559 inhabitants, which constitutes 6% of the country's population in 2015 (Eurostat, 2015). The average population density is 129 people per square kilometre (sq. km), which is slightly above the Polish average, which is 124 people per sq. km. The Pomorskie region is among the few Polish regions that have observed population growth from 2010 to 2015. Pomorskie ranked second with a 1.6% population growth rate after (Mazowieckie) (Eurostat, 2015), which is due to higher birth rates and positive net migration into the region. But there are also out-migration trends to be observed such as many people have moved to Scandinavian countries for the shipbuilding industry as interviewees highlighted. Pomorskie has a relatively young age structure compared to the national or European average. The region ranked fourth among the most urbanised regions in the country. About 68% of the region's population is concentrated in the metropolitan area, which covers about 29% of the region's territory in 2015 (OECD, 2013)<sup>4</sup>. The three largest neighbouring cities are Gdańsk (the regional capital), Sopot and Gdynia, which form a single metropolitan area and gather 40% of the region's population (Central Statistical Office, 2012)<sup>5</sup>.

In terms of economic performance, the region accounted for 5.7% of national GDP in 2016 according to the Central Statistical Office of Poland. Pomorskie's GDP per capita is somewhat lower than in Poland as a whole and it is considerably lower than the EU28 average. The regional GDP at market prices were €23,393 million in 2015. Pomorskie's gross value-added (GVA) is estimated at 5.7% of national GVA in 2013 (Eurostat, 2013). The share of industry in the generation of GVA is comparable to the national average and accounted for 33.9% in 2013 but entities engaged in services generate more than three-fifths of regional GVA. In 2015, there were 4,734 foreign firms in Pomorskie which represents roughly about 5.5% of all foreign companies located in Poland (CSO, 2016). The region has, however, huge disparities since it comprises both some of the most developed and least developed municipalities in Poland.

The so-called Tri-City metropolitan area composed of Gdansk, Gdynia and Sopot is the main centre of economic growth. This metropolitan area recorded the highest GDP per capita (respectively €14,710 in 2013) as well as the lowest unemployment rate (4.5%) in 2015.

In 2015 in Pomorskie, the number of economically active people surpassed 1,041,000, which was a 18.3% increase since 2010 whereas the Polish average only grew by 1.4% (this rate is among the highest also in the EU). In 2010-2015 the employment rate raised from 58.8% to 63.8% (while in Poland overall it rose from 58.9% to 62.9%). Compared to 2010 figures, the number of economically active women rose by 16.9% and the number of men by 19.4% in the region (Eurostat, 2015).

**Figure 1: Pomorskie region in Poland**



<sup>3</sup> A voivodeship is the highest-level administrative subdivision of Poland and it represents a NUTS2 region.

<sup>4</sup> OECD (2013), *Pomorskie Region: Responding to demographic transitions towards 2035*. URL: [https://www.oecd.org/cfe/leed/POMORSKIE%20REGION\\_V4%20FINAL.pdf](https://www.oecd.org/cfe/leed/POMORSKIE%20REGION_V4%20FINAL.pdf)

<sup>5</sup> Central Statistical Office (CSO), [www.stat.gov.pl](http://www.stat.gov.pl)

Nevertheless, in the long run the percentage of the active population is projected to decline, which will have detrimental consequences on Pomorskie's competitive advantage. According to the forecast of interviewees, it is estimated that the deficit will reach the level of some 20,000 – 100,000 by 2030.

Interviews revealed that there is a general feeling of success in the region in terms of job creation. According to regional governmental statistics, Pomorskie has shown the most considerable decline in unemployment since 2006, comparatively to the national average. In 2015 the unemployment rate of Pomorskie hit a record-low at 6.6%, compared to 16.2% in 2006 and to the 8.5% national average. However, a drawback is that the increasing demand for skilled employees creates a deficit in the qualified labour force and the challenge arises to match the adequate skills to the actual needs of companies. Nonetheless, Pomorskie shows substantial disparities at sub-regional levels as also pointed out above. To illustrate, the highest unemployment rate has been recorded in Malborski county at 17.2%, while the lowest unemployment rate in Gdansk was 3.8% in 2015.

The following table provides a summary of the key socio-economic indicators.

*Table 1: Overview of key social-economic indicators of Pomorskie*

<b>Demography</b>			
	<b>2015</b>	<b>Evolution (2011-2015)</b>	<b>EU28 (last year available)</b>
<b>Number of inhabitants</b>	2271559	0.3%	508450856
<b>Population under 30*</b>	36.2%	-1.8%	33.1%
	<b>2014</b>	<b>Evolution (2010-2014)</b>	<b>EU28 (last year available)</b>
<b>Inhabitants per km2</b>	129.1	0.013412382	116.7
<b>Economic Profile</b>			
	<b>2014</b>	<b>Evolution (2010-2014)</b>	<b>EU28 (last year available)</b>
<b>GDP (in million euro)</b>	23393	3.4%	13959739
<b>Number of enterprises in manufacturing (Number of local units)</b>	14504	0.4%	N/A
	<b>2015</b>	<b>Evolution (2011-2015)</b>	<b>EU28 (last year available)</b>
<b>Employment*</b>	63.8%	2.1%	65.6%
<b>Unemployment*</b>	6.6%	-6.1%	9.4%
<b>Share of employment in manufacturing**</b>	22.4%	4.5%	15.2%
<b>Share of employment in high and medium high-technology manufacturing **</b>	6.4%	5.8%	4.9%
<b>Share of employment in high technology manufacturing**</b>	1.4%	-4.7%	1.1%
<b>Share of employment in knowledge intensive services**</b>	32.7%	-0.6%	39.2%
	<b>2013</b>	<b>Evolution (2009-2013)</b>	<b>EU28 (last year available)</b>
<b>Share of gross value added at basic prices - Industry (except construction)</b>	25.7%	2.3%	19.4%
<b>Share of gross value added at basic prices - Manufacturing</b>	n/a	n/a	14.9%
<b>Share of gross value added at basic prices - Agriculture, forestry and fishing</b>	2.4%	5.2%	1.7%
<b>Share of gross value added at basic prices - Construction</b>	8.2%	-2.5%	5.4%
<b>Share of gross value added at basic prices - Services</b>	63.6%	-2.8%	73.5%

<b>Human capital</b>			
	<b>2015</b>	<b>Evolution (2011-2015)</b>	<b>EU28 (last year available)</b>
<b>Persons with tertiary education (ISCED)***</b>	31.8%	3.3%	32.8%
<b>Persons employed in science and technology***</b>	30.6%	1.5%	30.9%
<b>Persons with tertiary education (ISCED) and employed in science and technology***</b>	22.1%	3.0%	21.0%
<b>Participation rate in education and training***</b>	5.0%	-1.4%	10.7%
<b>Research and innovation performance</b>			
	<b>2013</b>	<b>Evolution (2009-2013)</b>	<b>EU28 (last year available)</b>
<b>SMEs introducing product or process innovations as percentage of SMEs</b>	n/a	n/a	n/a
<b>R&amp;D expenditure : Business enterprise sector****</b>	0.5%	20.7%	1.3%
<b>R&amp;D expenditure : HERD + GOVERD****</b>	0.5%	14.9%	0.7%
	<b>2012</b>	<b>Evolution (2008-2012)</b>	<b>EU28 (last year available)</b>
<b>Patent applications to the EPO by priority year per million inhabitant</b>	8.011	12.4%	70.387
<b>High-tech patent applications to the European patent office (EPO) by priority year per million inhabitant</b>	0.963	34.5%	14.259

\*Percentage of total population; \*\*percentage of total employment; \*\*\*Percentage of active population; \*\*\*\*percentage of GDP. Source: Technopolis Group, Based on Eurostat data

The share of the active population with a tertiary education background in the Pomorskie region amounted to 31.8% in 2015 (a significant growth from 27.9% in 2011), while the population with secondary education skills amounted to 89.9% (a moderate increase from 88% in 2010), and 10.1% for those with low education only (a drop from 12% in 2010). Similar changes and rates were observed in the rest of the country (Eurostat, 2015). The region has a significant university base. The Tri-City is a unique conglomeration of academia, with 26 higher education institutions offering a wide range of education at the highest level including:

- Gdynia Maritime University (the largest maritime university in Europe),
- Gdansk University of Technology,
- the Polish Naval Academy,
- University of Gdansk,
- Medical University of Gdansk,
- Academy of Music,
- Academy of Fine Arts,
- Gdansk University of Physical Education and Sport.

Additionally there are many research institutes in the region such as the Maritime Institute in Gdansk, Institute of Oceanology, Institute of Hydro-Engineering or the Institute of Fluid-flow Machinery.

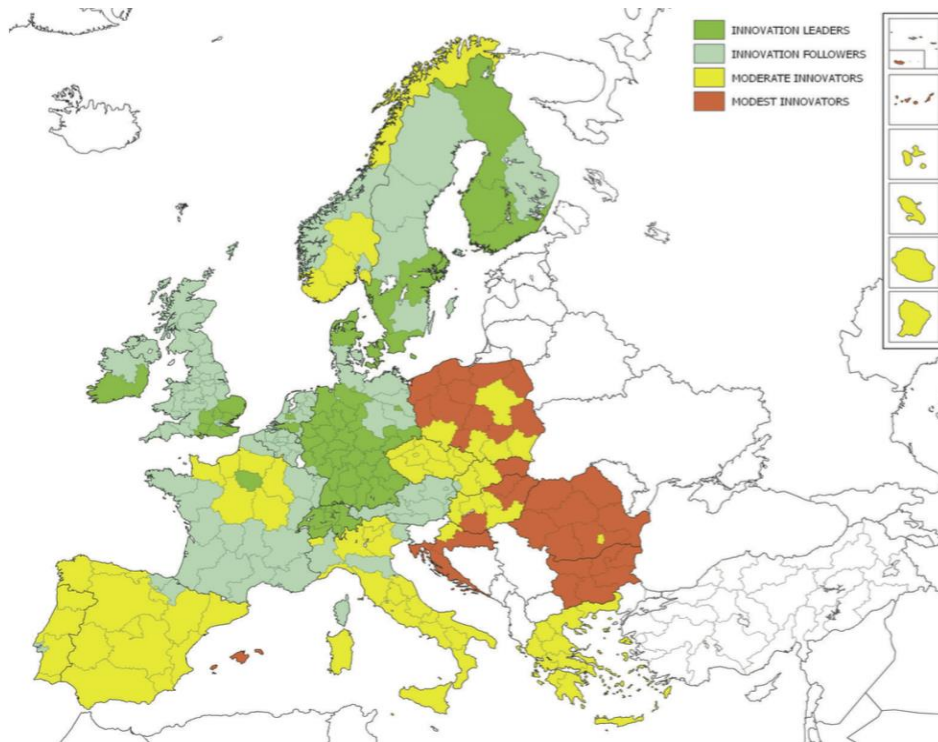
According to the Regional Innovation Scoreboard 2014<sup>6</sup>, the Pomorskie region is ranked as a modest innovator with an innovation performance below the EU average. The innovation performance has improved in recent years, but there are still important challenges. For example, a downward trend can

<sup>6</sup> <http://bookshop.europa.eu/en/regional-innovation-scoreboard-2014-pbNBBC14001/>

be observed on non-R&D innovation expenditures (normalised data) from 0.7 in 2007 to 0.3 in 2012. The decline in non-R&D innovation expenditures in the manufacturing sector accounted for 9.4% during the same period, whereas R&D investments increased by almost 15 times, according to the national statistical data.

Main weaknesses relate to low business R&D expenditures (0.06% of GDP in 2011), SMEs' innovation in-house and innovative SMEs collaborating with others. Relative strengths are the share of the population with tertiary education and employment in knowledge intensive activities; on both indicators the performance of Pomorskie is close to the EU average. According to the latest available statistical data, the net income from sales of high and medium-high products in the Pomorskie region accounted for 16.5% in 2014. Comparatively, the net income from sales of high and medium-high products at country level is estimated at 32.7% (Central Statistical Office, 2016).

Figure 2: Regional innovation performance groups (RIS 2014)



Source: Regional Innovation Scoreboard, 2014

The Pomorskie region is an export-driven economy (the level of regional export was around €1 billion in 2012 and is among the top 5 exporting regions in Poland<sup>7</sup>). According to the interviews this type of economy is considered both as a strength and a challenge, since the overreliance on exports could become an increasing issue in the case of a global market crisis.

Pomorskie is highly attractive for investors mainly due to the skilled workforce and the relatively high living standards as interviews highlighted. Investors come especially from Nordic countries, such as Norway, Sweden, Finland and Denmark. The investments of American companies are also quite relevant, but German investors are less important than in Poland in general (EURES, 2016). There is

<sup>7</sup> see also

[http://s3platform.jrc.ec.europa.eu/documents/20182/133703/Pomorskie\\_3S\\_280113\\_final\\_with\\_comments.pdf](http://s3platform.jrc.ec.europa.eu/documents/20182/133703/Pomorskie_3S_280113_final_with_comments.pdf)

also a perception among interviewees that Wrocław and Kraków have been more successful in attracting investors.

### Key sectors, clusters and value chains

The regional employment in the manufacturing sector represents close to 6% of the total manufacturing employment in Poland in 2016. In 2014, the region had 14,504 businesses in the manufacturing sector that were responsible for 22.4% of the regional employment and 23.9% of the regional gross value added, which is higher than the national average (15.2% and 19.8% respectively). The share of employment in manufacturing-oriented clusters was 35.8% in 2013 (European Cluster Observatory, 2013).

Innovation expenditures in the manufacturing sector accounted approximately for €301 million in 2014. During 2011 and 2012, the region has recorded downward trends in overall innovation expenditures. In addition, the share of R&D investments in total innovation expenditures in the manufacturing sector was 19.9% in 2014, which is slightly above the national average of 18.5%. Back in 2005, this share represented only 8% in the Pomorskie region. In 2014, the share of innovation sales in the manufacturing sector was 31.8% of all innovation sales. This places the region first among the Polish regions. Figure 3 summarises the key manufacturing related indicators of the region.

Figure 3: Overview of key manufacturing related indicators of Pomorskie (change refers to 2011-last available year)

	2011	2012	2013	2014	2015	Evolution (2011-2015)	EU28 (last year available)
Share of employment in manufacturing*	18.8%	18.2%	20.7%	22.2%	22.4%	4.5%	15.2%
Share of employment in high and medium high-technology manufacturing*	5.1%	5.4%	6.4%	7.0%	6.4%	5.8%	4.9%
Share of employment in high technology manufacturing*	1.7%	1.5%	1.9%	1.9%	1.4%	-4.7%	1.1%
Share of employment in knowledge intensive services*	33.5%	34.2%	33.1%	32.2%	32.7%	-0.6%	39.2%

\*percentage of total employment. Source: Technopolis Group based on Eurostat and European Cluster Observatory data

The region has a diversified economic structure together with a well-developed industrial base and port activities. The region is especially known for its historically longstanding shipbuilding, petrochemical and reloading equipment manufacturing sectors. The economic potential is based both on traditional and emerging new industries:

- Traditional manufacturing activity includes maritime, oil refining, food processing, machinery and furniture.
- Great potential for growth is shown by sectors such as logistics and business process off-shoring/shared service centre, information and communication technologies, energy, light chemicals and the automotive sector (EURES, 2016).

Since 1989, the Pomorskie region's economic structure has been characterised by a visible growth in the service sector, even though the production sector still constitutes the core of economic activities. There are, however, strong differences in economic potential among the counties and municipalities within the region.

Pomorskie's seaports are an important element of the regional economic potential with a direct and indirect effect on its competitiveness. Pomorskie has two large state-of-the-art commercial sea harbours located in Gdansk and Gdynia. The Tri-City's ports enjoy ongoing and planned investment in

port infrastructure development and the construction and development of cargo handling terminals. Pomorskie is a major international transportation hub with the port of Gdansk being the one of the largest ports in Europe.

The impact of the ports is multifaceted. They are an element of the transport system and a magnet for new infrastructure. They increase the dynamics of the economy through generating demand for a wide range of port-related manufacturing and service activities. While ports demand extensive investment around them, their positive impacts are wide ranging including the structure and number of businesses, jobs, productivity of regional economy and direct budget revenue from tax.

The maritime industry lives its renaissance in Pomorskie. It is narrowly specialised, it employs around 32,000 people and represents 3,600 companies. The sector has undergone substantial structural changes. There has been a gradual decrease in the number of ships built since the 1990s (Wrobel and Frankowski, 2016). The global competition from shipbuilding companies in China, South-Korea or Japan have turned the simple low-tech vessel production unprofitable in Pomorskie. The shipbuilding industry was also hit hard by the economic and financial crisis in 2008. However, it started to recover quite quickly. As a reaction to these challenges, the maritime industry shifted from a basic production scheme to a specialised production of maritime equipment (such as advanced vessels, offshore wind farms construction, ferries, other offshore products). The average value of production accounts for €25/t compared to the former €10/t. Since 2009, there has been an increase in complexity of ships launched, which might reflect a growing innovation potential (Wrobel and Frankowski, 2016). The interviews highlighted that the sector is developing generally without particular public support.

Maritime transport plays an important role as Gdynia and Gdansk account for 70% of trans-shipment in Poland. Moreover, large pivotal companies are situated in the offshore area such as the firms called Stocznia, Remontowa<sup>8</sup>, Nauta<sup>9</sup>, Stocznia Crist Shipyard<sup>10</sup>, Lotos<sup>11</sup>. Indeed, several companies and networks of sub-contractors are present, as shown by a positive trend in water-borne vehicle exports. The yacht and repair services sector is also relevant. However, the maritime sector is particularly sensitive to the changes in global oil prices.

It is worth noting the development of the logistics support facilities, as new economic activity with important value added and great potential, namely the Pomeranian Logistics Centre in the Northern Port, the DCT2 Deepwater Container Terminal in Gdansk and the Logistics Centre in the western part of the Port of Gdynia.

The region has also a great development potential in the energy sector, particularly for offshore wind and offshore oil and gas as well as the production of cast and steel elements. An example of this type of production is the construction of wind towers, metal parts, specialised vessels for placing offshore wind farms in the shipyard or platform supply vessels.

The most relevant companies of the maritime industry include for instance Remontowa Shipbuilding company, Crist, GSG Towers<sup>12</sup>. The Remontowa Holding is now the biggest maritime company not just in the region but also in Poland. The holding employs around 8,000 people in the region, it is the biggest employer and performs ambitious projects.

A recent trend is the development of cosmetic and pharmaceutical sector in the region. Among the companies with the established market position are Ziaja, Oceanic and Polpharma S.A (a leader on the Polish pharmaceutical market). Particularly, smaller enterprises begin to be active in the domain of biotechnology that is an important driver of innovation for these industries.

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<sup>8</sup> [www.remontowa.com.pl](http://www.remontowa.com.pl)

<sup>9</sup> [www.nauta.com](http://www.nauta.com)

<sup>10</sup> [www.stocznia.org.pl](http://www.stocznia.org.pl)

<sup>11</sup> [www.lotos.pl](http://www.lotos.pl)

<sup>12</sup> <http://www.gdanskshipyard.pl/>



Interviews highlighted the role of the services sector in the development of the manufacturing industry and in the overall regional economy. This is for instance the case of the shipbuilding and the machinery industry where some of the companies offer new maintenance services or advisory support etc. In this respect, the Pomorskie region is in a unique position together with the region of Western Pomerania. There have been fundamental changes in terms of the infrastructure in the port of Gdansk. As such, major investment examples are the Deepwater Container Terminal of Gdansk, the newly planned second terminal, and large projects related to the modernisation of ports of the region.

**Information and communication technologies drive development** in the services sector and have an impact on manufacturing as well. The Pomeranian ICT cluster unites more than 100 business and scientific partners in joint activities with the support of regional authorities. High-tech companies present in the region include IBM, Intel Technology Poland and Compuware (supplier of IT software). StateStreet and Airhelp are concrete recent examples among the IT companies in the region. Intel's R&D centre in Gdansk is the largest one in Europe and second in terms of size globally. Gdansk began to attract a steady stream of global companies after the 2008 financial crisis, tapping the city's large stream of IT-savvy graduates available at low cost. The city has since become a business process outsourcing destination and companies such as Deutsche Bank, State Street or Toshiba are planning investments in Gdansk. Gdansk, on Poland's northern Baltic coast, now derives almost a third of its economic activity from service centres for global business.

Cluster initiatives located in Pomorskie include the following:

- Gdansk Construction Cluster,
- Baltic Eco-Energy Cluster (led by the Szewalski Institute of Fluid-Flow Machinery of the Polish Academy of Sciences),
- INTERIZON - Pomeranian ICT Cluster (led by University of Technology, Faculty of Electronics and Telecommunication),
- Polish Maritime Cluster,
- Baltic Cluster of Health Tourism,
- Pomeranian River Cluster,
- Pomeranian Sailing Cluster,
- Pomeranian Educational Cluster,
- North South Logistic & Transport Cluster.

### **Uptake of advanced manufacturing**

In general, companies in Pomorskie have started applying advanced manufacturing technologies. However, the level of uptake depends very much on the sector and the size of the company. Key industries with high innovation potential in this respect include the maritime industries and the newly emerging cosmetic and pharmaceutical sector. The advanced manufacturing technologies that are the most relevant for these industries are ICT technologies, smart and new materials, microenergetics, nanotechnology and light chemistry. Nevertheless a large part of the economy is still lagging behind in adopting the latest manufacturing techniques. **While large companies and very few innovative start-ups are at the forefront of technological development, the majority of SMEs are in a less favourable position due to financial and human resource capacity issues.**

Regional companies such as the previously mentioned Remontowa Holding deliver specialised PSV<sup>13</sup> vessels, heavy lift jack-up vessels and offshore constructions to ship owners from Norway, the UK, Denmark and the United States. The production is based on innovative technologies. For instance, Remontowa is leading the way for using drones in its ship repair yard. Camera-equipped drones are

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<sup>13</sup> Platform Supply Vessel (often abbreviated as PSV) is a ship specially designed to supply offshore oil and gas platforms with [please insert].

used to visually check the condition of remote structural components through a video streamed to a tablet that is also recorded for review and documentation<sup>14</sup>. Many other maritime companies distinguish themselves through niche products and the innovative organisation of the supply chain. Crist, a leading Polish offshore company, has specialised into coastal structures, sea transport and units for exploration of marine resources. Gdansk and Gdynia have become leading Baltic centres of niche products such as advanced ferries, arctic container vessels, luxurious yachts and ship design. New off-shore, port and logistics technologies which are relevant in Pomorskie comprise technical solutions for the exploitation of marine resources, techniques and systems for monitoring and cleaning the marine environment, innovative ways and technologies for using natural compounds produced by marine organisms, and technologies and processes with the aim of improving the safety and efficiency of transport and logistics services in ports.

The application of information and communications technologies are also relevant in enabling ships to send critical information to producers and transporters, allowing efficient and accurate monitoring of products throughout the supply chain. The developing ICT cluster in the region is supplying the maritime industry with such new solutions.

The regional research institutions and universities play a key role in developing advanced manufacturing technologies. The innovative drive of the region is apparent through its regional universities. The Gdansk University of Technology, the University of Gdansk, the Gdynia Maritime University, the Polish Naval Academy all provide well educated staff to the high-tech sectors and provide skills for advanced manufacturing. Moreover, cooperation schemes related to joint research programmes exist between industry and universities of the region. Top innovative companies of the region, include the winners of the ‘most innovative products and services’ contests, such as InteliWISE Inc., IVO Software Sp. Z o.o., DGT Inc., Radmor, Datera Inc., Hydromega Inc., Invicta, Remontowa Inc., LPP, and Radpol. Especially, the Gdańsk University of Technology is crucial in nurturing the next generation of local workforce skilled with advanced technologies. This university is the first and only Polish university to be a member of the ‘Conceive Design Implement Operate Initiative (CDIO)’ of the Massachusetts Institute of Technology in collaboration with Chalmers University of Technology in Sweden. CDIO aims to provide an education for engineers that enables them to create the most modern industrial technological systems. The university is facing a transformation into an institution that is highly active in international projects and innovative incentives.

## Strengths and weaknesses

The Pomorskie region is a dynamically developing region and is quickly catching up with its more developed European counterparts. The seaside location offers a number of economic opportunities especially in the area of marine resources.

Interviewees listed the following factors among the regional advantages:

- **Strategic location** as the region is on the Baltic-Adriatic Corridor, one of the most important trans-European road and railway axes that connects the Baltic with the Adriatic Sea, through industrialised areas of Southern Poland, Vienna and Bratislava, the Eastern Alpine region and Northern Italy. The road infrastructure in the region is supported through the Trans European Transport Network (TEN-T) policy<sup>15</sup>;
- **Gdańsk-Gdynia-Sopot metropolitan area** as the Baltic’s innovative and creative metropolis;
- World-class level of the **shipbuilding** industry;
- High potential for **entrepreneurial and innovation activity** in several industrial niches;

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<sup>14</sup> <http://www.infor.com/content/executive-briefs/deams.pdf/>

<sup>15</sup> [https://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines\\_en](https://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines_en)

- **Environment and cultural heritage** (including Gdańsk, a city of freedom and solidarity), which makes it attractive as a place to live for the required workforce (and thereby in turn influences how attractive it is as a business location);
- **Human resource base** with a large academic centre represents a stronghold with around 105,000 students yearly, including nearly 7,000 students from IT and electronics fields.

It was also pointed out that the key strengths of the region lie in its social capital. Many of the regional actors have been flexible and creative in adapting to the changing global market trends and macroeconomic framework conditions. The shift to specialised niches is considered to be a successful path that the regional firms are taking. Interviews reported that the change in the aspects of the quality of life also had an influence of the mentality of younger generations and resulted in a stronger entrepreneurial mindset, which is seen as an advantage for renewing the economic base.

On the other hand, among the weaknesses it was pointed out that **the level of technology transfer is not yet considered to be adequate**. Although large companies of the region introduced a model of cooperation, cultural differences, diverging standards of work methodology, and long delays in replies to requests about the details of technologies are important factors that have a negative influence on technology transfer. There is, however, a positive trend and science-industry cooperation is becoming stronger. For instance there is a recent collaboration between the R&D Centre of Intel and the University of Technology of Gdansk (Department of Telecommunications and Electronics) set up with the aim to implement joint technology development projects. This is often due to the fact that some companies seek optimisation of human resources and labour costs, which does not only build their comparative advantage through innovation but contributes to the positive overall direction of science-industry cooperation in the region.

Despite of the strong tertiary education and well-trained human capital, interviewees also highlighted that **the maritime industry is facing a lack of qualified manpower** as the most talented employees often leave to Norway or the UK seeking for higher salaries. The industry is also less attractive for the young graduating from the regional universities given that they have better opportunities and higher salary prospects in the capital city or in other countries.

### **Challenges and opportunities for the future of manufacturing**

The interviews conducted pointed out several key challenges that the manufacturing industry is facing:

- An important challenge lies in increasing the level of internationalisation of regional companies especially SMEs (although some of the major companies are already international and rely very much on exports, SMEs and some other sectors are still lagging behind in this respect);
- Changes in the national regulatory framework such as related to R&D and innovation or to entrepreneurship have both positive and negative influences on regional industry that have to be overcome;
- Financing of innovative solutions that regional companies will not be able to commercialise on foreign markets;
- Growing competition from large international companies and other regions in Poland developing specialisations in the same field;
- Limited internal demand for new innovative solutions, in particular those which have not yet been tested anywhere in the world and require pilot studies in actual conditions (lack of stimulation to introduce innovative solutions);
- The above mentioned skills gap, that certain regional companies face a lack of suitable, high-quality manpower.

Pomorskie also has several opportunities to develop its economy and its manufacturing industries:

- With more and more tonnage handled every year, the ports of Gdansk or Gdynia are becoming a gateway to East European and Asian markets. Effective multimodal corridors along the north-

south and east-west axis are strengthening the territorial cohesion and improve the competitiveness of the European Union's metropolitan regions network.

- The cooperation within the Baltic Sea region is seen as a good opportunity for future economic development but also in terms of culture and infrastructure.
- The high-qualified workforce represents a source of development and innovation.
- New industrial niches are emerging that can pull economic development.
- Businesses in Pomorskie have a good entrepreneurial spirit.

## Industrial policy objectives

### The scope and objectives of regional industrial policy

The general objective of Pomorskie's regional development policy is to create the conditions to increase the competitiveness of the region and to better promote regional cohesion. In this context, industrial policy is understood in the broader framework of regional development with a focus on SMEs, entrepreneurship and innovation, promotion of investment and support to selected industrial clusters. Since most of the funding for implementing regional economic policy comes from the national government or the EU, the policy directions are very much influenced by these levels. The region is subject to substantial EU financial aid that aims to increase economic and social cohesion.

The regional economic development policy has been focused on **improving the value chain position of the region** across all regional industries where possible, increasing the level of investment in enterprises and supporting the development of specific industrial clusters since 2005. Interviewees pointed out that since there have been no major political changes in the regional government, a continuity in policy design has been ensured. The regional government has also recognised the importance of innovation in the economy, and sees the need to create a strong innovative culture in the region. This policy focus has been kept but at the same time more emphasis is put on **technological niches and inter-sectoral activities**. In this respect smart specialisation has been taken seriously in the region. The interviewees stressed, however, that Pomorskie rather looks at smart diversification, which means that it does not aim to support specific industries or clusters as such but it endeavors fostering the diversification of the regional economy in new emerging activities that can ensure future competitiveness. Some development factors are out of reach and instead the policy focus is put on aspects where the region has a unique expertise and almost irreplaceable resources.

Taking into account the identified regional challenges and opportunities (see section 1.5), the most recent policy has also shifted more towards **fostering internationalisation** of innovative regional undertakings. Regional development and economic policy is closely coordinated with investment promotion and trade policies. During the previous programming period (2007-2013), the region turned very much towards China fostering emerging economic opportunities, but currently, the horizon of the investment policy has become broader and includes more international markets.

In terms of policy objectives, the interviews conducted in the framework of this study pointed out the following orientations in policy priorities relevant for industrial development:

- In the current economic policy **financial engineering instruments** have become a priority. Pomorskie is developing a long-term plan that takes into account the possible reduction of financial allocations in the post 2020 programming period. The region plans to set up a Pomeranian Development Fund in an attempt to develop a new pathway for regional development.
- One of the objectives of the current regional development policy is to build the brand of 'Pomorskie as a **scientific and innovation centre**', since there is a relatively high number of higher education institutions in the region and there is an opportunity in consolidating the existing potential. This objective is relevant for industrial development from the perspective of establishing long-term cooperation between the worlds of science and industry, which is strongly promoted.
- Another objective important for industrial modernisation is the **R&D infrastructure** development, where the regional government sees a role for the private sector to co-finance and being more actively involved, nevertheless state aid rules are not always appropriate for such type of solutions as the interviews stated.
- Pomorskie is actively involved in actions designed to improve **transport accessibility** and to further **develop the key ports** that are considered as a strategic priority for industrial development.

The regional government puts more emphasis on improving the effectiveness of public investments in the most recent policy programming period (2014-2020).

Table 2: Key policy documents

Policy document	Brief overview	Specific links to industrial policy
Regional Development Strategy for the Pomorskie Region until 2020 (RDSPR 2020)	The Regional Development Strategy is the most important document setting out mid-term policy directions.	The identified industrial sectors with the highest innovation potential include three manufacturing related activities such as off-shore technologies, petrochemicals/energy and pharmaceuticals/biotech and cosmetics and services industries such as ICT, logistics, business services and creative industries, which contribute to the competitiveness of manufacturing.
Regional Strategic Programme: Pomorskie Port of Creativity, 2014	It is one of the six programmes supporting the implementation of the overarching Regional Development Strategy 2020. Particularly, it plays an important role in identifying and implementing smart specialisation areas. It also sets out new directions for the development of cluster policy.	The ‘Pomeranian Port of Creativity’ has the following three priority areas: <ul style="list-style-type: none"> <li>• Fostering business development (R&amp;D&amp;I activities, export, cooperation networks),</li> <li>• Investment in higher education institutions and higher vocational training, and</li> <li>• Science-industry cooperation.</li> </ul>
Pomorskie Smart Specialisation Strategy, 2014 (as part of the Pomorskie Port of Creativity)	The aim is to indicate priority directions for the economic development of the region, which may become drivers of economic growth through the development of innovative products and services that are competitive on an international scale.	Smart specialisation areas directly related to the manufacturing industry: <ul style="list-style-type: none"> <li>• Off-shore, port and logistics technologies (blue economy)</li> <li>• Eco-effective technologies (green economy)</li> <li>• Further smart specialisation areas also relevant for manufacturing: <ul style="list-style-type: none"> <li>• ICT technologies</li> <li>• Medical technologies</li> </ul> </li> </ul>
Regional Operational Programme for Pomorskie (2014-2020)	The objective of the ERDF/ESF Operational Programme (OP) is to increase the competitiveness of the region, ensuring in parallel the improvement of living conditions of its inhabitants through the principles of sustainable development.	50.01% of ERDF funds are allocated to the support for innovation, R&D, SMEs, e-services, as well as improving energy efficiency and use of renewable energy sources.
Port of Gdansk Development Strategy 2027 (2015) (although this is not an official regional policy document but the port strategy, still relevant for industrial development)	The Port of Gdansk Authority completed its ‘Development Strategy of the Port of Gdansk until 2027’. Ports are not only hubs connecting the maritime and land transportation, but are a key link in the global supply chain that generate added value.	The port is seen as a catalyst for regional and national economic development, around which powerful industrial and wholesale-distribution centres are created. Relevant for the development of the industrial functions is the further expansion of the Pomeranian Logistics Centre located in the immediate vicinity of the DCT Gdansk.

Source: authors

### Regional development strategy

After a nearly one and a half year process, on 24 September 2012 the Pomorskie Regional Assembly adopted its ‘**Strategy for the Development of the Pomorskie Region until 2020**’ that sets out the mid-term policy directions and updates the previous 2005 strategy. The document is special in the sense that it is a living roadmap which is periodically revised, linked to certain policy milestones (the

periodicity varies). The strategy draws on the lessons learned from the previous 2007-2013 implementation period. Interviewees pointed out that the strategy puts an emphasis on making strong commitments and on accountability, this is why efficient implementation and organisation and financing are one of the principles. The strategy has both a horizontal, cross-cutting approach and a thematic focus.

First, the strategy identifies some of the key challenges that policy needs to address which are most specifically:

- 1) the increasing pace of technological change;
- 2) uncertainty of global markets and shifting economic center to Asia;
- 3) increasing concentration of population and economic potential in metropolitan areas;
- 4) skill gaps and increasing spatial mobility of the workforce and
- 5) depletion of available natural resources.

The regional analysis is based on a SWOT analysis and identifies different scenarios for the potential development path taking into account external conditions such as the availability of funding sources and transport accessibility.

The regional strategy sets important targets for the manufacturing industry. In terms of the share of innovative manufacturing companies, the region wishes to reach the country average of 6.1% (compared 4.8% in 2015) by the end of 2020. The strategy outlines that support is planned to be provided for those economic activities which could be characterised by:

- outstanding development level, high value added, high-quality jobs and export orientation (existing and well established);
- favourable conditions for dynamic growth due to regional specificity (with the greatest growth potential).

The sectors which are considered to be especially attractive for external investments and of strategic importance for the development of Pomorskie region include manufacturing related activities (see Figure 4) such as **maritime industries/off-shore technologies, petrochemicals/energy, electrical engineering, automotive, wood and furniture and pharmaceuticals/biotech and cosmetics** and several services industries such as **ICT, logistics, business services and creative industries**, which also contribute to the competitiveness of manufacturing (in the form of advanced manufacturing technologies). The strategy also highlights the role of three key clusters in the areas of ICT, eco-energy and construction. It also mentions as an important objective to create a mechanism to identify and verify the sectors that have been selected as having the greatest growth potential and to determine the future competitive position of the region.

Figure 4: Supported industrial activities under the regional development strategy



Existing & well established	With the greatest growth potential
<b>petrochemical</b>	ICT, logistics, pharmaceutical & cosmetic industry, <i>off-shore</i> industry (due to several comparative advantages specific for the region)
<b>electrical engineering</b>	energy (due to big investment gap and favourable environmental conditions)
<b>food industries</b>	biotechnology, BPO/SSC, creative industries (due to relatively high supply of qualified and skilled labour force)
<b>wood and furniture</b>	automotive (due to attractive location factors)
<b>tourism</b>	
<b>marine industries</b>	

*This list is neither hierarchical nor unchangeable...*

Source Matczak & Oberbek ( 2013)

In the framework of the regional development strategy, six so-called regional strategic programmes have been drafted that concern the development of the regional economy. The most important for enterprises and innovation is the ‘**Pomorskie Port of Creativity**’ strategic programme that outlines the directions for economic development and for the creation of a comprehensive entrepreneurial system<sup>16</sup>.

The policy objectives formulated in the ‘Pomorskie Port of Creativity’ are the following:

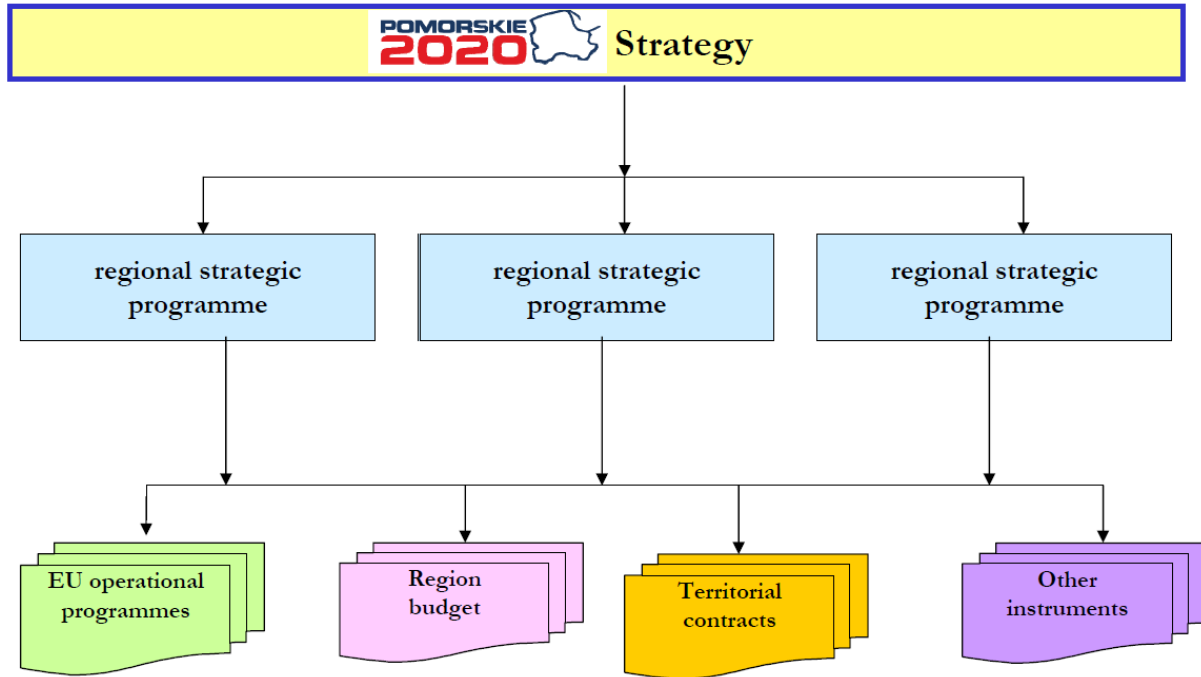
- Fostering business development (business research and innovation activities, export, cooperation networks);
- Investment in higher education institutions and higher vocational training

The objectives of the regional development strategy and the strategic programmes are funded through different sources mainly coming from the EU operational programmes (43.5%) but also from national sources (42.5% through the territorial contracts), from the regional budget and through other instruments (such as the Jessica financial instrument). Figure 5 depicts the link between the strategy, the programmes and the funding sources.

<sup>16</sup> The other five programmes are: Touristic Pomerania; Active Pomeranians; Health for Pomeranians; Mobile Pomerania; Eco-efficient Pomerania



Figure 5: Connection between the regional strategy and funding sources



Source: Matczak and Oberbek (2013)

Cluster development forms a significant part of the regional development policy. Clusters are seen as an important basis for improving competitiveness of the region in Pomorskie. The starting point for its **cluster policy** was the previous regional development strategy adopted in 2005 which highlighted the need to establish ‘organisational, administrative, legal and financial conditions for creating groups of co-operating companies, including sector groups and clusters’ (Pomorskie Regional Development Strategy, 2005).<sup>17</sup>

At first sight, it seems that the regional development strategy is comprehensive, however, the interviews conducted in the framework of this assignment pointed to a prioritisation made by the regional authority that did not take into account all industrial potentials (such as for instance furniture or the clothing industry). Nevertheless an advantage of the strong regional leadership is that there is a strong commitment from the regional government to make the strategy happen.

### Smart specialisation strategy

The European Structural and Investment Funds constitute a main source of funding for Pomorskie’s regional economic development policy, hence the **smart specialisation strategy (S3)** that has been prepared as part of the Pomorskie Port of Creativity is considered of a strategic importance. Pomorskie prepared its smart specialisation strategy for the period of 2014-2020 in 2013. The aim was to indicate priority directions for the economic development of the region, which may become drivers of economic growth through the development of innovative products and services that are competitive on an international scale.

The process of identifying smart specialisation areas was based on the provisions of the Regional Development Strategy for the Pomorskie Region until 2020 and the Regional Strategic Programme ‘Pomeranian Port of Creativity’. These documents include a general assessment of potentials, barriers and economic development opportunities in the region, and identify the above mentioned traditional industries as well as industries with the highest potential for growth. These industries are the reference point for smart specialisation and are defined as fields building upon unique regional resources.

<sup>17</sup> [www.klastry.pomorskie.eu](http://www.klastry.pomorskie.eu)

Business research and innovative projects are planned to be implemented within the identified areas of specialisation.

The objectives of the S3 are supported by horizontal implementation principles, which include the following ‘smart-related’ principles:

- the principle of focus on innovation;
- the principle of smart specialisation meaning that the implementation of the strategy should focus on the economic potential of the region; and
- the principle of digital dimension including a response to challenges of building the information society and supporting advanced manufacturing.

The four smart specialisation areas include<sup>18</sup>:

1. **Off-shore, port and logistics technologies** (blue economy) which will foster, in particular, the economically effective and environmentally safe exploration and exploitation of maritime resources.
2. **Interactive technologies** in information-saturated environments which will improve, in particular, the effectiveness and security of various human activities in the economic and social sphere (such as wireless security devices, wearable computing or augmented reality)<sup>19</sup>.
3. **Eco-effective technologies** (green economy) in the generation, transmission, distribution and consumption of energy and fuels which will contribute, in particular, to decreased energy consumption of the economy and lower its negative impact on the environment.
4. **Medical technologies** in the field of civilisation and ageing-associated diseases (for example diabetes, dementia) which will contribute, in particular, to the reduction of social and economic costs.

Among the above, the ‘Off-shore, port and logistics technologies’ smart specialisation target is the one most explicitly linked to the development of manufacturing. It foresees the following:

- development of new technologies (including ‘know-how’) for acquisition of unique natural compounds produced by marine organisms and their use for the production of drugs, cosmetics and food;
- design and construction of specialty vehicles and transport equipments to perform the tasks associated with the operation of marine resources and coastal areas;
- implementation of a demonstration project of offshore wind turbines of 7-8 MW with the transmission system;
- applied research on wave power absorbers;
- construction and commissioning of a universal, modular, multi-tasking platform for research and measuring enabling to conduct in real conditions a wide range of research.

It is planned that each of the four RIS3 areas will have at least one international project so as to connect them to international networks that can foster international business or research cooperation. The challenge lies in bringing innovative project/business ideas on international fora.

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<sup>18</sup> see also:

[http://s3platform.jrc.ec.europa.eu/documents/20182/168290/160427\\_4\\_KL\\_Synergies\\_in\\_Practice\\_Pomorskie.pdf/22c5fc7d-24e4-457f-8c66-7905c3260363](http://s3platform.jrc.ec.europa.eu/documents/20182/168290/160427_4_KL_Synergies_in_Practice_Pomorskie.pdf/22c5fc7d-24e4-457f-8c66-7905c3260363)

<sup>19</sup> Example for an interactive technology is the product of Microsoft called Kinect that is a motion sensing input device. Based around a webcam-style add-on peripheral, it enables users to control and interact with their console/computer without the need for a game controller, through a natural user interface using gestures and spoken commands.

Table 3: Policy framework of the Pomorskie region addressing industrial development

Needs and challenges	Objectives	Policy sources	Expected results*	Expected impacts*
<ul style="list-style-type: none"> <li>Increasing pace of technological change</li> <li>Uncertainty of global markets and shifting economic center to Asia</li> <li>Increasing concentration of population and economic potential in metropolitan areas</li> <li>Skill gaps and increasing spatial mobility of employees</li> <li>Depletion of available natural resources</li> </ul>	<ul style="list-style-type: none"> <li>Improving the value chain position of the region;</li> <li>Quality education at all levels;</li> <li>Improving science-industry cooperation;</li> <li>Smart diversifying in industrial niches</li> <li>Fostering investment</li> <li>Finding alternatives for EU funding and supporting the economy through financial engineering instruments</li> <li>Fostering innovation</li> <li>Supporting the internationalisation of businesses</li> <li>Building the brand of 'Pomorskie as a scientific and innovation centre'</li> <li>Improving transport accessibility and further developing the key ports</li> <li>Business R&amp;D infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Regional development strategy</li> <li>Pomorskie Port of Creativity</li> <li>Territorial contract</li> </ul>	<ul style="list-style-type: none"> <li>Increased number of innovative enterprises, and greater investment in innovation;</li> <li>Higher incomes and a stronger competitive position of Pomeranian companies</li> <li>New permanent jobs in the private sector, including in knowledge-intensive sectors and creative industries;</li> <li>Increased cooperation between science and industry</li> <li>Functioning of financial mechanisms supporting commercialisation</li> <li>Strong market-clusters</li> <li>New and numerous external economic investments,</li> <li>Widespread use of information and communication technologies in the economy</li> </ul>	<ul style="list-style-type: none"> <li>Strengthening regional economic development, innovation, and competitiveness</li> </ul>

\* Derived from the available policy documents and interviews conducted for this case study. Source: Technopolis (2016)

## Links to other policies

### Port of Gdansk strategy

Industrial development is seen to be very much linked to the transport accessibility by regional stakeholders. A policy document that has been pointed out as especially relevant for the regional industrial development policy is the strategy of the Port of Gdansk. The Port of Gdansk Authority completed a separate strategy called 'Development Strategy of the Port of Gdansk until 2027'. Ports are considered not only transport hubs connecting the maritime and land transportation, but are key for industrial development. The Port infrastructure is crucial especially for the ship-building and fishing industry. Moreover, the type of logistical and business services of the Port can contribute substantially to the efficient operation of local manufacturing companies. This is why the Pomeranian Logistics Centre has a strategic importance.

### *Vocational training*

As mentioned previously, the shortage of the appropriate skilled workforce by the growing industrial needs is a challenge, which is in the remit of education and vocational policies to address. Pomorskie as many other Central-Eastern European regions faces the middle income trap meaning that it cannot compete anymore based on low wages, however, it is hard to break out of this circle and reach an advanced level of knowledge-based economic development.

In Poland, education policies are the mandate of the national level, with the regional level having no control over the curricula of universities or vocational training programmes. Nevertheless, regional stakeholders can try to influence or address certain elements. As an example, in order to increase the quality of regional human resources, the Department of Education and Sport of the Marshal Office took the initiative to launch skills improvement programmes instead of waiting for a national-level reform.

The regional government supported the development of curricula in vocational education that addresses the needs of regional companies (both manufacturing and other) with regard to better skills on digital technologies, advanced manufacturing and languages. The curricula was launched at sub-regional level and is considered to be a pro-active step to adjust to the regional needs.

### *National policies*

As pointed out earlier, national policies have a key influence on regional industrial development in Poland, which was considered by interviewees as both positive and negative. Legal regulation taken at the national level influence the opportunities for starting a new business or pursuing a professional career, which is considered to be not advantageous for industrial development. The newly planned major reform on the support concerning innovation activities is, however, expected to have a positive influence.

The regional government of Pomorskie is continuously lobbying for its interest, for instance examples of attempts of finding new pathways for economic development include the new metropolitan railway, the Pomeranian Development Fund (an own financial instrument) or vocational training. In general, these attempts aim to redefine the activities of national policies.

### **Future plans**

There are no radical plans for the future as pointed out by the interviews conducted in this case study. The aim of policy makers is to promote economic development and smart specialisation which is seen as an important approach that can stimulate innovative undertakings and bring them to the international fora.

## Industrial policy governance

### Institutional set-up and responsibilities

#### *Strategy-making and policy monitoring*

Polish regions have a medium level autonomy in setting their regional development goals including industrial policy according to the typology of ESPON<sup>20</sup>. The main bodies of the regional government are the Regional Assembly, the Executive Board. The administrative service of the regional government is the Marshal Office.

The **Regional Assembly** (called Sejmik in Polish) is the political decision-making and inspection body of the region. It has 33 councillors who are elected for four-year mandates during nationwide elections. Since the end of the 1990s, the power of the Regional Assembly has grown, including matters regarding economic development policy, spatial management plans and voting the regional budget. The Regional Assembly is directly responsible for approving strategic development documents such as the regional development strategy (the ‘Strategy for the Development of the Pomorskie Region until 2020’) drafted by the departments of the Marshal Office. In terms of regional industrial development it is the main decision-maker that sets the policy directions and also monitors policy implementation. Overall, the main competences of the regional level comprise economic development (industrial policy), education, culture, international cooperation, regional roads and transport management, water management and water transportation, land amelioration, spatial development, preservation of environment, and management of European funds. Nonetheless, the Regional Assembly has minor tax raising powers and depends on the central government for financing its operations as a part of the regional budget is fixed in agreement with the central government.

The councillors of the Regional Assembly elect **the Marshal**, who with four other members forms the **Executive Board**, which as its name suggests is the executive body of the region. Its main tasks include the preparation of regional budget projects, drafting of the regional development strategies and the regional programmes.

The regional governance system is centralised to a large extent within the **Marshal Office** that provides technical, legal, organisational, and bureaucratic support. The Marshal Office has several departments relevant for industrial policy such as the Department of Regional and Spatial Development (hereafter regional department), the Department of Economic Development (hereafter economic department) and the Department of Regional Programmes (acting as the Managing Authority for the implementation of the European Structural and Investment Funds). These departments employ technical staff that support regional and economic development. While the regional department is responsible for drafting the regional development strategy, the economic department is tasked with conducting the economic analysis of the region and contributing to the strategy. The regional department led the drafting and implementation of the ‘Pomorskie Port of Creativity’ programme and it is also the one that coordinates the negotiation with the national level. It is the economic department that works together with the business sector and entrepreneurs and it is in charge of the preparation of the regional innovation strategy that is also very relevant for industrial development. Both departments participate in the evaluation and selection of funded projects under the Regional Operational Programme of the European Structural and Investment Funds.

As set in the most recent regional development strategy the regional government intends to play three basic roles:

- **Investor** – acts as the entity directly implementing and co-financing actions identified in the strategy through its own projects or projects undertaken together with partners;
- **Coordinator** and leader of development activities – acts as the entity compiling and updating the strategy, responsible for its implementation, defining the obligations and monitoring the

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<sup>20</sup> <https://www.espon.eu/main/>

implementation, as well as managing external resources (including those of the EU) aimed at achieving the objectives;

- **Inspirer** – acts as the originator and supporter for the region's key development projects arising from the strategy that are implemented at other levels of public governance, particularly at the national and European level.

At regional level, the so-called **Tri-City area** including the city governments of Gdansk, Gdynia and Sopot plays also an important role in shaping regional industrial policy. The three cities are all part of one larger functional urban area. The Tri-City area is recognised as a metropolitan area by the Polish government. The Tri-City is represented by the city governments and there is no specific joint plan developed.

In the decision-making process, external knowledge centres play an important role in providing a basis for evidence-based policy-making. Such an institution is the **Gdansk Institute for Market Economics** that operates in the form of a non-profit, privately owned foundation and is involved in both scientific research and educational activities. This think-tank was founded in 1989 by two professors to support the transformation process in Poland. Its mission is to support in building the market economy in Poland and to analyse economic processes, formulate recommendations regarding economic policy and provide training to the personnel of the regional government and the financial sector. Training is related to policy capacity building as well.

Despite a certain degree of autonomy at the regional level, **the central government plays an important role in the area of regional economic development policy**. The national Ministry of Regional Development coordinates the preparation of Regional Operational Programmes. It also leads the preparation of the so-called 'demarcation line' related to the European Structural and Investment Fund programmes for 2014-2020, which is a document defining both the types of instruments eligible for funding and their budgets at both the national and regional levels. Based on the principles and specific conditions the Minister of Regional Development concludes the so-called 'Territorial Contracts' with the regional Executive Board. This type of contracts also existed during the previous 2007-2013 programming period, the objective of which was to regulate the aspects concerning the implementation of the Regional Operational Programme.

The Territorial Contracts foresee the major investment projects in the region, which are agreed between the national government and the region during the process of negotiations and de facto will replace the former Voivodeship Contracts. Concerning the taxes, the income from taxes of self-government territorial entities, which exceeds the defined thresholds, goes directly to the State budget. Subsequently, the funding is redistributed to the regional and local self-government entities.

### *Policy implementation*

The regional government itself sees its key implementing partners in the businesses, chambers of commerce, R&D actors, universities, business support organisations, cluster initiatives, local governments and agencies for FDI support.

**The Pomeranian Development Agency is the key institution that supports businesses in the region** and it is the main operational partner of the Regional Assembly putting into action the regional economic development policy. It was one of the pioneer agencies established by the regional authorities for regional development in Poland, which launched its activities in 1992, welcomed by the business sector. Its mission is to promote socio-economic development, provide assistance to businesses and the local authorities, as well as initiate and support economic ventures of regional significance. The activities of the Agency include mainly

- implementation of the EU ESIF interventions in support of SMEs (for instance the management and implementation of the priority 'Development and Innovation in SMEs' within the Pomorskie Regional Operational Programme);
- investment promotion and investor assistance; providing information and economic analysis to the regional government (for instance conducting surveys among local SMEs); and

- organisation of meetings and trainings for local government, regional institutions, entrepreneurs related to regional development and European integration.

The agency is managing the capital fund that invests in innovative business ideas and runs the Investors' Care Service programme that supports direct foreign investments. The agency also cooperates closely with the national Polish Agency for Enterprise Development (PARP), that is the main implementation body of national and international projects financed from ESIF. It is financed by the regional government. The agency is now also physically close to businesses as in 2016 it has moved its office to the Olivia Business Centre, the largest of its kind in Gdansk.

The Pomeranian Development Agency coordinates the operation of the main investment promotion agency of Pomorskie called **Invest in Pomerania**. Established in 2011, the promotion agency is a regional initiative providing free-of-charge services to foreign investors interested in investing in Pomorskie. Invest in Pomerania offers broad support during the investment process and comprehensive after-care services. Invest in Pomerania's partners are: the Marshal's Office of Pomorskie Voivodeship, the cities of Gdansk, Gdynia, Slupsk, Sopot, Kosciierzyna, Pruszcz Gdanski, Tczew, Wejherowo County, Slupsk, Pomeranian and Slupsk Special Economic Zones and InvestGDA.

The **Pomeranian Science and Technology Park** was established in 2001 in Gdynia as an initiative of the Pomeranian Technology Centre and Gdynia local government. The mission of the park is to support the regional economy by creating a dedicated area with favourable conditions for partnership cooperation between science and industry, as well as stimulating establishment and development of innovation oriented enterprises. The main task undertaken by the park is to create and deliver preferential conditions for companies which want to conduct business based on high-tech in such fields as: biotechnology, environment protection, IT and industrial design, ensuring also their positive environmental impact. Apart from standard benefits for new companies, such as low costs of company maintenance, scientific and business supervision and other advantages, the Pomeranian Science and Technology Park stimulates the development of innovative entrepreneurship through the Regional Patent Information Centre. The park also hosts the BIOLab Centre, which provides a range of services, including microbiological, molecular and chemical analyses to companies and research.

In 2004 the park established its **Innovation and Entrepreneurship Incubator** that provides support to Pomeranian universities' graduates interested in launching their own economic activity. Besides that, the park also runs a cooperation network designed for entrepreneurs and institutions whose premises cannot be located in Pomeranian Science and Technology Park. In addition, the park has created the initiative known as NET, which consists of numerous partners who express their will to cooperate in order to strengthen and consolidate the actions aimed at building a Polish economy based on knowledge, information, experience exchange and technology transfer. It is also important to note that the park hosts both the Design Centre and Department of Social Innovation.

The **Pomeranian Special Economic Zone Ltd** operates the activities of granting a special permit for enterprises (both international and national) investing in the region. The economic zone currently covers 19 sub-zones of a total area of 1,239.95 ha: 459.64 ha in Pomorskie Voivodeship, 610.31 ha in Kujawsko-Pomorskie Voivodeship and 170 ha in Zachodniopomorskie Voivodeship, where business activities may be conducted on preferential terms – therefore it offers exceptional opportunities for investments in Northern Poland. The Ltd works closely with the regional and national authorities and other regional institutions implementing economic policy and also participates in the policy design process.

Business incubators such as the **Gdańsk Business Incubator** offer coworking spaces and offices for young as well as experienced companies and place for meetings and conferences. They also organise coaching and training programmes, creative workshops and provide advisory services.

There are also national level institutions that are implementing industrial development programmes in the region. For instance the **State Development Bank of Poland** manages the Urban Development Fund in Pomorskie with a budget of around €60 million, an ERDF co-funded financial instrument implemented under the Pomorskie regional operational programme 2007-2013 and for the new 2014-2020 period as well. The projects include the development of the business environment.

### *Industry representations and organisations of special interest*

The **Pomeranian Chamber of Commerce** (RPCC) was established in 2008. It is uniting, on voluntary basis, entrepreneurs, whose business activity takes place in the Pomeranian region. RPCC is actively supporting the development of local entrepreneurs in becoming competitive on the global market. This is made possible because of the cooperation with local authorities, members of parliament and organisations that aim at building a competitive and innovative economic environment in the region, and in the whole country. The chamber offers complex and professional services in the fields of information, promotion, consultancy and economic cooperation (national and international). It represents and protects members' business, concerning their production, trade and service activities and initiates economic cooperation and exchange of experiences with entrepreneur organisations in Poland and abroad.

A specialised chamber is the **Polish Chamber of Maritime Commerce** that was created by the enterprises involved in maritime economy. The principal purpose of its activities is to create conditions for using the sea as a natural factor of economic development of the region. It assists the local economic initiatives and undertakings aimed at the development of entrepreneurship in the maritime economy and integrates the community of entrepreneurs involved in various fields of the maritime economy and assurance of representation of this group of enterprises in relations with institutions of state and local administration organising business and social contacts for its members.

Cluster organisations are further important players that represent the interest of their members in economic policy design and implementation. The **Polish Maritime Cluster** is the key regional maritime cluster, an active player in the Baltic Sea Region and the EU and it is also a member of the European Network of Maritime Clusters. It was established in 2009 and currently has around 90 industrial members from the shipbuilding, shiprepair, fishing and other related industries. The cluster focuses on fostering knowledge transfer and cooperation between science and industry. Another innovation platform that is relevant for manufacturing is the **Centre of Excellence ChemBioFarm** that is operated by the Faculty of Chemistry of the Gdańsk University of Technology.

The **Port of Gdansk Authority** is a joint stock company established in 1998 as a commercial partnership. It operates based on the provisions of the Act on Seaports and Harbours and the Code of Commercial Companies. The owners of the Port are the State Treasury and the Municipality of Gdansk. The Port has of primary importance to the national economy. This confirms the strong position of the Port and the continuation of stable and coherent government policy towards the major ports in Poland. The Port is responsible for managing its infrastructure. The Port has an important role in industrial development being the key infrastructural basis for manufacturing companies in the region.



*Table 4: List of key industrial policy actors and stakeholders*

Policy actor / stakeholder	Policy level	Role in the industrial policy cycle
Regional Assembly	regional	<ul style="list-style-type: none"> <li>• Design</li> <li>• Monitoring and evaluation</li> </ul>
Marshal office	regional	<ul style="list-style-type: none"> <li>• Design</li> <li>• Monitoring and evaluation</li> </ul>
Executive Board	regional	<ul style="list-style-type: none"> <li>• Design</li> </ul>
City governments of Gdansk, Gdynia and Sopot	sub-regional	<ul style="list-style-type: none"> <li>• Design</li> <li>• Implementation</li> <li>• Monitoring and evaluation</li> </ul>
Pomeranian Development Agency	regional	<ul style="list-style-type: none"> <li>• Implementation</li> <li>• Contributing to the design</li> <li>• Monitoring</li> </ul>
Pomeranian Special Economic Zone Ltd	trans-regional	<ul style="list-style-type: none"> <li>• Implementation</li> </ul>
Pomeranian Chamber of Commerce/ Polish Chamber of Maritime Commerce	regional	<ul style="list-style-type: none"> <li>• Implementation</li> </ul>
Pomeranian Maritime Cluster	regional	<ul style="list-style-type: none"> <li>• Implementation</li> </ul>
Port of Gdansk authority	regional	<ul style="list-style-type: none"> <li>• Design</li> <li>• Implementation</li> </ul>
Ministry of Regional Development	national	<ul style="list-style-type: none"> <li>• Design</li> <li>• Monitoring and evaluation</li> </ul>
State Development Bank of Poland	national	<ul style="list-style-type: none"> <li>• Implementation</li> </ul>

*N.B. Trade unions do not seem to be involved in the regional industrial policy process. Source: Technopolis Group*

### **Institutional capacity**

The institutional capacity of regional actors is considered to be rather limited both in terms of human resources and operational budget. Both in the operational departments of the Marshal Office and in the implementing agencies stakeholders see a constraint in capacities compared to the planned tasks and activities.

The Pomeranian Development Agency's human resources have been growing steadily in recent years and well-trained staff is at the disposal of enterprises seeking support for investments or innovation typically with a background in economics or political sciences, which is general for all institutions involved in regional industrial policy-making. The staff is considered to be well-prepared to implement their tasks but as pointed out the available human resources and the amount of tasks to implement are not in line.

Employees dealing with Structural Funds programmes have been participating in several training schemes supported through the technical assistance budget of the operational programmes (such as related to project management, strategy design, innovation policy) funded by the Structural Funds and organised by training institutions selected in an open call for tenders, and have been also actively participating in Interreg projects that provided scope for professional development.

Figure 6: Overview of regional institutional capacity in support of industrial and economic development

	Marshal Office – regional department	Marshal Office – economic department	Marshal Office – department of regional programmes	Pomeranian Development Agency	Invest in Pomerania	InnoBaltica
Nr of Staff	Approx. 36	Approx. 35	Approx. 110	Approx. 110	12	10
Background of staff	Faculty of arts, Economists	Faculty of arts, Economists	Faculty of arts, Economists	Faculty of arts, Economists	Economists, Faculty of arts (English, Political science) FDI specialists	Economists
Operational budget for economic development (per year)	na	na.	na	na	€2,855,211	na
Project funding administered for economic development (per year)	Total development-oriented public spending for 2014-2020 is € 11-13 billion				€45 million	

Na = no information available. Source: Technopolis Group

The regional government of Pomorskie is considered as a pro-active and innovative institution in Poland compared to other regions. The region has been the initiator of several policy innovations for instance in the area of vocational education, influencing the national Innovation Act or developing regional financial instruments. The pro-active approach is apparent both at regional and sub-regional level.

### Agenda setting processes

The objectives of the regional economic development policy including industrial policy is decided most importantly by the Regional Assembly, but as pointed out above the decisions of the national government have a large influence on industrial development. In this respect, **decision-making is strongly top-down oriented.**

Nevertheless, the regional strategic documents are developed in close cooperation with a wide range of regional stakeholders. **Multistakeholder involvement received an increased attention in the development of the most recent strategies (particularly the S3)** and given the relative novelty of this policy design process, the advantages are considered higher than the disadvantages that the somewhat longer decision-making can cause.

### Regional development strategy

The responsibilities for the preparation of the regional development strategy are defined in the strategy management plan. It is the Department for Regional and Spatial Development of the Marshal Office that coordinated the process, but the department had a functional matrix with a thematic leader and a cooperation partner from another department for each key strategic area. The programming took a couple of years.

Multi-level governance and partnerships are one of the principles of the strategy. During the design process a range of stakeholders were consulted such as scientists, local governments, as well as representatives of public institutions, non-governmental organisations, large and small businesses and

entrepreneurs. The starting point for the discussions were not only an in-depth analysis of the socio-economic or statistical data, but a dialogue based on the knowledge of key regional scientific and industry experts.

The engagement of regional stakeholders included **formal consultations** on the strategic programmes as well as various **expert meetings** in order to analyse regional potential. The so-called Steering Group from the Marshal Office was in charge of organising the meetings. The adopted strategy takes into account the inputs from both a 12-week (2 April – 22 June 2012) public consultation process, as well as the recommendations of a peer review: ex-ante evaluation and strategic environmental assessment. With regard to the public consultations they included a total of 30 conferences and consultation meetings, attended by over 1,400 participants. During the period of the consultation process, 179 individuals and institutions expressed their opinions, giving a total of 1,160 observations. All comments are described in detail in the report of the public consultation of the Regional Development Strategy. Interviewees highlighted that more emphasis has been placed recently on cooperation with industrial sectors such as the maritime economy, ICT, business advisory services, pharmaceuticals and energy.

With regard to the six regional strategic programmes, different departments led the design process. Most important for industrial development the Pomorskie Port of Creativity programme was led by the director of the Department of Economic Development of the Marshal Office. The programme was also developed in close cooperation with other stakeholders. Other departments were involved as well.

Interviewees reported that no actors were seen as too influential in the decision-making process or hampering the design process, however, there are interest groups who lobbied successfully for their interest such as the well-organised maritime industry. It is also felt that **while organisations coming from the Tri-City metropolis are well-represented in policy design, actors in the regional periphery are more neglected.**

### *Designing the smart specialisation strategy*

The agenda-setting of the smart specialisation strategy in Pomorskie has been unique in the sense that it was the only Polish region where **an open competition for the identification of target areas** was published and a transparent bottom-up approach was adopted. Pomorskie successfully applied a negotiating approach based on the participation and involvement of various partner institutions, entities and communities. Overall, some 400 entities have been involved in the process. The available financial resources have been an important incentive to ensure the participation of stakeholders.

The selection of smart specialisation areas was coordinated by the Marshal Office's Department of Economic Development. The competition was announced in 2014. The proposals were evaluated by experts from outside the region, and abroad, with international business and research experience.

The entrepreneurial discovery process involved various regional partners representing businesses, schools, colleges and universities, business environment institutions and non-governmental organisations.

Around 300 companies participated in the smart specialisation process. Representatives of the maritime industry, the Polish Maritime Cluster and the Polish Chamber of Maritime Commerce were actively involved in preparing regional strategic programmes and joint statements. This level of involvement was seen as positive. As the interviews stressed, **potential beneficiaries should be involved directly in preparing the proposals as much as possible** and they should not completely be outsourced to consulting companies.

More concretely the smart specialisation process was comprised of the following steps:

- **Analysis of the economic profile of the region:** This analysis, which also served the function of a SWOT analysis, identified strengths and barriers for economic development and areas of economic activity characterised by high growth potential, including areas located at the intersection of various sectors, industries and technologies. It analysed the development potential of 12 industries of significant importance. It also assessed the potential of possible directions of

technological and functional convergence. Analytical works were conducted with the participation of a number of regional stakeholders (representatives of enterprises, science sector and NGOs).

- **Call for proposals of smart specialisation areas:** The call for proposals announced in May 2014 by the Marshal Office was conducted in two stages. The proposals of smart specialisation areas were submitted using the bottom-up approach by representative partnerships of stakeholders, mainly from the business and science sector. The invitation was sent to all stakeholders, including those in the sectors with the greatest development potential identified in the Pomeranian Regional Development Strategy 2020, particularly to the developed ones and sectors operating in the three key clusters of the region (Kamrowska-Załużska and Sołtys, 2015). The submitted proposals of smart specialisation areas were assessed by a selection board of experts coming outside of the region with international business and scientific expertise. During the 1st stage of the call for proposals 28 partnerships submitted proposals and in the 2nd stage a final number of seven proposals of smart specialisation areas were submitted. The proposals were invited to present the concept of their activities.
- **Selection of smart specialisation areas:** The final selection of smart specialisation areas was made by the Executive Board of Pomorskie by way of a resolution, based on the assessment presented by the selection board and own analysis. Finally four smart specialisation areas were selected. The final smart specialisation strategy was signed by around 300 representatives of entities participating in the process. Each strand also concluded a partnership agreement. For instance the Port of Gdansk Authority as one of the leaders of the Maritime Specialisation strand ‘Smart Port & City Partnership’ signed an agreement with the Marshal of Pomorskie in 2016. This strand comprises of 61 partners: 24 enterprises and organisations, 10 higher education institutions and research institutes, 7 business-support non-profit organisations (clusters, chambers, agencies), as well as 8 advisory bodies and 12 other entities.

## Policy coordination mechanisms

Policy coordination happens at various levels: within Pomorskie, between the region and the national government, and respectively between Pomorskie and other Polish regions.

### *Coordination within the Pomorskie region with local stakeholders*

Pomorskie has adopted a **top-down intra-regional approach** in implementing its regional development policy, although there are horizontal policy coordination platforms in place. A positive development according to the interviewees has been that the regional government now promotes going beyond the ‘silos’ and building more synergies among public bodies dealing with regional development, economic, innovation, transport or even social policies. This is both felt in their approach to involve other regional stakeholders, business representations and trade unions and it is also apparent in their collaborative approach across the Marshal’s Office’s departments. Coordination is relevant within the Marshal Office itself since both the Department of Regional and Spatial Development and of Economic Development are involved in the strategy design influencing industrial development, moreover the Department of Education and Sport is also concerned with regard to skills development in the region. The coordination is ensured by cross-departmental working groups. The Marshal Office established interdepartmental working groups that ensure that there is sufficient flow of information among the relevant offices.

Policy coordination with the key regional stakeholders participating in the implementation of the regional development strategy is ensured via the **annual action plans, reporting documents and periodical meetings** linked to these. Each activity is linked to a certain budgetary line of the region. This facilitates the planning of financial resources. The Marshal Office also coordinates the policy development and implementation process with the counties at sub-regional level through coordination committees that are organised several times a year.

A coordination platform also exists among the three main cities of the region. In 2003 the Office of the Marshal of the Pomorskie Voivodeship initiated a ‘**Metropolitan Board**’ with the aim of stimulating

the integration of the cities within the Tri-City region. Representatives of the Pomorskie Regional Assembly and the cities are present at these meetings that are organised quarterly per year. The Metropolitan Board is not a legal institution but it is based on voluntary participation. There is also another forum for the metropolitan level which is a dedicated expert council that consists of several experts who come together every two or three weeks. This council was established in 2011 and it is expected to push forward cooperation at the metropolitan level (see also EMI, 2012).

### *Coordination with the national level: the Territorial Contract*

Regional industrial policy is coordinated with the national governmental administrations through **periodical meetings, reporting of documents, and annual action plans**.

The Territorial Contract is a multilevel coordination mechanism between the regional and national government represented by the Ministry of Regional Development. The final aim of the Territorial Contract is to mutually oblige both parties to coordinate their policies and policy instruments and agree on strategic development priorities and major projects that are important both from the point of view of the country and the region. Pomorskie also regularly prepares position papers, which are the basis for entering into negotiation with the government. To what extent conflicts emerge between the two parties and how consensus is reached was not addressed by interviewees.

The Pomorskie region has taken the initiative to actively influence national and EU level policies for its own interest and expresses clearly its expectations towards the national government. The regional development strategy includes statements about policy matters that are outside of the competence of the regional government but have an implication for the region. In Poland this has been seen as a **novel, bottom-up approach that aims at aligning the regional, national and EU level policies**. The raised issues are discussed and acted upon following a dialogue with the national government through the Territorial Contract.

### *Coordination with neighbouring Polish regions*

Coordination mechanisms with other regions are based on the initiative of the so called ‘**Convent of Marshals**’, which meets regularly during the year and prepares joint position papers of common interest. The territorial approach adopted in Pomorskie is primarily based on the fact that solving urban problems in functional areas requires not only financial resources but, above all, systematic cooperation, both among neighbouring municipalities as well as public authorities, entrepreneurs, NGOs, and education and scientific research institutions. The rules for creating such synergy are designed to inspire collaboration where there was none before and to strengthen it where it already exists. This coordination mechanism plays also a role in ensuring coordination between the central government and the subnational level.

Pomorskie, together with Western Pomerania Region, initiated the process leading to the establishment of a ‘blue’ national smart specialisation (that is, related to the maritime industry)<sup>21</sup>.

### **Use of policy intelligence**

Policy intelligence is produced by commissioning studies on certain economic development matters. Interviewees highlighted the importance of generating ideas both within the regional government and development agency and cooperating with other partner organisation (such as via the Interreg cross-border and other interregional programme).

The Marshal Office regularly **commissions studies** about the status of the regional economy. One recent study was prepared related to the smart specialisation strategy called ‘Expertise on identification of smart specialisation in the Pomorskie region’s technological convergence’ by consultants of the Warsaw-based ResPublic Warsaw company. The aim of the study was to clarify

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<sup>21</sup> see also at <http://www.submariner-network.eu/index.php/projects/smartblueregions/the-regions/pomorskie>

what are Pomorskie's endogenous resources and comparative advantages, and identify areas of economic activity with the highest growth potential in this area at the interface between different sectors, industries and technologies. Another study was related to the analysis of Pomerania's ability to attract investment and the international advantages and disadvantages of the region.

## Policy implementation

### The industrial policy mix

**The industry policy mix of Pomorskie region is composed of a range of direct and indirect measures implemented at regional or national level.** Since the main funding source for the policy implementation comes from the EU and national level, the key programmes include the Regional Operational Programme financed by the ESF/ERDF and the Territorial Contract, although the region aims at establishing own revenue sources as well. The programming period 2014-2020 is viewed to be the last opportunity for receiving such an external aid from the EU and afterwards it is most likely that the financial allocations will be substantially reduced.

During the 2007-2013 programming period, the policy measures in support of industrial development and innovation activities were rather horizontal instruments. During the 2014-2020 programming period, a greater focus is placed on **thematic measures concentrating the investments in areas with the highest innovation and development potential.** Similarly to other Polish regions, the key challenge is to ensure that the future activities are linked and relate to each other in such a way that the new investments contribute to the development of advanced manufacturing activities in the region.

The policy measures in general follow the strategic objectives outlined but there are also areas where there is a difference between the strategy and the implemented policy measure itself.

The main instrument to implement the regional development policy is the **Regional Operational Programme** for the Pomorskie region, which is a partnership agreement that has been adopted by the EU Commission and the national authority. The total budget of this operational programme amounts to €2,193,896,122 with the EU contribution amounting to €1,864,811,698 for the programming period 2014-2020. The Marshal Office plays the role of Managing Authority. Regional stakeholders were more optimistic at that time that useful developments can be accomplished, however, they felt that the regional development goals were not fully addressed through the support measures actually launched. There were and there is also in the current programming period **too much harmonisation among the regional operational programmes of Poland.** Interviewees noted that there are too many guidelines issued by the Ministry of Regional Development..

The latest policy approach represents a **shift from the support for individual projects towards integrated strategic projects.** It has been considered that competition does not stimulate 'strategic thinking', whereas integrated projects have better chances of success as interviewees pointed out.

The main type of tools include the following:

- Regional investment aid;
- Financial instruments;
- Regional development grants;
- Special economic zone;
- Diverse supports of special institutions at central and regional level agencies (training, advice, information etc.);
- National sectoral programmes.

As mentioned above, the key industrial support measures are financed by the Regional Operational Programme. Industry is especially supported through the priority axis 1 'Commercialising knowledge' and the priority axis 2 'Enterprises'.

The first priority axis responds to the innovation challenge of the region and sets the objective to increase the number of growth companies which implement innovative solutions. The first type of grants will be offered to 250 selected enterprises (out of which at least 100 cooperating with research centres). Young companies and start-ups developing advanced technologies are also a specific target group. The total amount of the funds to be allocated is €83 million.

The grant supports research activities, patenting costs (for instance the protection of industrial property abroad), research infrastructure, laboratory, equipments and also the costs related to the introduction of the developed new product to the market. Preference is given to those projects that:

- rely on a partnership for instance on a cooperation with R&D centres or clusters,
- have proven environmental benefits,
- are linked to the smart specialisation objectives of the region,
- refer to the Polish Roadmap of Research Infrastructures.

Another policy measure under this priority axis aims at increasing the level of research results commercialisation and the demand for services of R&D institutions in business. These funds promote the implementation of the smart specialisation agreements. The grants cover the costs of the development of R&D facilities. The main beneficiaries are R&D institutions but projects are eligible only if industrial partners also participate in the project and contribute to its budget. The total budget of this measure amounts to €21 million.

The second priority axis with €205 million EU co-financing aims at modernising regional enterprises, overcoming development barriers and stimulating growth.

First of all investments in small and medium sized enterprises are supported. Grants are available for equipping new or modernising existing work posts, implementing new solutions to production processes, introducing advanced and eco-efficient production and operation. SMEs with the potential for growth are eligible, more specifically with possibilities to expand to a newmarket or improve the product or service. The measure takes into account the coherence with the smart specialisation strategy.

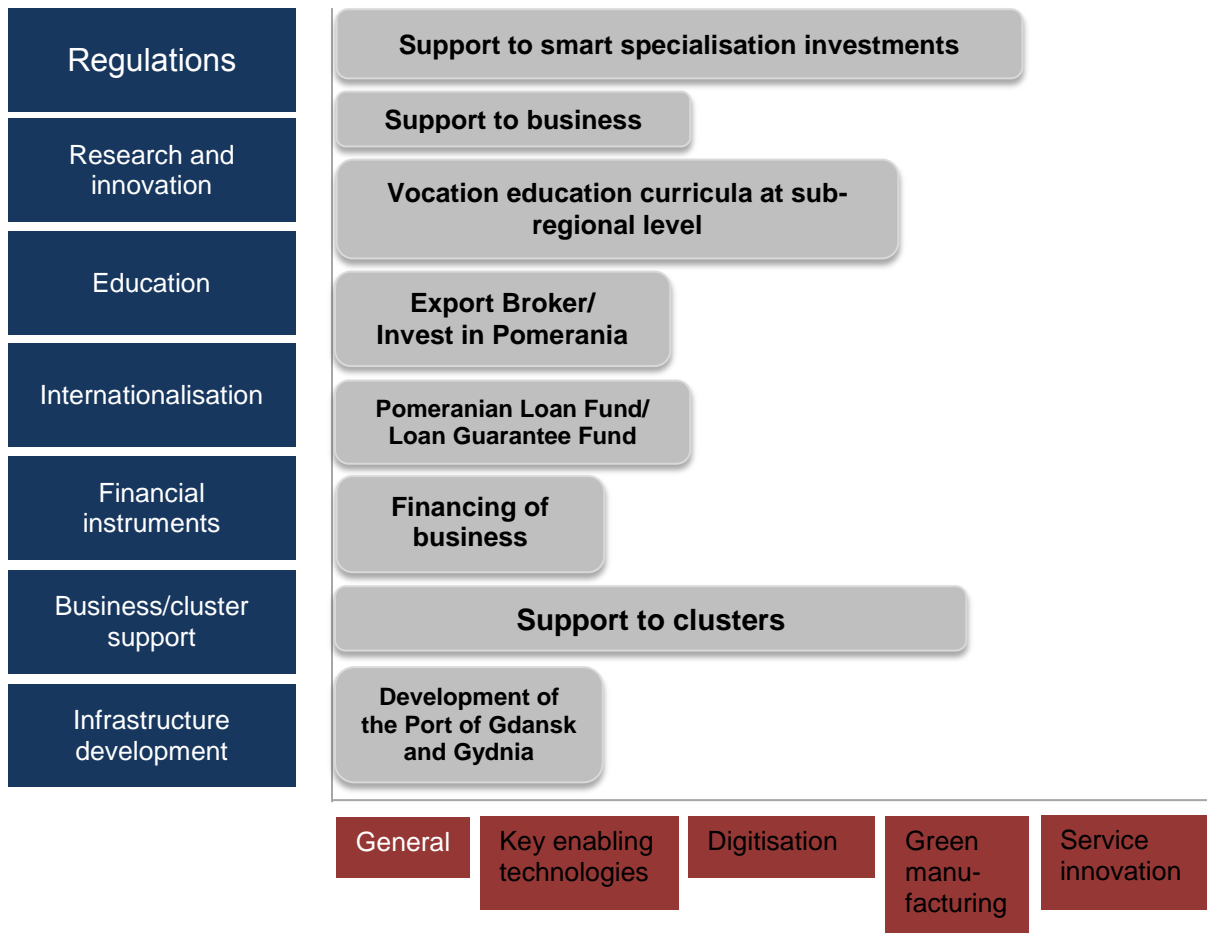
Export orientation of enterprises are also supported by another policy measure launched under this priority axis. Around 3,000 companies will get grants that support their expansion to foreign markets, establishing business contacts, creating common offers to introduce in international markets or exchange information in the framework of the so-called Export Broker programme. They can finance their study visits, trade missions, participation in international fairs. This measure also supports building a positive image of the Pomorskie region in other countries. Again, priority is given to projects that are linked to the smart specialisation strategy of the region.

Further policy measures include:

- Pomeranian Regional Loan Guarantee Fund;
- Invest in Pomerania;
- Financing of business intermediary institutions.



Figure 7: Regional policy measures in support of industrial development in Pomorskie, 2016



Source: Authors

All the above listed policy measures are meant to support industry, however, there are no specific connections between the individual measures. One common line is the preferential treatment of the smart specialisation areas in the case of all measures, which also demonstrates the shift to a more thematic orientation in policy implementation compared to the previous horizontal approach. There is also a link between the enterprise support measures and the cluster policy programme, since in some cases enterprises applying as part of a cluster have an advantage in the selection process. Some of the measures such as under the regional operation programme (commercialisation of knowledge and enterprise programme) are implemented by the same intermediary institution (the Pomeranian Development Agency) which ensures a common monitoring framework for these policy measures (the same staff is informed about the beneficiaries of each programme). Other than that, there are no specific connections. As pointed out in Chapter 2, financial instruments are regarded as an important policy tool. In this aspect, €142.15 million (PLN 600 million) were generated by the European Jeremie programme<sup>22</sup> in addition to €165.85 million (PLN 700 million) from the regional operational programme. The Regional Assembly is committed to the establishment of a Fund of Funds, which is an investment strategy where a fund invests in other types of funds. More specifically this strategy invests in a portfolio that contains different underlying assets instead of

<sup>22</sup> [http://ec.europa.eu/regional\\_policy/en/funding/special-support-instruments/jeremie/](http://ec.europa.eu/regional_policy/en/funding/special-support-instruments/jeremie/)

investing directly in bonds, stocks and other types of securities<sup>23</sup>. The interviews identified the need for introducing an instrument in the form of a loan for R&D projects. The Pomeranian Regional Loan Guarantee Fund provides support to small and medium-sized companies by making it easier for them to gain access to financing and granting guarantees for incurring loans and credit facilities. It is mainly companies in the first stage of development not yet able to fulfil banks' requirements who can apply for the support of this Fund in the form of a guarantee. Another financial instrument the Pomeranian Loan Fund provides loans with low (subsidised) interest rates to SMEs following simplified procedures. Interested entrepreneurs have to provide minimum documentation in order to obtain a loan. The amount depends on the type of investment. To give a more concrete idea, the loan can reach up to approx. €3,000 (PLN 12,000) for operating business activities, new investments, innovative activities or European expansion, up to €3,500 (PLN 15,000) for partnership building, and up to €15,000 (PLN 65,000) for start-up activities.

The so far implemented financial instruments were assessed as a worthwhile experience by the regional government and this form of support might represent the future direction which is also welcome by final beneficiaries that value financial instruments more compared to grants. This said, 90% of the EU funds are still granted in a non-refundable form. Grants are still the prior support mechanism, although it is true that the amount of repayable funds increased in the new financial programming period.

Especially related to **investment promotion**, the Marshal Office elaborated its own projects, which include the 'Export Broker' and the 'Invest in Pomerania'<sup>24</sup> initiatives, in addition to other strategic initiatives, for example in the area of vocational training (the definition of curricula at the sub-regional level). The Export Broker programme aims at establishing a comprehensive system of exports promotion that has been so far missing in the Pomorskie region. The 'Invest in Pomerania' initiative is a service to investors that is offered through the Pomeranian Development Agency. The initiative draws upon the lessons learned from the implementation of a previous project that also addressed investments. The total value of the project is approximately €46 million (PLN 200 million). The actual investments follow a competition-based procedure. The process of identification of potential investment areas is currently ongoing. As part of Invest in Pomerania, numerous companies representing the ICT, renewable energy and ecotechnology sectors took part in trade missions to Denmark, Finland, Norway, Sweden, and Germany. The companies participated in international trade shows, where they could establish new business contacts and, to exchange good practices, they visited institutions supporting business and sectors the missions were aimed at.

Local incentives are set up by city councils and county councils, such as **exemptions from real estate tax and transportation fees** for investors creating new jobs. Local directives have been specifically put in place to provide aid for investment projects and to technical infrastructure. Local labour offices offer training, information about employment and social insurance cost reductions for entrepreneurs hiring the unemployed of the region. The city government of Gdansk also offers financial assistance for trainings in Poland for staff of newly established businesses. This financial support covers the cost of training, accommodation, travel and living expenses for up to six months.

An important part of the industrial policy mix are the **Special Economic Zones**, through which the region attracts investors and entrepreneurs mostly around its seaports in Gdańsk and Gdynia. The proximity of an international airport facilitating exchange with other regions within Poland and beyond is also seen as crucial for industrial development as connectivity is seen as a driver for investment.

- The **Baltic Port of New Technologies** is an innovative project of the Pomeranian Special Economic Zone, intended to support the reconstruction and development of the shipyard industry. It forms a base for those companies operating in the shipyard areas, offering support in the implementation and transfer of new technologies, as well as modern testing laboratory, office and

<sup>23</sup> <http://www.investopedia.com/terms/f/fundsoffunds.asp>

<sup>24</sup> <http://www.investinpomerania.pl/en/>

conference room space. In addition to the advantages arising from its partnership with the Special Economic Zone, its assets include its location close to ports and modern logistic centres. It has an excellent infrastructure for manufacturing activities, and excellent transport connections with Gdynia, the Tri-City and the airport. It is mainly companies representing the shipbuilding sector and related industries that are present. The Baltic Port works closely with local authorities, and is an active member of the Maritime Cluster.

- Another entity is the **Gdansk Science and Technology Park** which is an extension of the service and investment offer of the Pomeranian Special Economic Zone. As a modern centre supporting entrepreneurship and innovation, it forms a vehicle to aid cooperation between social, economic, scientific, research, and local government in terms of buildings and promotion of advanced technological solutions. The park is mainly concerned with areas of biotechnology, IT and energetics. It contributes to the exchange of experience, promotion of new technological solutions and creation of new businesses based on interesting, creative ideas.

In order to strengthen the weight and significance of the cluster support policy the Regional Assembly adopted the **Regional Cluster Support Programme for 2009-2015**. The programme followed the recommendations developed under the project ‘Stimulating innovations in the Pomorskie economy by supporting cluster development – policy concept and pilot measures’ prepared by the Gdansk Institute for Market Economics in the years 2005-2008.

The **national industrial policy** puts a strong emphasis on horizontal issues. The main areas in the area of industrial policy in Poland are R&D and innovativeness, Information and Communication Technologies, Human Capital, Environmental Protection and Sustainable development, Markets, Protection of Industrial Property, Simplification and Improvement in the System of Legal Regulations, Access to Capital. The analysis of key horizontal problems was initiated within the framework of seven cross-sectional political initiatives involving:

- Simplification of legislation;
- Improvement in qualifications of workforces;
- Research and innovation;
- Competitiveness, energy and environmental protection;
- Management of structural transitions;
- Intellectual property, piracy and forgery;
- External aspects of competitiveness and access to the market.

## Policy implementation process

The policy measures presented above are implemented through open call for proposals (for example in the case of cluster programmes– see 4.2.1) in the majority of the cases. Given that the main source of funding is the EU Structural and Investment Funds, the implementation procedure follows EU and national regulations. The evaluation of proposals happen in four phases, which takes a couple of months. Regional authorities make use of external experts when required. The selection mechanisms usually focus on the strongest offer favouring demand-driven and partnership-based initiatives. In general there have been an oversubscription for the published call for proposals so far.

Putting the strategic plans into action has been often coupled with challenges in the Pomorskie region. Policy implementation under the current regional operation programme (2014-2020) was judged by interviewees to be relatively more difficult than in the previous programming period. Several barriers exist both at national and EU level. The check-list of requirements is seen to be getting longer, where each word is subject to interpretation in legal cases. It is hard to make sure that businesses and entrepreneurs are not lost in the complicated procedure. For instance in one specific case, there was a requirement to replace the statement of financial situation with another declaration. Given that the applicant could not provide this declaration precisely as required, it had to return the received public

support. Overall, the European Structural and Investment Fund programmes are complicated instruments but still allow for the realisation of interesting innovative projects as interviews highlighted.

Interviewees pointed out that there are high requirements to reach the expected results. If the requirements are not met, the investment does not happen in the way promised, the applicant must pay a fine. The biggest problem concerns large investments and large companies.

The demarcation line of the smart specialisation areas affects the types of projects and level of funding. One eligibility criteria refers to the maximum value of projects in which there is a cap of €2 million. This is an issue for potential proposals that would be above this threshold.

### *Implementation of the cluster programme*

Pomorskie set a high priority for improving competitiveness of the region by supporting cluster development. In order to strengthen the weight and significance of the cluster support policy the Pomorskie Regional Programme for Cluster Support 2009-2015 was adopted. Commercially strong clusters engaging a wide spectrum of actors were in the focus of this programme. The most important part of the programme was the selection of key clusters via a competitive procedure. The criteria were related to the **capacity and competitiveness of the cluster** (for instance contribution to regional exports) and **the development strategy** (complexity of approach, feasibility studies for projects, financial resources, etc.). **The critical mass, quality and scope of partnerships** (minimum 30 enterprises, R&D actors' involvement, openness to new entities) were also important criteria.

The selection criteria for the cluster call in 2015 were the following:

- Capacity and competitiveness of cluster (40% weight in evaluation) (such as contribution to regional exports);
- Development strategy (40% weight in evaluation) (including complexity of approach, feasibility studies for projects, financial resources);
- Quality and scope of partnership (20%) (min. 30 enterprises, R&D actors' involvement, openness to new entities).

Preferences were provided for selected key clusters in calls for proposals under EU programmes at regional level. Support was directed mainly at projects operated by cluster coordinators and dealing with cluster development (networking, transfer of knowledge, strategic investment planning). Preferences were also available for infrastructure (R&D investments in enterprises, technical facilities in incubators) and 'soft' projects (training and consulting for innovative companies) focussed on key cluster. A Pomeranian Group for Cluster Competence has been established to develop activities of cluster leaders and animators from Pomorskie. The mission of the Group includes preparing a coherent framework for cluster policy, a tool for creating economic growth of the region.

The cluster policy dedicated support for three types of cluster:

- key clusters,
- sub-regional (local) clusters and
- embryonic (technological networks) clusters.

The support went to projects designed to coordinate cluster development – soft measures such as networking, knowledge and innovation transfer, advice and consulting, technical monitoring, strategic planning. One of the priorities in the programme was to concentrate the support on the most promising projects – key clusters with a significant role in the regional economy, high dynamics or good growth potential and international competitiveness, that is clusters which may become strong drivers of regional development. The key clusters were selected following a competition organised by the regional Executive Board. The key cluster status did not provide any direct guarantee for financing from the regional government for the selected key clusters, but enabled certain preferential treatment in the regional operational programme. After the first competition in 2009 the key cluster status was

granted to two clusters, the Pomeranian ICT Cluster and the Baltic Eco-energy Cluster, while in the second competition of 2010 status was granted to the Gdansk Construction Cluster.

### *Implementation of Jessica type of funds*

The BGK-managed Urban Development Fund supports urban projects in the region's four major cities (Gdańsk, Gdynia, Sopot and Słupsk) with low-interest rate long-term loans. Investment terms depend on the type of project and the investor. As a general rule, the interest rate is the National Bank of Poland's reference rate, which can be reduced by up to 80% based on the so-called social indicator. This indicator assesses the project's impact in four spheres: social, economic, environmental and spatial planning using a cost-benefit analysis. The instrument suitably addressed market gaps and gained a good reputation among project promoters. UDF loans have become a universal financial product with diverse support areas and eligible recipients. It has also gained recognition for stability among investors in the region and has become a renowned trademark in the capital market. The UDF has proved a highly successful tool for effective and efficient Structural Funds deployment in the region, providing delivery of policy strategic aims and benefits to all the stakeholders, as well as to society in general. The UDF has not only committed all of its initial capital and accrued interest, but has also attracted substantial non-ERDF funding. The introduction of a repayable financial instrument increased the financial and socio-economic efficiency of investments for final recipients, especially in the public sector. Mentality and attitudes changed in all the stakeholders, who also gained significant experience.

### *Implementation of the Special Economic Zones*

The Pomeranian Special Economic Zone (PSEZ) and the Słupsk Special Economic Zone are under national responsibility of the national Ministry of Treasury. They will function at least until 31 December 2026. They represent an area where entrepreneurs can run their business on preferential conditions, using public aid in the form of income tax exemptions (corporate income tax and personal income tax). In order to get the public aid the entrepreneur has to obtain a permit.

Permits for conducting business in a special economic zone are granted mostly for manufacturing activities. It is also possible to run service activities including software and advising in the sphere of IT and other linked services, services of processing data, hosting and website administration, internet portal services, financial auditing services, accounting services, services in the field of scientific research, technical analysis and developmental works, call-centre services. The minimum rate of the investment is €100,000 on the day when the permit is granted. The procedure regulating the acquisition of a permit to conduct business in the PSEZ has the form of a tender or negotiations depending on whether the investor would like to acquire a property or already has some land in the Zone.

Public aid is offered at different levels, such as income tax exemptions in the special economic zones, real estate tax exemptions, employment support from local labour offices, and EU funds. These instruments can be combined but cannot exceed a certain amount determined by the Pomorskie Voivodeship, which was up to a total of 40% of eligible costs of investments until 2013. The support intensity was higher for SMEs, such as a 20% (up to 60%) increase overall for small enterprises and a 10% increase overall for medium-sized (up to 50%) enterprises.

The advantages offered are the following:

- Exemptions on personal or commercial income tax;
- Plots ready for investment (a clear legal state, access to technical and transport infrastructure) available at a competitive price;
- Support offered by the Special Economic Zone Ltd to investment projects;
- Exemptions in property tax and others (available in some of the locations of the special economic zones, and dependent on the decisions of the local government).

## International cooperation

Pomorskie is an active player in European cooperation especially in the Baltic Sea Macroregion<sup>25</sup>. It is part of three Interreg programmes notably the Interreg South Baltic, Interreg Baltic Sea Region and Interreg Central Europe. The Marshal Office is positive about how the region contributed to and benefitted from transnational projects.

A recent project is related to capacity building. The Smart Blue Regions Interreg BSR project (Smart specialisation and Blue Growth in the Baltic Sea Region) aims to enhance blue growth opportunities based on increased capacity of the Baltic Sea Region(BSR) to implement research and innovation strategies for smart specialisation (so called RIS3). In the framework of the project a ‘Multilevel Implementation Scheme’ will be developed that is a management plan for RIS3 and a monitoring and evaluation scheme will be also elaborated to monitor the RIS implementation. Pomorskie is represented by the Maritime Institute in Gdańsk as a project partner.

Another Interreg project in which the City of Gdansk participates is called SOLEZ that brings together cities which are working on low carbon mobility solutions at different extents, so to enhance their strategies and develop smart services and products around the concept of low emission zones in functional urban areas. Project activities will take into account local administrators’, residents’, tourists’ and private operators’ needs, and will lead to:

- Enhanced dialogue with key stakeholders about access restriction policies through the definition and implementation of proper participatory strategies and stakeholder involvement initiatives;
- Design, development and pilot application of innovative ICT-based services and solutions supporting low emission zones and other access restriction policies, by contributing to reducing the negative side effect of these interventions.<sup>26</sup>

The transport connections between the Baltic and the Adriatic Seas were the asset of one of the projects called TransBaltic. Its main idea was to maximise the positive economic effects of this transport corridor designated for development under the EU’s TEN-T policy<sup>27</sup>. Based on the project, the region included an additional railway line, the link between the ports of Szczecin and Gdansk, into the development plans. And finally, the project developed a comprehensive action plan for the Baltic Sea macro-region to turn the corridor into a functional gateway between North and South.

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<sup>25</sup> ‘The European Union Strategy for the Baltic Sea Region (EUSBSR) is the first macro-regional strategy in Europe. It aims at reinforcing cooperation within this large region in order to face several challenges by working together as well as promoting a more balanced development in the area. The Strategy also contributes to major EU policies and reinforces the integration within the area. The EU Baltic Sea region counts 85 million inhabitants (17 % of EU population) and eight countries (Sweden, Denmark, Estonia, Finland, Germany, Latvia, Lithuania and Poland) which share common features and challenges. Hence there is a clear need for joining forces and working in cooperation.’ More information: <http://www.balticsea-region-strategy.eu/about>

<sup>26</sup> <https://www.keep.eu/keep/project-ext/42975/SOLEZ?ss=49c28f2f5e6d55f47f51b0386ea40b83&espon=>

<sup>27</sup> see [www.ec.europa.eu/transport/themes/infrastructure\\_en](http://www.ec.europa.eu/transport/themes/infrastructure_en)

## Monitoring and Evaluation

### Monitoring process

The regional development strategy ‘Pomorskie2020’ is subject to a review every two years and there is an additional full assessment foreseen once every four years. The reporting documents of the annual plans of the regional strategic programmes serve also as a monitoring mechanism. The EU co-financed regional operational programmes have their own monitoring procedures. The regional development strategy set as an **important target to create a mechanism to identify and verify the sectors** that have been selected as having the greatest growth potential and to determine the future competitive position of the region.

In general the monitoring system has been designed as **internal** and is based on the inputs of the respective departments of the Marshal Office. The aim is to consolidate the activities of various departments concerning the monitoring and evaluation of actions. The regional development strategy as a whole is monitored by the department of regional and spatial development and the regional operational programmes is monitored by the department of regional programmes. The department of economic development also monitors the progress on entrepreneurship, business development and innovation.

The departments use a range of inputs for their analysis such as the findings of the so-called Regional Territorial Observatory and also participate in the National Territorial Observatory run by the national Ministry for Infrastructure and Development. The latter is also perceived relevant to monitor the progress compared to other regions. Overall, the monitoring system relies on four types of information sources (Miedzinski, 2014):

- Own databases (regional observatory);
- Research, evaluation and other dedicated studies (internal or external);
- Analytical applications (monitoring socio-economic changes in the region);
- Macroeconomic model.

The main findings of the monitoring exercise is summarised in the activity reports and forwarded to the Executive Board of Pomorskie which makes decisions based on the results if necessary. The advantage of such a system is that it allows to obtain continuous feedback about policy implementation and the direct involvement of the departments helps to get a first-hand understanding about the situation. Interviewees also mentioned that the **commissioning of the same redundant evaluation studies was seen as less reliable, more expensive** and to be avoided. Evaluation studies each cost € 23,000 annually.

The regional development strategy defined several key performance indicators against which progress can be monitored, which include contextual indicators such as related to business investments, business R&D and innovation, cooperation among firms or enterprises with access to high-speed internet. These indicators are presented in Figure 8.

Figure 8: Monitoring indicators of the regional development strategy, 2020 targets



### Contextual indicators

Definition	Base value	2020 target
R&D expenditures in GDP	0.61% (0.74% in PL)	reaching PL average
Industrial enterprises cooperating in the field of innovation	4.8% (6.1% in PL)	reaching PL average
Pomorskie exports in Polish exports	5.6% (5th place in PL)	among top 5 regions
Number of new outward businesses investments	-	min. 30
Number of jobs created by outward businesses investments	-	min. 5,000
Enterprises with high speed internet access (NGA)	4.0% (4.4% in PL)	exceeding PL average
Students in the fields of the greatest economic potential	55%	70%

Source: Matczak and Oberbek (2013)

### Monitoring of the smart specialisation strategy

The monitoring of the smart specialisation strategy began together with the implementation of the process for the selection of smart specialisations and is being conducted in the scope of the so-called '**participatory evaluation**', which is aimed to identify potential problems that may hinder the performance of envisaged activities and, in consequence, to draw conclusions that may improve the process. Participatory evaluation is an approach that involves the stakeholders of a programme or policy in the evaluation process.

The process of selecting smart specialisations is cyclical. The assumptions adopted stipulate that this process will be repeated, as a rule, every two years. This principle introduces the possibility of selecting and supporting new smart specialisations when the economic and technological potential is sufficiently developed and strategies of specific actors, enterprises, scientific units, in the new economic area are modified.

Agreements on the development of smart specialisations, signed with partnerships representing selected areas, will be valid for a period of three years. Following this period and based on the evaluation of the implementation of objectives and projects envisaged in the agreement, it will be possible to retain the 'smart specialisation' status.

Additionally, the development of smart specialisations will be systematically monitored on ongoing basis during the period of 2014-2020. This monitoring will be aimed at tracking the process of economic and technological growth in selected areas. The growth dynamics of a given specialisation, in reference to the region, country and industry of a given specialisation, will also be monitored. In addition, monitoring will apply to the implementation of agreements, including in particular to the implementation of R&D projects.

Additionally, a system for monitoring smart specialisations on a regional and national level has been developed in cooperation with the Ministry of Infrastructure and Development, the Ministry of Economy, the Ministry of Science and Higher Learning and the European Commission.



## Evaluation of policy

In Pomorskie both the EU co-financed regional operational programmes and the own regional development programmes are subject to evaluation.

As the interviews highlighted the regional government is currently preparing itself for the full assessment of its regional development strategy. This assessment will be carried out internally with the consultation of internal stakeholders. A series of questions will be asked to the leaders of the respective regional strategic programmes. The **socio-economic analysis and a macro-economic model** will be included in the assessment to be published. There will be close cooperation with several institutions and the Regional Statistical Office.

With regard to the regional operational programmes, the ex-post evaluation 2007-2013 was carried out independently. The evaluation plan was drawn according to the national provisions concerning the regional operational programmes. The Gdansk Institute for Market Economics was the key partner in the evaluation process.

Four of the Polish regional operational programmes were evaluated using a **counterfactual analysis** in 2014 in cooperation of the national Ministry for Infrastructure and Development, the National Statistical Office and the regional Marshal Offices such as of Pomorskie. The evaluators tested the potential of counterfactual analysis as the main methodology. The main objective was to assess the value of various business support measures financed through ERDF. Final results indicated that the **most significant differences between supported and non-supported firms concerned changes in levels of employment**.

In the middle of the programming period, when two subsequent rounds of selecting smart specialisations have been conducted, the so-called mid-term evaluation will be conducted. It will be a comprehensive overview of experiences connected with the implementation of the process and effects of support provided so far to smart specialisation areas, in particular in terms of benefits and added value generated for the regional economy. Conclusions drawn from the evaluation will serve to introduce potential modifications to the selection process and the scope of support provided to selected specialisations.

Overall, interviews highlighted that the key challenges of monitoring and evaluation are considered to be the following:

- linking result indicators with strategic indicators;
- availability of data, for example regional trade data;
- capacity to react and interpret the results;
- limited capacity in terms of the available resources for the evaluation and data collection.

## Lessons from previous policy cycles

Looking back at the former regional development strategy launched in 2005, the policy was considered especially successful in terms of developing the regional industry base. It was valued by regional actors as positive that the strategic programmes gave a right response to the 2008 economic crisis. Pomorskie was found especially resilient among the Polish regions. Its strengths lied in the diversification of production, the share of export of high tech products and international embeddedness in global value chains.

The ex-post evaluation of the regional operational programme 2007-2013 of Pomorskie found that the programme was successful in reaching a leverage effect, which meant that EU funds attracted a relatively large proportion of national resources. The share of ERDF in the total value of all approved projects was 56.7% which is much lower than initially expected in the programme (72%). This suggests that the ERDF intervention generated a high number of projects and large-scale development effect. Nevertheless, the programme could not ensure the creation of 11,000 new jobs which was a fundamental objective of the operation programme. Another element that was not fulfilled is the

implementation of the Lisbon Strategy. The innovation related expenditure was much lower as originally planned.

The evaluations of the regional development strategy also looked at certain programmes more specifically such as the support to innovation. The aim of the so-called 'INNOpomorze' programme was to establish a regional system of innovation support based on cooperation within the knowledge triangle including representatives of business, science and administration. The first edition of the programme started in 2009 and it undertook a campaign to promote entrepreneurship, innovation and creativity in Pomorskie. The second edition of the project was called 'INNOpomorze - innovation partnership' and was implemented in the period from June 2010 to December 2011. The third edition ran until 2013 and was labelled as INNOpomorze - Pomeranian Center of Innovation. The experience showed how important it is to carry out actions that contribute to increasing the knowledge of entrepreneurs, scientists and doctoral students on the importance of cooperation in building an innovative economy. The programme was found to have a positive effect on the regional innovation system of Pomorskie.

## Assessment of the regional industrial policy capacity and its transferability

Pomorskie belongs to those regions that are pro-actively shaping their destiny despite of the influence of national, European and global framework conditions. The regional government has set clear objectives for renewing its traditional industries, finding new industrial niches and fostering the emergence of new business activities. Policy makers pay specific attention to investment promotion and internationalisation that are considered priorities for economic development. Policy efforts to strengthen administrative capacities, skills and innovate in terms of policy instruments are apparent both at regional and city levels.

Based on the case study the following observations and good practices can be highlighted:

- Pomorskie's regional policy-makers are actively preparing to the post 2020 period when it is expected that the European funds will be substantially decreased. It is also for this reason that the region puts an emphasis on developing own financial instruments such as the Pomeranian Loan Fund or the Pomeranian Loan Guarantee Fund. Financial instruments are considered to be a more effective tool supporting business development than traditional grants. The region also plans to launch a Fund of Funds instrument in the future. The current loan funds are seen as important policy innovations on the regional industrial policy landscape.
- Although multistakeholder cooperation was not a traditional approach and in the culture of Pomeranians as such, the most recent smart specialisation strategy development has been unique. Pomorskie was the only Polish region where an open competition for the identification of target areas was published and a transparent bottom-up approach was adopted. Pomorskie successfully applied a negotiating approach based on the participation and involvement of various partner institutions, entities and communities. Overall, some 400 entities have been involved in the process including around 300 large and small companies. The competition-based development process is a practice that can be replicated in the future development programmes and adopted by other regions as well.
- The regional government supported the development of curricula in vocational education that address the needs of regional companies (both manufacturing and other) with regard to better skills on digital technologies, advanced manufacturing and languages. The curricula was launched at sub-regional level and is considered to be a pro-active step instead of waiting for national regulations to adjust to the regional needs.
- An important part of the industrial policy mix are the Special Economic Zones, through which the region attracts investors and entrepreneurs mostly around its seaports in Gdańsk and Gdynia. These zones offer special treatment and advantages for entrepreneurs investing in the area. Regional stakeholders consider as a positive development that new technological and knowledge centres have been established based on the Special Economic Zones such as the Baltic Port of New Technologies or the Gdansk Science and Technological Park.
- Pomorskie is active beyond the regional boundaries as well. It initiated a process leading to the establishment of a 'blue' national smart specialisation and participates in the Baltic Sea Region programme.

A good practice is never transferable to other policy contexts as such but some elements can be adapted by other regions. In this respect, all regions can take inspiration from other practices and apply them to their own contexts. There are, however, types of good practices that work more easily in a specific context. The above highlighted practices are transferable to regions that have some level of autonomy and are responsible for a smart specialisation strategy directly. These practices can be especially useful for similar regions in Central-Eastern Europe with a similar history and path. The practices are also relevant for regions with substantial industrial and manufacturing activity for instance to establish industrial parks with specific rights.

Following the case study, the following good practices can be highlighted:

Table 5: Highlighted good practices

Criteria	Good practice	Short description	Transferability
<b>Policy design:</b> Setting clear and transparent objectives	Regional development strategy	<p>The Pomorskie Regional Development Strategy is the most important document setting out mid-term policy directions in line with long term development goals. Regional stakeholders acknowledge the strategy to be especially successful in terms of developing the regional industry base and providing a clear vision and plan to follow. They consider as well that the strategic programmes gave a right response to the 2008 economic crisis. Pomorskie has been found especially resilient among the Polish regions. Its strengths lied in the diversification of production, the share of export of high tech products and international embeddedness in global value chains.</p> <p>The regional development policy supported technological modernisation, human capital, and stimulated entrepreneurship. It is a living document and has been updated since to reflect the latest policy directions.</p>	Formulation of objectives Medium level of autonomy in policy governance The existence of regional dimension in the design of S3
<b>Policy design:</b> Supporting the 'entrepreneurial discovery' process	Competition-based approach to identify smart specialisation areas	<p>The agenda-setting of the smart specialisation strategy in Pomorskie has been unique in the sense that it was the only Polish region where an open competition for the identification of development areas around certain industries was published and a transparent bottom-up approach was adopted. Pomorskie successfully applied a negotiating approach based on the participation and involvement of various partner institutions, entities and communities. Overall, some 400 entities have been involved in the process. The available financial resources have been an important incentive to ensure the participation of stakeholders.</p>	The process of organising the competition in policy design Transferable to all regions designing smart specialisation strategies and where there is not yet a bottom-up approach in place for priority setting
<b>Policy design:</b> Interregional and international policy learning	Pomorskie and the Baltic Sea Region	<p>Pomorskie participates in the Baltic Sea Region initiative. The European Union Strategy for the Baltic Sea Region (EUSBSR) is the first macro-regional strategy in Europe. It aims at reinforcing cooperation within this large region in order to face several challenges by working together as well as promoting a more balanced development in the area. The strategy also contributes to major EU policies and reinforces the integration within the area.</p>	Active participation in transregional initiatives Transferable to regions participating in a macro-regional programme and sharing borders with other regions
<b>Policy implementation:</b> Practical skills enabling industrial change	Vocational curricula	<p>The regional government supported the development of curricula in vocational education that addresses the needs of regional companies (both manufacturing and other) with regard to fostering skills on digital technologies, advanced manufacturing and languages. The curricula was launched at sub-regional level and is considered to be a pro-active step to adjust to the regional needs.</p>	New curricula and proactive process Transferable to regions where national authorities decide about education policy and want to take inspiration on how to lobby for regional interests
<b>Policy monitoring:</b> Policy intelligence also used as a monitoring tool	Pomorskie System of Monitoring and Evaluation (PSME)	<p>PSME integrates and coordinates the activities of monitoring and evaluation conducted by the Regional Government of the Pomeranian region and through cooperation with many organisations and institutions involved in the development of the province.</p>	The monitoring framework Transferable to regions with similar governance system and high-dependence on ESIF

## Policy pointers

Following the interviews and the case study analysis some observations can be made that could improve the future regional industrial policy making:

- Pomorskie has rightly set the target to smart diversify its economy and stimulate the emergence of new industrial and technological niches. Nevertheless its policy mix and policy measures are not fully in line with supporting advanced manufacturing and digitalisation and more could be done to address the technological needs of enterprises.
- The regional government made recently remarkable efforts to open up the policy agenda setting process and involve a wide-range of regional stakeholders in a bottom-up process, which had been welcome and should be continued, however, the culture of partnership still needs to be further nurtured and better applied also during the policy implementation process.
- An important weakness that was highlighted during the interviews was the burdensome procedures of EU co-financed regional support measures. Although the responsibility to simplify and make these programmes more accessible for companies is at national level, regional actors also lobby for improved implementation methods.
- Besides supporting regional business through grants or loans, it would be relevant to support the broader business environment and pay more attention to create favourable entrepreneurial and innovation conditions.
- The region is conscious about the potential of new knowledge intensive services in the regional economy such as ICT or business services, however, its policy mix does not sufficiently exploit the opportunities in servitising the regional manufacturing base.
- The recent new monitoring and evaluation practices applied are considered as positive development by regional stakeholders and the next challenge is to translate and feed in the findings to the next round of strategy-making process.

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## Appendix A: Key economic indicators for Pomorskie region

Table 6: Key economic indicators for Pomorskie region

Demography							
	2011	2012	2013	2014	2015	Evolution (2011-2015)	EU28 (last year available)
Number of inhabitants	2,245,568	2,253,048	2,259,485	2,264,817	2,271,559	0.3%	508,450,856
Population under 30*	38.9%	38.3%	37.7%	36.9%	36.2%	-1.8%	33.1%
	2010	2011	2012	2013	2014	Evolution (2010-2014)	EU28 (last year available)
Inhabitants per km2	122.4	122.8	123.2	123.5	129.1	0.01	116.7
Economic Profile							
	2010	2011	2012	2013	2014	Evolution (2010-2014)	EU28 (last year available)
GDP (in million euro)	20,470	21,598	22,584	22,634	23,393	3.4%	13,959,739
Number of enterprises in manufacturing (Number of local units)	14,299	14,351	13,996	13,963	14,504	0.4%	N/A
	2011	2012	2013	2014	2015	Evolution (2011-2015)	EU28 (last year available)
Employment* - Percentage of population (from 15 to 64 years)	58.8%	59.3%	59.2%	60.7%	63.8%	2.1%	65.6%
Unemployment* - Percentage of population (15 year and over)	8.5%	9.5%	10.0%	8.6%	6.6%	-6.1%	9.4%
Share of employment in manufacturing**	18.8%	18.2%	20.7%	22.2%	22.4%	4.5%	15.2%
Share of employment in high and medium high-technology manufacturing**	5.1%	5.4%	6.4%	7.0%	6.4%	5.8%	4.9%
Share of employment in high technology manufacturing**	1.7%	1.5%	1.9%	1.9%	1.4%	-4.7%	1.1%
Share of employment in knowledge intensive services**	33.5%	34.2%	33.1%	32.2%	32.7%	-0.6%	39.2%

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	2009	2010	2011	2012	2013	Evolution (2009-2013)	EU28 (last year available)
Share of gross value added at basic prices - Industry (except construction)	23.5%	24.6%	25.7%	26.9%	25.7%	2.3%	19.4%
Share of gross value added at basic prices - Manufacturing	n/a	n/a	n/a	n/a	n/a	n/a	14.9%
Share of gross value added at basic prices - Agriculture, forestry and fishing	2.0%	2.3%	2.4%	2.3%	2.4%	5.2%	1.7%
Share of gross value added at basic prices - Construction	9.1%	9.7%	9.4%	8.7%	8.2%	-2.5%	5.4%
Share of gross value added at basic prices - Services	65.5%	63.5%	62.6%	62.0%	63.6%	-2.8%	73.5%
<b>Human capital</b>							
	2011	2012	2013	2014	2015	Evolution (2011-2015)	EU28 (last year available)
Persons with tertiary education (ISCED)***	27.9%	30.3%	31.2%	30.4%	31.8%	3.3%	32.8%
Persons employed in science and technology***	28.8%	28.5%	28.8%	28.4%	30.6%	1.5%	30.9%
Persons with tertiary education (ISCED) and employed in science and technology***	19.6%	20.5%	20.9%	20.3%	22.1%	3.0%	21.0%
Participation rate in education and training***	5.3%	6.1%	5.8%	5.3%	5.0%	-1.4%	10.7%
<b>Research and innovation performance</b>							
	2009	2010	2011	2012	2013	Evolution (2009-2013)	EU28 (last year available)
SMEs introducing product or process innovations as percentage of SMEs	n/a	n/a	n/a	0.127	n/a	n/a	n/a
R&D expenditure : Business enterprise sector ****	0.2%	0.3%	0.3%	0.4%	0.5%	20.7%	1.3%
R&D expenditure : HERD + GOVERD****	0.3%	0.2%	0.1%	0.5%	0.5%	14.9%	0.7%
	2008	2009	2010	2011	2012	Evolution (2008-2012)	EU28 (last year available)
Patent applications to the EPO by priority year per million inhabitant	5.021	4.992	7.029	11.031	8.011	12.4%	70.387
High-tech patent applications to the European patent office (EPO) by priority year per million inhabitant	0.294	0.901	0.559	1.55	0.963	34.5%	14.259



*\*Percentage of total population; \*\*percentage of total employment; \*\*\*Percentage of active population; \*\*\*\*percentage of GDP. Source: Technopolis Group, based on Eurostat data (detailed sources are included in References)*

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