REGIONAL SPECIALISED OBSERVATORIES NETWORKS IN TECHNOLOGICAL DEVELOPMENT AND INNOVATION EXEMPLIFIED BY THE SILESIA VOIVODSHIP

Jan Bondaruk
Agnieszka Gieroszka
Anna Siwek – Skalny
Elżbieta Uszok
Mariusz Kruczek
Central Mining Institute

Abstract

The Regional Specialised Observatories Network is a systemic tool to encourage interdisciplinary cooperation between the key participants of the regional innovation system in order to build the competitive advantage of the region. The network responds to the region's requirements by creating a modern tool to monitor the effects of the pro-technological development of the region in particular areas of technology, established in the Technological Development Strategy (TDS) for the Silesian Voivodship for the years 2010-2020, which is a constituent of the Regional Innovation Strategy. The observatory network will concentrate on collecting and processing specialised knowledge in the areas of technology in accord with TDS, monitoring technological and economic trends and assessment of the endogenous technological potential of the Silesian Voivodship. The network's operation, through the link to the regional observatory as well as to national initiatives, will stimulate many forms of cooperation and contribute to the bonding of economic circles, innovators, science and research centres, the regional government and authorities responsible for drawing up and implementing development policy. The Regional Specialised Observatories Network is an open structure geared towards collecting, processing and publicising specialised knowledge, being a trustworthy source of data and information on technological areas in the region. The article presents the Network's impact on identifying challenges and technological trends in reference to the region's potential.

Key words: technological development and innovation, networking

Introduction

The growing interest in innovations and their impact on company and economy competitiveness, both on a regional and national level, has resulted in the necessity to create strategies favourable for the innovation development

of various areas, particularly in technology [Kosiedowski, 2001]. Such activities have resulted in attempts to define innovation policy not only in its general sense but also defining technological areas which may, with appropriate back up or selection, become crucial to the region's development. The shaping of such a policy demands up-to-date knowledge on the condition and developments in technological areas. Analysis of EU state's economies in the 1990s highlighted that innovations result from complex interdependencies and interactions between different actors and institutions [Wojnicka et al., 2006]. Technological changes do not follow a linear pattern but through feedback mechanisms within a particular integrated system with companies at its centre. The success and effectiveness of these processes are determined by the way they organise production and the innovations through which they gain external sources of knowledge and undertake multifaceted cooperation with R&D institutions through their research potential and knowledge resources [Klepka, 2005]. The instrument of shaping these benefit chains and knowledge building are the specialised observatories set up in Europe whose aim is to constantly monitor and assess activities in areas to identify technological trends that lead to competitive advantage.

The idea of creating this Regional Specialised Observatories Network is multipurpose for the development of both the region and the state. One can regard as most significant the identification and assessment of the endogenous potential of the region in the area of its technological advancement and innovation, which is created based on directly collected data from the companies and institutions engaged in the construction of this potential. The observatories' activity, as a constituent of the regional development strategy, concentrates on the search for and reinforcement of areas of advancement and development niches within 'smart specialisation' [OECD, 2012].

The importance of information resources in technological development and innovation

Within the last few years, information management systems (including collection and storage) has undergone constant evolution and change. This process depends on the operation of the global economic system which affects the development of management sciences and the manner in which competition is conducted. At present, information for a particular user is of far greater importance than information based on the full database. The development of technologies, particularly in IT, also plays a significant role thanks to which information is easily generated, processed

and spread. This context highlights the importance of gaining a competitive advantage by such sciences and activities as knowledge management, the intangible economy, innovation management and intellectual capital management. Gaining a competitive advantage based on information resources stems from a change in the way of thinking and the expectations of business people, clients as well as in scientific circles. Skilful management of information has become a challenge. The release of appropriate information and the collecting and processing of data has become the basis for strategic operations, not only within a particular organisation but also at local and regional levels [Mazur-Łukomska, 2006]. Specialised observatories are a response to contemporary expectations as well as a tool supporting the decision-making system at the level of voivodship, borough, institution and company management where the observatories' importance increases in relation to the size of the network. In the long run, it will be necessary to include the observatories into the region's strategic management system and to prove their impact on the authorities decisions on development policy in order to achieve consensus and build coalitions for ideas and solutions. This derives from the specific mission of the observatory as a scientific and analytical centre which, acting for the benefit of and through the funds of the voivoidship board, should reinforce the region's competencies within the area of development policy and create a regional think-tank[24] [Woźniak, 2013]. The article presents the idea of building a specialised observatory network in order to monitor and assess the endogenous potential of the region. The work is the result of the experiences collected while creating and implementing this solution in the Silesian Voivodship.

Review of the existing specialised observatories

A review of solutions within selected specialised observatories, both within the country and abroad, has been conducted in order to identify the scope of activities, accessible information and data useful while running a specialised observatory. It has confirmed that the regional and sectoral observatories in Poland mainly utilise secondary statistical data, obtained by the Central Statistical Office (GUS) and relevant statistical offices and data collected on unemployment statistics taken from the district (PUP) and voivodship job centres (WUP). Only a few observatories conduct their own analysis based on the above mentioned data and research commissioned

[24] THINK-TANK a platform for exchanging experiences and opinion on effective management of a region , in this case regional innovation system management.

through specialised research institutions as well as data obtained from surveys and interviews. Wielkopolska Economic Observatory[25], run by SENCE Consulting Ltd. and TNS Pentor Poznan, serves as an example. The observatory conducts surveys with companies and CATI interviews with the inhabitants of the region. The observatory analysis the economic climate and its changes in a comprehensive manner. The scale of the research conducted enables the accurate presentation of results according to the level of each of the five Wielkopolska sub-regions: Poznanski, Kaliski, Koniński, Pilski and Leszczyński.

Another observatory, Pomerania Economic Observatory[26], run by the Pomerania Development Agency in cooperation with a panel of scientists headed by Prof. Piotr Dominiak, conducts periodic surveys aimed at business people in small and small-medium sized companies in Pomerania. The scope of the observatory's activities covers the development dynamics and the competitiveness of companies as well as directing economic changes in the region.

While analysing the sources of information for the observatories, one must highlight the wide spectrum of institutions and data. They come from, among others, the IT System of Monitoring and Financial Control over Structural Funds and the Cohesion Fund (Lublin Economic Observatory), the National Polish Bank, (Wielkopolska Economic Observatory), SZPON database, presenting comprehensive information on culture (Culture Observatory). For environmental information, the data can be obtained from the Central or Voivodship Inspectorates for Environmental Protection, which operate in the monitoring and reporting of environmental quality.

The observatories also avail of data provided by research centres and a number of governmental institutions with which sub-regions (in the case of regional observatories) or international organisations (in the case of the Culture Observatory- ENCATC, TILLT, Creative Clash) cooperate, and from conferences, workshops and seminars, which are information exchange platforms. In the case of foreign widely accessible observatories, the source of data depends on the subject matter of the specialisation [Ekeland, Tomlinson, 2001]. JISC Technology Observatory[27] aims to classify reactions to expected trends and draws up future scenarios for using technologies in higher and further education in Great Britain. The

[25] www.obserwatorium.pl
[26] www.arp.gda.pl, www.ris-pomorskie.pg.gda.pl
[27] JISC ITT: JISC Technology Observatory www.jisc.ac.uk

observatory utilises data provided by, Deloitte, PA Consulting Group, Technology Review, FP7 Future Internet Projects. It analysis horizontal sides of technological changes and passes information on existing knowledge and experiences to interested parties. Significant emphasis is put on research in the area of accessible technologies and solutions in the IT sector in order to identify trends (technologies, standards and common practices). The users are research institutions or public companies and departments which follow the advancement of technology in the IT sector.

The European Commission's Joint Research Centre[28] observatory, run in cooperation with the European Commission Research Centre, the Institute for Prospective Technological Studies (JRC-IPTS), Directorate-General for Research and Innovation (DG-RTD) as well as in close cooperation with Directorate-General Enterprise and Industry (DG-ENTR), relies on data available on cordis.europa.eu covering European science, research and implementation projects such as FP7 or CIP-Innovation. The observatory's activities cover the collection and processing of information on the degree of research and innovation implementation, national, regional and European analysis of the state of the R&D sector, education and technological advancement as well as the implementation of research and development policy, coordination of scientific and technological operations including promotion of development and transfer of technologies. The Economic Complexity Observatory[29], run by a consortium of five organisations led by Technopolis Group, acquires trade data from the Robert Feenstra Centre for International Data and UN Comtrade, focussing on the analysis of the development and implementation of eco-innovative technologies.

Data sources in Europe may also be derived, apart from widely available databases comparing EU member states (EUROSTAT or OECD) or UN member states (The Database of International Statistical Activities-DISA), from specialised databases which are trustworthy sources of information on, amongst others, the international petroleum market and other energy sectors (International Energy Database), industry (UNIDO), environment (European Environment Agency) and health (WHO).

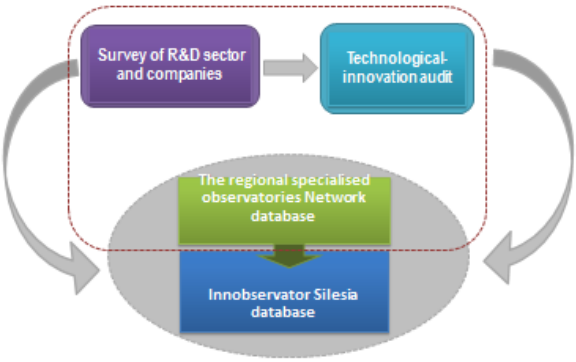
Analysis of the specialised observatories' functionality has led to the forming of the first guidelines for the Regional Specialised Observatories Network in the Silesia Voivodship, which, as a result, will set

[28] European Commission's Joint Research Centre (JRC) ipts.jrc.ec.europa.eu
[29] Eco-Innovation Observatory www.eco-innovation.eu

up an effective and transparently constructed observatory, handling information on the level of implementation and advancement of technologies in the Silesia voivodship.

Regional Specialised Observatories Network exemplified by Silesia

The Regional Specialised Observatories Network in Silesia is implemented through Innobservator Silesia Platform and 'Management, implementation and monitoring of the Regional Innovation Strategy in the Silesia Voivodship' (3rd edition). The aim of the network is the development of the region's economic potential through improvements in the paths to competitive advantage based on cooperation and result exchange of the implemented Regional Innovation Strategy in Silesia Voivodship and Programme for Technological Development for the years 2010-2020 among the actors of the Regional Innovation System. The establishment and operations of observatories network are an integral part of the Network which is the answer to the region's needs as far as the creation of a modern tool to monitor the effects of the region's technological advancement in certain technological areas, especially those defined as smart specialisations. It is also possible to assess the validity of expenditure in the coming programming for 2014-2020. In the wider scope, observatories network will become a key element in the verifying and assessment of development policy implementation within the regional specialisations. The operations of observatories network will entail collecting and processing specialised knowledge on technological areas, monitoring technological and industrial trends and assessment of the endogenous technological potential of the Silesia Voivodship. Information collected and made accessible in the network will come from the extensive public statistics, questionnaires and technological audits of R&D sectors and companies run in order to contribute to the development of the Regional Specialised Observatories Network (Graph 1).

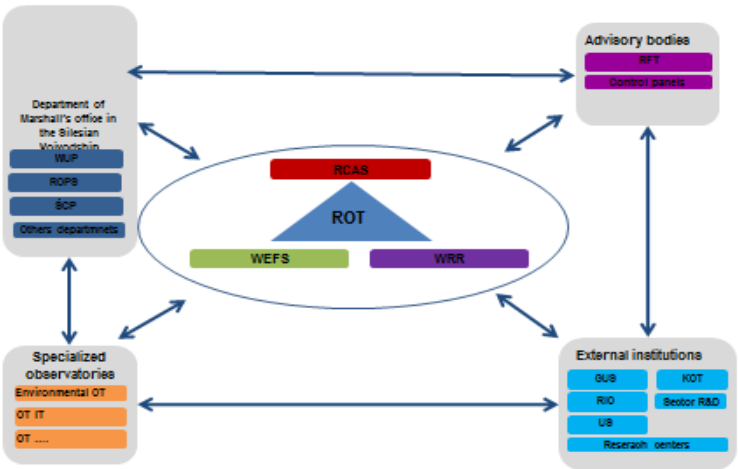


Graph. 1 Tools of technological development strategy for Silesia Voivodship for 2010-2020

Source: Own work.

Observatories, apart from their potential for commercial activity, will perform an important public function. This will entail the consolidation of strategic and reporting data, providing a number of services for the regional government, doing analysis which will flag up developmental opportunities and identify so called 'weak signals' which may lead to reorienting of support policy in a given area. The network's operation, due to its link to the regional observatories as well as other national initiatives, will facilitate communication between economic circles, innovators, science and research centres, the regional government and authorities responsible for drawing up and implementing the development policy of the region, which at the same time will contribute to the development of a modern and competitive economy of the region. In Silesia Voivodship, the Regional Territorial Observatory, performs along with specialised observatories and other institutions supervised by the Silesian Voivodship Marshall's Office, serving as a network of information exchange.

The Regional Centre for Strategic Analyses (RCSA) implementing The Development Strategy of the Silesia Voivodship 'Śląskie 2020' and being a coordinator of the Regional Territorial Observatory, along with the Marshall's Office, sets the framework for the Regional Territorial Observatory, presented in Graph 2.



Graph 2 interconnections within the structure of the Regional Network of Information Exchange

Source: Handbook on regional specialised observatories network operations within Innobservator Silesia platform.

The regional network of information exchange will include the Regional Specialised Observatories Network, which will contribute to the competitive advantage of the region, based on cooperation, and multiply the effects of The Regional Innovation System through:

- support and facilitation of the development management of the region in the areas of: regional scientific and technological potential, prioritising of key technological areas and assessment of the effectiveness of the Silesia Voivodship's regional pro-technological development policy and reinforcement of regional specialisation,
- reinforcement of the adaptation potential of the region, regional research service market and regional staff through building relations between the R&D sector, companies, institutions of business relations and the region's authorities,
- partnership in creating a regional network of knowledge and competencies verifying the selections of smart specialisations,
- greater transfer and commercialisation of knowledge.

In its final shape, the Regional Specialised Observatories Network will act as specialised observatories responding to the needs of the particular technological areas established in the Technological Development Strategy for 2010-2020. The suggested solution will include the stipulations for creating observatories for subject matters not covered by the Technological Development Strategy in order to ensure the source of information in the areas of regional specialisation. In Silesia Voivodship there are a number of institutions supervised by the Marshall's office such as: Voivodship Job Centre (WUP) and Regional Social Policy Observatory (ROPS), Silesian Entrepreneurial Centre (ŚCP) participating in The Regional Network of Information Exchange. The operations of the Regional Territorial Observatory also receives back up from the data resources of the National Territorial Observatory (KOT), Central Statistical Office (GUS), regional accounting chambers (RIO), State Treasury offices (US) and other institutions, including research centres. In its final shape, the regional network of information exchange, as a system of collecting and processing information for Silesia Voivodship, including the Regional Territorial Forum and Control Panels, will initiate key projects for the Silesia Voivodship such as the so called 'flag projects' and the Regional Specialised Observatories Network will become a tool for monitoring indexes comparing and assessing the effectiveness of the innovation support policy at a regional level.

Summary

The extension of the Regional Specialised Observatories Network through new, specialised observatories will contribute to the creation of an information system which will serve as a comprehensive source of data and information on technological information in the region and contribute to the development of the regional network of information exchange of the Silesia Voivodship, which is a strong support tool for the development of the economic potential of the region and its competitive advantage through cooperation. The collected specialised data, which are frequently more comprehensive than the data offered by the main statistical institutions (e.g. Central Statistical Office), facilitate a better and more comprehensive description of the endogenous potential of the region. The Regional Specialised Observatories Network adheres to evidence-based policy, providing conditions for in-depth diagnosis of the operation's effectiveness, including the effectiveness of instruments of grant support for the research, development and innovation sector, which is further verified by the assessment of quantified results. Evidence based policy guides not only the development of the public administration but also affects the economy

and science, building interdependencies in these areas. The implementation of a regional specialised observatories network will mainly affect the direction of public intervention aimed at translating its results into the growth of innovation and competitiveness of the regions, and, as a consequence, the whole of the country. Further development of the Regional Specialised Observatories Network, including the Regional Network of Information Exchange, will contribute to the initiation of key projects for the Silesia Voivodship and will also become a valuable source of knowledge for similar initiatives implemented nationally. Moreover, it will allow the region to assess the best direction and validity of expenditure in any new strategy.

References

1. Ekeland A., Tomlinson M., *The Supply and Demand of High Technology Skills in United Kingdom, Norway and Netherlands: A Report from the European Science and Technology Observatory (ESTO).* Reports – Research, 2001.
2. Klepka M., *Raport. Efekty regionalnych strategii innowacji w Polsce. Rekomendacje do analizy szczegółowej*, PARP, Warszawa, 2005.
3. Kosiedowski W. (ed.), *Zarządzanie rozwojem regionalnym i lokalnym. Problemy teorii i praktyki*, TNOiK, Toruń, 2001.
4. Mazur – Łukomska K., *Strategiczne zasoby informacyjne przedsiębiorstwa*, Sceno Świętokrzyskie Centrum Edukacji na Odległość, Zeszyty Naukowe no 2, 2006.
5. Roworth-Stokes S., *The Business of Research in Art and Design: Parallels Between Research Centres and Small Businesses*, Journal of Research Practice, vol. 9, 2013.
6. OECD, *Draft synthesis report on innovation driven-growth in regions: the role of smart specialisation*, Bruksela, 2012.
7. Wojnicka E., Klimczak P., Wojnicka M., Dąbkowski J., *Perspektywy rozwoju małych i średnich przedsiębiorstw wysokich technologii w Polsce do 2020 roku*, PARP, Warszawa, 2006.
8. Woźniak J., *Obserwatoria polityki rozwoju jako element systemu strategicznego zarządzania regionem,* http://www.mrr.gov.pl/rozwoj_regionalny/poziom_regionalny/ekspertyzy/Documents/Obserwatoria_polityki_rozwoju_9.pdf, accessed 10.03.2013.
9. Zarząd Województwa Śląskiego, *Program Rozwoju Technologii Województwa Śląskiego na lata 2010 - 2020*, Katowice, 2011.

10. Sejmik Województwa Śląskiego, *Regionalna Strategia innowacji na lata 2013 – 2020*, Katowice, 2012.
11. Ministerstwo Rozwoju Regionalnego, *Krajowa Strategia Rozwoju Regionalnego 2010-2020: Regiony, miasta, obszary wiejskie z 2010r.*, Warszawa, 2010.
12. Podręcznik funkcjonowania sieci regionalnych obserwatoriów specjalistycznych w ramach platformy Innobservator Silesia, materiały niepublikowane.
13. Praca zbiorowa, *Europe needs a science and technology skills observatory Industrial & Commercial Training*, vol. 33, 2001, pp. 234–235.
14. European Commission's Joint Research Centre (JRC) ipts.jrc.ec.europa.eu.
15. The Eco-Innovation Observatory www.eco-innovation.eu.
16. www.arp.gda.pl.
17. www.ris-pomorskie.pg.gda.pl.
18. JISC ITT: JISC Technology Observatory ww.jisc.ac.uk.
19. www.obserwatorium.com.pl.