Smart specialisations (SS) is an inclusive and entrepreneurial process aiming at identification of region’s economic branches, which will constitute its comparative advantage vs. domestic and European regions and which is:

- rooted in the economic tradition of the region;
- technologically and communication-wise linked to other sectors, enabling development of clusters and other cooperation ties;
- knowledge-based or able to develop based on knowledge;
- able to absorb innovation and focused on research, development & innovation activity;
- supported in its development and operation by the sphere of education and science;
- able to develop deep and attractive labour market.

Smart specialisation constitutes selection of economic sectors and related science areas, on which the intervention will be focused. It’s objective is economic development of the region through a radical increase in the innovativeness of offered products and services and applied processes and technologies, based on the implementation of results of highly advanced research. The idea of specialisation results from the necessity to focus scarce resources available to EU regions, in order to radically increase the innovativeness of the economy, which must compete against increasingly technologically sophisticated and innovative economies of non-European countries.

Innovativeness
Research & Development
Transfer of innovation
Modernisation and transformation
International impact
Profitability
Human Capital
Unique regional know-how
Region’s economic tradition

Smart specialisations – definition
Smart specialisations – selection criteria
SMART SPECIALISATIONS

value-based

value-based SS are the areas for which full maturity was observed in the region. Within these areas it is possible to clearly identify specific economic and scientific resources, values and the scope of objectives and effects which may be obtained in a given area.

technology-based (horizontal)

solutions within the scope of horizontal smart specialisations are applicable in each of the value-based smart specialisations. They play vital roles in complementing and functional implementation of assumptions of value-based smart specialisations. Development of horizontal SS is pivotal in the impact that the target (output/objective) status of given SS and it values will have on the current (input/entry) status. Horizontal SSs’ objective is to sustain, complement and support principal value of a given SS. Owing to the fact that one value-based SS may be supported by one, two or all horizontal SSs, the smart feedback/cooperation effect of all SSs may be achieved.

other (developed through entrepreneurial discovery)

branches and areas developed through the entrepreneurial discovery process – i.e. continuous and active involvement of entrepreneurs in shaping the region’s innovation policy. This implies that local economy should provide feedback regarding processes shaping it and define its needs, which will fit well into the vision of smart specialisation as a creative and change-driven phenomenon. It is important that activities in this area are characterised by high quality and by scientific and economic applicability.
Value-based smart specialisations

HEALTHY AND SAFE FOOD

The key value of this specialisation is ensuring protection of human health and life through implementation of innovative solutions on all stages of food manufacturing and trade.

Basis of the specialisation:

- highly specialised agriculture and breeding;
- good natural conditions in the form of abundant soil and water resources;
- highly developed sector of food-processing and fertiliser manufacturing enterprises;
- developed packaging industry;
- solid scientific and advisory environment (e.g., Agricultural Advisory Units, business environment institutions, testing and certification laboratories).

Expected support results:

- innovative approach to dietary education and related services directed at various age groups of consumers, developed on the basis of latest knowledge on healthy and balanced diet and on experimental behavioural research with consumers’ participation;
- launch of innovative consumer products leveraging on regional healthy food;
- introduction of innovative fertilisers, methods of production, processing and storage of food, aimed at maintaining its quality with minimum impact on natural environment (e.g., waste management, bio-degradable packaging, organic fertilisers);
- introduction of innovative approaches to food quality assurance based on new methods, technologies and processes of audit and certification;
- strengthening of local brands through innovative business models and marketing innovation (including those using design and new packaging materials), leading to the increase of Kujawsko-Pomorskie region’s competitiveness (export development, creation of new jobs, new technologies, increase in region’s GDP).

Sample science areas:

- chemistry;
- biology;
- technical science;
- agricultural science;
- medical science;
- arts.

Sample supporting technologies:

- industrial biotechnology;
- bioprocessing technologies;
- genetic modification technology;
- nanotechnology;
- robotics and automation;
- nano- and microelectronics;
- photonics.

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- robotics and automation;
- nano- and microelectronics;
- photonics.
Expected support results:

- creation of innovative methods, products, technologies and services based on advanced, certified and accredited diagnostic methods, development of new methodologies of diagnostics, laboratory testing and clinical trials based on direct or remote contact with patients;
- novelty approach to medical education and promotion of healthy lifestyle, aimed at raising health awareness;
- launch of innovative organisational methods and business models in regional medical and recreational facilities, resulting in an increase in Kujawsko-Pomorskie region’s competitiveness (e.g. development of medical tourism, creation of new jobs, increase in region’s GDP).

Sample supporting technologies:

- robotics and automation; health-related biotechnology; nanotechnology; bio-catalysis in pharmaceutical manufacturing; IT systems; nano- and microelectronics; photonics; telemedicine

Basis of the specialisation:

- natural resources as tourist attractions (e.g. saline springs, mud baths, agro-tourism and eco-tourism farms);
- regional medical service, including suppliers and manufacturers of medicines, rehabilitation, medical and transport equipment;
- tourism and medical tourism infrastructure (e.g. sanatoria, SPA resorts, rehabilitation units, tour operators);
- strong scientific, medical and business support infrastructure (e.g. Cluster of Medical and SPA Tourism, business environment institutions, laboratories).

Sample science areas:

- social science; chemistry; biology; earth science; technical; agricultural; medical science

HEALTH AND MEDICAL TOURISM

The key value of this specialisation is the increase in quality and duration of human life through ensuring and maintaining health understood as physical and psychic equilibrium.
ADVANCED MATERIALS AND TOOLS

The key value of the specialisation is increasing the quality and efficiency of both everyday life activities, as well as human work, through innovative, ergonomic and economical materials and tools.

Basis of the specialisation:

- highly developed sector of tool industry, specialised in manufacturing of tools for plastic and metal products, production of chemical components and final plastic products;
- recognition of Kujawsko-Pomorskie region in the area of plastics processing;
- waste-based resources (e.g. recycling);
- strong scientific and business-support infrastructure (e.g. Bydgoszcz Industrial Cluster, business environment institutions).

Expected support results:

- introduction of innovative manufacturing processes and manufacturing of innovative tools for processing and forming metals and plastics;
- introduction of innovative manufacturing processes and manufacturing of innovative plastic products as well as innovative chemical components, while minimising impact and hazards for the user and environment;
- strengthening regional brands through introduction of innovative business models and support of internationalisation of regional enterprises, resulting in the increase of competitiveness of Kujawsko-Pomorskie region (including development of exports, creation of new jobs and launch of new technologies, increase in region’s GDP).

Sample supporting technologies:

- nanotechnologies; ICT, electro-technics and electronics; robotics and automation; photonics

Sample science areas:

- chemistry;
- technical sciences;
- physics.
TRANSPORT AND MOBILITY

The key value of the specialisation is safe and fast transport of passengers and freight, using multimodal, environmentally-friendly and efficient public transport as well as roads and waterways, leveraging innovative means of transportation.

Basis of the specialisation:

- existing technical and natural infrastructure of the region (e.g. railroads, waterways and roads, airport);
- recognition of the Kujawsko-Pomorskie region in transport and automotive industries (e.g. PESA, SOLBUS, WZL);
- strong scientific and human capital environment as well as business- and export-support facilities (e.g. Bydgoszcz Industrial Cluster, business environment institutions).

Expected support results:

- design and production of innovative road and rail transport equipment, including manufacturing of parts and components characterised by least possible impact and harmfulness for the user and environment (e.g. electrification of transport, usage of renewable energy resources for propulsion);
- innovative services and products enabling usage of land- and waterways;
- launch of innovative products based on accreditation and homologation;
- strengthening regional brands through introduction of innovative business models in the SS, resulting in the increase of competitiveness of Kujawsko-Pomorskie region (including development of exports, creation of new jobs and launch of new technologies, increase in region’s GDP).

Sample science areas:

- physics; chemistry; biology; technical science; Earth science; agricultural science

Sample supporting technologies:

- robotics and automation; ICT, mechatronics, electro-technics and electronics, photonics
Expected support results:

- development and implementation of innovative methods, services and technologies of monument conservation and restoration;
- launch of innovative methods, services and technologies in the creative industry;
- development of new solutions: products and services of the creative industry (design, fashion, architecture, new media and gaming, advertising, etc.) resulting in increase of Kujawsko-Pomorskie region’s competitiveness (including development of exports, creation of new jobs and launch of new technologies);
- organising and promotion of artistic, cultural and entertainment events on local, domestic and international scale, including: domestic and international festivals, reviews, plays, concerts, exhibitions, workshops, conferences, other cyclical events;
- Inclusion of tradition and cultural identity into modern life owing to innovative creative industries and novelty solutions;
- strengthening regional brands and traditions through introduction of innovative business models and internationalisation of enterprises active within the SS, resulting in the increase of competitiveness of Kujawsko-Pomorskie region (including development of exports, creation of new jobs and launch of new technologies, increase in region’s GDP and touristic attractiveness).

Basis of the specialisation:

- resources of existing regional monuments, urban and architectural systems as well as urban developments (e.g. gothic architecture of Torun on the UNESCO list, Bydgoszcz famous for the variety of the secession architecture);
- strong traditions and achievements in monument conservation, protection and restoration, including research in this field, aimed at development and application of various monument protection techniques and technologies, based on latest discoveries in physics and chemistry (as well as other relevant fields of science);
- recognised and developed creative industries and monument conservation sectors;
- strong scientific and business support environment (e.g. WSP UMK, Creative Industries Cluster, business environment institutions, foundations and associations active in cultural and art animation).

Sample science areas:
- mathematics;
- chemistry;
- physics;
- technical science;
- arts.

CULTURAL HERITAGE AND CREATIVE INDUSTRIES

The key value of this specialisation is an innovative approach in leveraging cultural resources, as the key factor for shaping citizenship as well as pro-social and pro-innovative attitude of region’s population.

Sample supporting technologies:
- ICT;
- material engineering;
- analytic chemistry;
- physics.
INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

The SS is based on knowledge and research results in the area of IT, multimedia, programming and data processing, European Digital Agenda requirements, as well as constantly developing economic potential in this area.

ICT should support and complement all value-based SS through new solutions, inter alia through development of applications, IT systems and state-of-the-art software, supply of multimedia products, data processing and ICT services based on next-generation internet.

INDUSTRIAL AUTOMATION

Industrial automation area is based on existing potential and long-standing tradition of the region in manufacturing of machine parts, equipment repairs, production of measurement and interconnection systems and sensors, as well as existing scientific environment in the area of mechanics and machine construction and industrial automation. The objective of the potential is to support and complement all actions aimed at effective operation and implementation of each of the value-based SSs, e.g. by application of automation in production processes.

ENVIRONMENTAL INNOVATION

Environmental innovation will support region’s development through elaboration and implementation of innovations enabling to reduce consumption of energy and materials and the level of harmful emissions of processes and products in all other areas of value-based specialisations. This SS also supports new closed-circuit business models in the economy, utilising waste-reducing technologies, as well as those aimed at better utilisation and management of waste. Environmental innovation features also launch of innovative equipment and technologies in renewable energy production based on natural resources (e.g. solar-, wind- and hydro-energy).

An important aspect of this SS is the environmental- and health impact assessment of the innovative solutions, with underlying economic impact assessment, as well as assessment of impact on tourism, inhabitants’ quality of life and foodstuffs production.
Proportionality

Appropriateness

Openness

Reliability

Knowledge and expertise

Transparency

**Evaluation of the situation in the region**

**Expert consultations**

**Definition. Review of selection criteria for SS areas**

**Initial identification. Review of SS areas**

**Strategic Analysis (SWOT)**

**Wide public consultation**

**Selection of SS areas**

**Decision (Regional Board)**

Smart specialisation selection process

Rules for assessment of project’s compliance with smart specialisations
The Kujawsko-Pomorskie Region

Science and Innovation Agenda