National Smart Specialisation in Poland

Executive Summary

1. General strategic framework for national smart specialization in Poland is described in one of the nine strategies integrated under the Strategy for Innovation and Economic Efficiency "Dynamic Poland" (SIEE), which in terms of assumptions is consistent with the EU development strategy Europe 2020 and the provisions of the National Development Strategy 2020. The implementing document for the Strategy for Innovation and Economic Efficiency is the Enterprise Development Programme 2020, which provides a comprehensive directory of instruments to support the development of innovation and entrepreneurship in Poland. *National Smart Specialization (NSS)* as a document indicating areas of R+D+I, under which action will be taken in order to achieve strategic objectives SIEE, is an integral part of the Enterprise Development Programme, which was accepted by the Government of the Republic of Poland on 8 April 2014 . NSS is an open document, which will be subject to ongoing review and updating on the basis of the monitoring system and ongoing socio-economic changes.

2. Strategic thinking is guided by the principle that the essence of the entrepreneurial process of discovery is to support bottom-up activities and initiatives that will lead to smart growth and optimal utilization of resources, in particular those that will effectively engage the private sector in the operation and funding of research and innovation, as well as public consultation and active dialogue.

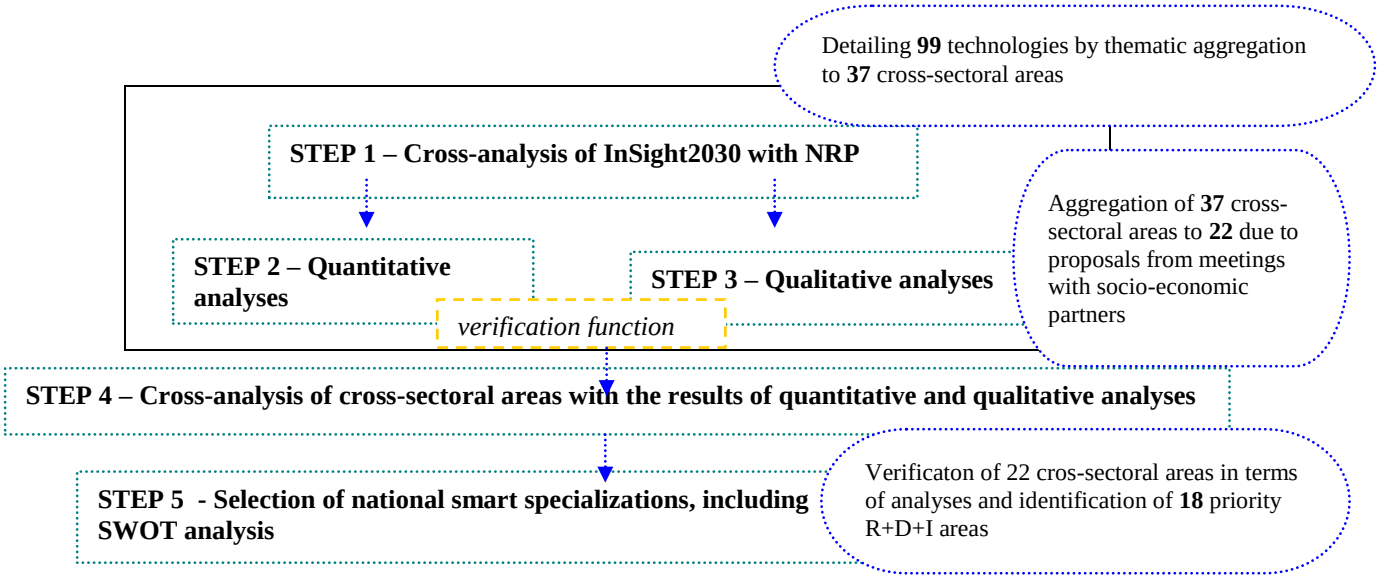
3. The process of entrepreneurial discovery has been initiated already in 2011, with the launch of the project Technology Foresight for Polish industry - InSight2030, providing the scientific and economic priorities and updating of the National Research Programme, indicating research and scientific priorities. The methodology of the InSight2030 project in the whole process of identifying key technologies for Polish industry took into account the participation of socio-economic partners, including businesses, inter alia in brainstorming, STEEP analysis, SWOT analysis, cross-analysis of influences, expert panels, expert research with the use of Delphi method and in the construction of scenarios. To ensure full representativeness of entrepreneurs in the creation of results of InSight2030, the Ministry of Economy decided to hold a two-stage consultation among representatives of business, mainly in the context of the final shape of the list of technologies that will decide the development of Polish industry by 2030.

   The involvement of entrepreneurs in the process of entrepreneurial discovery is also done through sectoral programmes implemented by the National Centre for Research and Development (NCRD), which comprise a sequence of activities allowing companies to identify research topics (e.g. in clusters or technology platforms) for the implementation of research projects designated by them.

A particular form of involvement of companies in the process of entrepreneurial discovery is the activity of clusters, bringing together entrepreneurs and representatives of business environment institutions. Actions for promotion of cluster development are horizontal in nature and are a component of several areas of economic policy, including: innovation, science and technology, regional or industrial. The activity of cluster concentrations has been the subject of analyses in the process of creating R+D+I priorities, while the process of monitoring and updating national smart specializations will make use of the results of recommended competitions for key clusters (Operational Programme Smart Growth).

As part of the streamlining of the process of entrepreneurial discovery the Ministry of Economy cooperates with the World Bank. This cooperation includes a pilot project under which the study will be conducted among more than 1,000 companies in selected areas of smart specialization, indicating the endogenous potential and the demand of companies for public intervention. Good practice will be used, presented by international experts who will prepare Polish experts for their use in the process of entrepreneurial discovery in Poland.

4. The starting point for identifying national smart specializations in Poland are the two key documents in the field of scientific research and innovation, i.e. Technology Foresight for Polish Industry – InSight 2030 and National Research Programme (NRP). In order to define national smart specializations, the Ministry of Economy has developed a methodology to reach these specializations. The following diagram illustrates the main steps of the methodology:



The various steps are discussed in more details in the document.

5. The 18 national smart specializations (national priorities in the field of R+D+I) were grouped into five thematic areas:

HEALTHY SOCIETY

1. Medical engineering technologies, including medical biotechnologies

2. Diagnosis and treatment of civilization diseases and personalized medicine

3. Production of medicinal products

AGRI-FOOD, FORESTRY-TIMBER AND ENVIRONMENTAL BIOECONOMY

4. Innovative technologies, processes and products of the agri-food and forestry-timber industry

5. Healthy food (high quality and organic production)

6. Biotechnological processes and products of household chemistry and environmental engineering

SUSTAINABLE ENERGY

7. High efficiency, low-emission and integrated energy production, storage, transmission and distribution systems

8. Smart and energy efficient construction

9. Environmentally friendly transport solutions

NATURAL RESOURCES AND WASTE MANAGEMENT

10. Modern technologies for sourcing, processing and use of natural resources and production of substitutes thereof

11. Minimising waste, including waste unfit for processing and use of waste for material and energy purposes (recycling and other recovery methods)

12. Innovative technologies for processing and recovery of water and reducing its consumption

INNOVATIVE TECHNOLOGIES AND INDUSTRIAL PROCESSES (IN HORIZONTAL APPROACH)

13. Multifunctional materials and composites with advanced properties, including nano-processes and nano-products

14. Sensors (including biosensors) and smart sensor networks

15. Smart grids and geo-information technologies

16. Electronic based on conducting polymers

17. Automation and robotics of technological processes

18. Optoelectronic systems and materials

6. The third quarter of 2014 will see organisation of meetings with experts of 18 Working Groups for NSS, where each area of R+D+I will be detailed. The aim is to ensure the uniqueness of interpretation of the substantive scope of individual specializations and allow for indication of relationships between national and regional specializations. The process of describing smart specializations, fully engaging entrepreneurs and other stakeholders, has been initiated at meetings with entrepreneurs, representatives of research institutes and business environment institutions and government representatives, organized by the Ministry of Economy in September 2013, This part will be updated with examples of best practices and success stories within each specialization.

7. Implementation of *National Smart Specialization* will take place both through the implementation of national programmes (e.g. NCRD, PAED projects) and with the use of EU funds under the operational programmes, mainly OP SG. One should also take into account the adaptation of research infrastructure to the development of R+D+I areas identified in the NSS under the *Polish Roadmap for Research Infrastructure*. Supporting the development of smart specialization will be done through preferential treatment of R+D+I areas, defined as national smart specializations, in competitions conducted under national programmes and the OP SG, giving them extra points when assessing applications.

8. Development of a system for monitoring the *NSS* aims to provide a basis for updating national smart specializations and measure the effectiveness of developing and implementing them. Monitoring shall also include observation of economic change, the degree of achievement of indicators and performance targets and identification of new emerging competitive advantages of the country. Monitoring the implementation of activities and the degree of achieved results will take place on an ongoing basis.

   This system will consist of the following elements:

   a) **IT platform, which will be basis for the monitoring system**
      system to monitor the results of implementation of national smart specializations and conduct quantitative analysis of socio-economic data (based on the updated results of Technology Foresight for Polish industry, projects in clusters and OP IE 2007-2013, OP SG 2014-2020, statistical data of CSO from portals STRATEG, INSIGOS, PIK and others)
   b) **Steering Committee (SC)**
      management entity whose task is to strategically manage and control the process of NSS implementation in order to achieve the projected outcomes and strategic and detailed objectives, its role will be also to select experts to WG on NSS
   c) **Consultative Group (CG)**
      advisory entity, composed of representatives of government, involved in the implementation of smart specializations, responsible for making recommendations

on the implementation and monitoring of smart specializations and recommending changes to SC as regards the shape of national smart specializations

d) **Economic Observatory (EO)**

entity established for qualitative analysis of available and developing R+D+I potential in Poland, among others, identification of barriers, risks and opportunities and market niches, development trends, observation of positively completed implementations of results of R+D, preparation of periodic reports on the implementation of NSS, current level of innovation and change in the structure of the economy; the observatory will include representatives of companies, business environment institutions and business organizations (in order to ensure adequate voice of entrepreneurs)

e) **Working Groups for national smart specializations (WG)**

bodies established in the areas of national smart specializations to monitor performance and status of implementation of different strategic and detailed objectives through the development of given specialization; WG will be responsible for reporting to the SC about development of specialization and recommending changes to the implementation system or specializations

f) **Regional Forum for Smart Specialization (RFSS)**

platform for dialogue at EU, national and regional level, whose aim is to exchange experience and information in the area of smart specialization; the forum is comprised of representatives of 16 Marshal Offices, the Ministry of Economy, the Ministry of Infrastructure and Development, the Ministry of Science and Higher Education, involved in the process of selecting specializations and implementation of programmes in the field of smart specialization, as well as representatives of the European Commission and the World Bank, indicating recommendations for the improvement of smart specialization process in Poland

9. National smart specializations are a process subject to continuous monitoring and responding to changing external factors. With this in mind, where the monitoring process shows the need to redefine already defined specializations or the emergence of potential new ones, the work will be done to supplement and update identified specializations.

It is planned to carry out the annual update of national smart specializations. Moreover, based on the recommendations of the Consultative Group, in case there is a need to modify smart specializations, the system provides for its conduct on an ad hoc basis.

The process of developing smart specializations, their implementation and the emergence of new areas of R+D+I is a dynamic process, so the system of updating is adapted to respond quickly to changing factors and socio-economic environmental, including to verify, correct and update records.

Any changes in the implementation of the *National Smart Specialization* and specific priorities in the area of R+D+I will be subject to approval of the Steering Committee in the manner specified in the rules of the Committee's work. In addition, information

about updating the document will be provided to stakeholders of the process through the website of the Ministry of Economy and the NSS website