

*Anna Rogut**

SMART SPECIALISATION – TOWARDS A NEW GENERATION OF REGIONAL INNOVATION STRATEGIES

1. INTRODUCTION

Smart specialisation entered the European regional policy due to the *Europe 2020 Strategy*¹. It was, however, defined earlier in the documents of the “*Knowledge for Growth*” *Expert Group*² and was further sanctioned in a number of EU documents³. As a result, it became an ex ante condition for the acquisition of structural funds for research and development, as well as innovative activity, in the period of 2014–2020⁴. This development forced all the Polish regions to work on updating their old innovation strategies and transforming them into regional research

* Łódź University professor, Ph.D., Department of Entrepreneurship and Industrial Policy, Faculty of Management, University of Łódź, 22/26 Matejki Str., 90-237 Łódź.

¹ *Europe 2020. A strategy for smart, sustainable and inclusive growth*, COM(2010), 2020 final (European Commission); *Europe 2020. Flagship Initiative Innovation Union*, COM(2010), 546 final (European Commission).

² *Knowledge for Growth. European issues and policy challenges*, European Commission, Luxembourg 2008 (Office for Official Publications of the European Communities).

³ *Regional Policy contributing to smart growth in Europe. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 2020*, COM(2010), 553 final; *Regional policy contributing to sustainable growth in Europe 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 2020*, COM(2011), 17 final; *Elements for a Common Strategic Framework 2014 to 2020 for the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund*, SWD(2012), 61 final, Part I and II (European Commission, Commission Staff Working Document); *Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3)* [2012], http://s3platform.jrc.ec.europa.eu/en/c/document_library/get_file?uuid=e50397e3-f2b1-4086-8608-7b86e69e8553&groupId=10157, 30.11.2012.

⁴ *Proposal. Regulation of the European Parliament and of the Council laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund covered by the Common Strategic Framework and laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Regulation (EC) No 1083/2006*, COM(2011), 615 final.

and innovation strategies for smart specialisation (RIS3) so that they could become instruments for economic and innovation transformation of the regions. Thus, the subject of this paper is the presentation, based on experiences from Łódź Voivodeship, of the procedure of finding smart specialisations, preceded by a brief presentation of the essence of the smart specialisation concept.

2. THE ESSENCE OF SMART SPECIALISATION

In the traditional approach, specialisation of the country/region is defined by the relationship between the characteristics of industries and the countries/regions where they are developed (Tab. 1) which determine the specialisation of the individual countries/regions in industries/services technologically intensive, and/or characterised by high economies of scale, and/or capital intensive, and/or saturated with skilled and/or highly skilled workforce⁵.

Table 1

Specialisation as a result of the interaction between the characteristics of industries and the characteristics of the countries/regions in which they are developed

Characteristics of industries	Characteristics of countries/regions
<ul style="list-style-type: none"> • economies of scale • technical level • R&D intensity • capital intensity • intensity of use of skilled and highly skilled workforce • intensity of use of agricultural produce and intermediate products • intra and inter-sectoral relations • final demand potential • industry sales • industry growth rate 	<ul style="list-style-type: none"> • market potential • human capital rate • average wage level in manufacturing/services • ratio of wages in a given country/region to wages in other countries/regions • availability of research staff • availability of skilled and highly skilled workforce • availability of public assistance

Source: K. H. Midelfart-Knarvik *et al.*, *The Location of European Industry*, "Economic Paper" 2000, No. 142.

⁵ K. Aiginger, S. W. Davies, *Industrial specialisation and geographic concentration: Two sides of the same coin? Not for the European Union*, "Journal of Applied Economics" 2004, Vol. 7, No. 2, p. 231–248; K. Aiginger, E. Rossi-Hansberg, *Specialization and concentration: A note on theory and evidence*, "Empirica" 2006, Vol. 33, p. 55–266; A. Dierx, F. Ilzkovitz, K. Sekkat, *European integration and the functioning of product markets: selected issues*, [in:] *European Commission, European integration and the functioning of product markets*, "European Economy" 2003, Special Report 2, p. 9–32; M. Hallet, *Regional Specialisation and Concentration in the EU*, "Economic Paper" 2000, No. 141; P. Krugman, A. J. Venables, *The seamless world: A spatial model of international specialization*, "National Bureau of Economic Research Working Paper" 1995, No. 5220 (Massachusetts).

From this perspective, specialisation is mainly the consequence of history and individual countries/regions have a relatively narrow margin of entry into new areas of specialisation (other than the currently existing ones)⁶.

The current concept of smart specialisation (stemming from *Europe 2020 Strategy*) differs from this approach and relates to the technological change⁷ embedded in territorial capital⁸. Its pivotal points are general purpose technologies⁹

⁶ A. Balmann *et al.*, *Path-dependence without increasing returns to scale and network externalities*, “Journal of Economic Behavior and Organization” 1996, Vol. 29, p. 159–172; R. Capello, P. Nijkamp, *Handbook of regional growth and development theories*, Elgar, Cheltenham 2009; K. Frenken, R. A. Boschma, *A theoretical framework for evolutionary economic geography: industrial dynamics and urban growth as a branching process*, “Journal of Economic Geography” 2007, No. 7, p. 635–649; R. Hudson, *Regions and regional uneven development forever? Some reflective comments upon theory and practice*, “Regional Studies” 2007, Vol. 41, No. 9, p. 1149–1160; I. H. Lee, R. Mason, *Uncertainty, co-ordination and path dependence*, “Journal of Economic Theory” 2008, Vol. 138, p. 262–287; J. A. Matthews, *A resource-based view of Schumpeterian economic dynamics*, “Journal of Evolutionary Economics” 2002, Vol. 12, p. 29–54; D. J. Puffer, *Path Dependence, Network Form, and Technological Change*, [in:] W. Sundstrom, T. Guinnane, W. Whalley (eds.), *History Matters: Economic Growth, Technology, and Population*, Stanford University Press, Stanford 2004, p. 63–95; P. S. Raïqui, *Evolving economic landscapes: why new institutional economics matters for economic geography*, “Journal of Economic Geography” 2009, No. 9, p. 329–353; S. Reimer, *Geographies of production I*, “Progress in Human Geography” 2007, Vol. 31, No. 2, p. 245–255; J. J. Thomas, *Kerala’s industrial backwardness: A case of path dependence in industrialization?*, “World Development” 2005, Vol. 33, No. 5, p. 763–783.

⁷ P. Aghiona, P. A. David, D. Foray, *Science, technology and innovation for economic growth: Linking policy research and practice in ‘STIG Systems’*, “Research Policy” 2009, Vol. 38, p. 681–693; D. Foray, P. A. David, B. Hall, *Smart Specialisation – The Concept*, “Knowledge Economists Policy Brief” 2009, No. 9.

⁸ Territorial capital is a unique combination of resources that ensure competitive advantages to individual countries/regions (G. Athey, M. Nathan, C. Webber, *What role do cities play in innovation, and to what extent do we need city-based innovation policies and approaches?*, “NESTA Working Paper”, June 2007, No. 1; R. Capello *et al.*, *Modelling regional scenarios for the enlarged Europe. European competitiveness and global strategies*, Springer Verlag, Berlin 2008; R. Capello, A. Caragliu, P. Nijkamp, *Territorial Capital and Regional Growth: Increasing Returns in Cognitive Knowledge Use* [2009], <http://www.tinbergen.nl/discussionpapers/09059.pdf>, 30.11.2012; M. W. Danson, *Territorial innovation models: A critical survey*, “Regional Studies” 2003, Vol. 37, No. 3, p. 289–302; S. Davoudi *et al.*, *Territorial governance in the making. Approaches, methodologies, practices*, “Boletín de la A.G.E.N.” 2008, Vol. 46, p. 33–52; P. McCann, R. Ortega-Argilés, *Smart specialisation, regional growth and applications to EU cohesion policy* [2011], http://www.ipts.jrc.ec.europa.eu/docs/s3_mccann_ortega.pdf, 30.11.2012; *Territorial outlook. Territorial economy*, OECD Publishing, Paris 2001; M. Sotara, *Strategy Development in learning cities. From classical rhetoric towards dynamic capabilities*, “SENTE Working Papers” 2004, No. 8; J. Walendowski, *Regional Innovation Monitor. Thematic Paper 2. Policies and processes of smart specialisation: realising new opportunities* [2011], <http://www.rim-europa.eu/index.cfm?q=p.file&r=8a7c0835b2cf142ae9940f48c7c2132b>, 30.11.2012).

⁹ D. Foray, P. A. David, B. Hall, *op. cit.*

and the position of the country/region in the global innovation chain which is associated with these technologies¹⁰. The expected effect is an increased efficiency of the European Research Area¹¹, as well as more effective implementation of the cohesion policy¹². The latter follows from the assumption of the existence of more fundamental (than history itself) evolution mechanisms, particularly the (technological) process of learning and adapting¹³, which make the specialisation of the country/region more a matter of strategy¹⁴ (than history) and a choice between various paths of technological development¹⁵.

The consequence of thus defined concept of smart specialisation¹⁶ is a departure from the existing policy of financing R&D and innovation activity (neutrality without favouring any research or economic area) in favour of concentration of resources (both at the level of individual countries and individual regions) on a small number of key research/innovation priorities. These priorities need to result from the place of a given country/region in the global innovation chain and, consequently, need to be associated with:

¹⁰ J. Dedrick, K. L. Kraemer, G. Linden, *The distribution of value in the mobile phone supply chain*, "Telecommunications Policy" 2011, Vol. 35, p. 505–521; E. Giuliani, C. Pirotbelli, R. Rabellotti, *Upgrading in global value chains: Lessons from Latin American clusters*, "World Development" 2005, Vol. 33, No. 4, p. 549–573; M. T. Hansen, J. Birkinshaw, *The innovation value chain*, "Harvard Business Review" 2007, HBR Spotlight, p. 2–12; C. Pirotbelli, R. Rabellotti, *Global value chains meet innovation systems: Are there learning opportunities for developing countries?*, "World Development" 2011, Vol. 39, No. 7, p. 1261–1269.

¹¹ U. Varblane, K. Ukrainski, J. Masso, *Is smart specialisation a tool for enhancing the international competitiveness of research in CEE countries within ERA?* [2010], http://www.eurosfair.pr.fr/7pc/doc/1292235415_smart_specialization_varblane_urainski_masso.pdf, 30.11.2012.

¹² *Regional policy contributing to sustainable...*

¹³ R. Martin, P. Sunley, *Complexity thinking and evolutionary economic geography*, "Journal of Economic Geography" 2007, No. 7, p. 573–601.

¹⁴ The concept of the so-called directed or intended competitive advantage, compare: P. Cooke, L. Leydesdorff, *Regional development in the knowledge-based economy: The construction of advantage*, "Journal of Technology Transfer" 2006, Vol. 31, No. 1, p. 5–15; J. L. Furman, M. E. Porter, S. Stern, *The determinants of national innovative capacity*, "Research Policy" 2002, Vol. 31, p. 899–933.

¹⁵ P. A. David, *Path dependence, its critics and the quest for 'historical economics'* [2000], <http://www-siepr.stanford.edu/workp/swp00011.pdf>, 30.11.2012; R. Garud, P. Karnøe (eds.), *Path dependence and creation*, Lawrence Erlbaum Associates, Mahwah 2001; R. Martin, *Rethinking regional path dependence: Beyond lock-in to evolution*, "Papers in Evolutionary Economic Geography" 2009, <http://www.econ.geo.uu.nl/peeg/peeg.html>, 23.09.10; R. Martin, P. Sunley, *op. cit.*; P. Maskell, A. Malmberg, *Myopia, knowledge development and cluster evolution*, "Journal of Economic Geography" 2007, No. 7, p. 603–618.

¹⁶ Which, in essence, is more of a political idea than a documented scientific theory (D. Foray, P. A. David, B. H. Hall, *Smart specialization. From academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation*, "MTEI Working Paper" 2011, No. 1), yet it is becoming extremely popular (mostly due to the recent crisis and limited public funds allocated to R&D and innovation activity).

- either – in the case of leaders – investing in the improvement/development of general purpose technologies or innovation in services,
- or – in the case of the other countries/regions – investing in innovation in a particular sector or several related sectors.

The latter (investing in innovation in particular sectors) may lead to the impression that smart specialisation (strategy) should be identified with simple changes of economic structure. The essence of the concept, however, is not a change in structure as such (e.g. favouring the development of tourism, the textile industry or any other sector/group of sectors) but the development of R&D activity and/or innovation activity supporting the development of a particular sector or a group of sectors considered highly important in a given country/region (specialisation in the development of co-invention for the purpose of application, e.g. in tourism or the textile industry). In other words, smart specialisation is a process of investing in knowledge in specialised regional clusters, where:

- investments in knowledge mean a small number of R&D and innovation priorities, incl. the creation of the missing or the strengthening of the existing relationships between resources, R&D/innovation activity and the economic structure, and
- specialised regional clusters represent a small number of sectors/groups of sectors important for a given country/region, selected on the basis of three groups of criteria: business specialisation¹⁷, scientific specialisation and technological specialisation¹⁸. This means that the concept of smart specialisation encompasses a very broad definition of clusters, identifying clusters with the sectoral innovation system¹⁹, as well as with the market and environmental initiative promoting the development of wide networks and cooperation²⁰, rather than with a narrowly

¹⁷ Indicating the degree of embeddedness of a given sector/group of sectors in a particular country/region (F. Barca, *An agenda for a reformed cohesion policy. A place-based approach to meeting European Union challenges and expectations* [2009], http://www.ec.europa.eu/regional_policy/archive/policy/future/pdf/report_barca_v0306.pdf, 30.11.2012; M. Filippi, O. Frey, A. Torre, *The modalities of territorial embeddedness of French Cooperative Groups*, [in:] A. Torre, J. B. Traversac (eds.), *Territorial governance, local development, rural areas, and agro food systems*, Springer Verlag, New York–Heidelberg 2011, p. 43–66; F. Neffke, M. S. Henning, R. Boschma, *How do regions diversify over time? Industry relatedness and the development of new growth paths in regions*, “Economic Geography” 2011, Vol. 87, No. 3, p. 237–265).

¹⁸ Indicating the total degree of relatedness between technologies used by individual sectors/groups of sectors (R. A. Boschma, K. Frenken, *Technological relatedness and regional branching* [2009], http://www.dimetic.dime-eu.org/dimetic_files/artbookBatheltFeldmanKogler.pdf, 30.11.2012; B. Leten, B. Van Looy, R. Belderbos, *Entering effectively in new technology fields: The crucial role of technological relatedness* [2007], <http://www2.druid.dk/conferences/viewpaper.php?id=1083&cf=10>, 30.11.2012; F. Neffke, M. S. Henning, *Revealed Relatedness: Mapping Industry Space*, “Papers in Evolutionary Economic Geography” 2008, Vol. 19).

¹⁹ S. Breschi, F. Lissoni, *Geographical boundaries of sectoral systems. Final report*, “Working Paper ESSY” 2000.

²⁰ M. Fromhold-Eisebith, G. Eisebith, *How to institutionalize innovative clusters?*

defined geographical concentration of businesses or with the business entities that use the term of *cluster* in their names, which has become fashionable.

3. THE METHOD OF IDENTIFYING REGIONAL AREAS OF SMART SPECIALISATION

In the case of Łódź Voivodeship, these important sectors (the basis for regional areas of smart specialisation) initially included²¹:

- industries: household appliances, furniture, medical-pharmaceutical-cosmetic, clothing, energy, construction materials, agriculture and food processing (incl. fruit and vegetables, milk and meat processing) and creative industries²²,
- services: logistic, BPO, IT, hospitality, spa and wellness,
- biotechnology as well as manufacturing and service industries for sustainable energy solutions (SES).

In order to determine whether they meet the criteria of particular importance for the future development of the region, the following factors were tested:

- their growth potential, particularly in crisis situations,
- the level of technological and knowledge advancement,
- the competitive position of the voivodeship in these areas, as well as their potential for radical technological development.

The study of the proposed sectors from the perspective of their development potential and resistance to the crisis indicated that though some of the selected specialisations are relatively resistant to the crisis, at the same time they are characterised by negative (e.g. clothing manufacturing) or relatively low (e.g. furniture manufacturing) growth rates (Tab. 2). The question remains whether similar trends will continue in the future, especially in the context of:

- the annual average growth rate, which in the more “traditional” and labour-intensive sectors (particularly leather and footwear manufacturing, clothing and textile manufacturing, manufacturing of tobacco products) has declined since the 1990’s from 2.5 to 5% and risen from 3 to 5.4% in the more capital-intensive industries (particularly in manufacturing of pharmaceuticals, computers, electronics and optical products, as well as motor vehicles), and
- the labour market, indicating a greater potential for job creation in the service sector (especially in real estate, hotels, restaurants and other services) than

Comparing explicit top-down and implicit bottom-up approaches, “Research Policy” 2005, Vol. 34, p. 1250–1268.

²¹ E. Paturalaska-Nowak, *Aktualizacja Strategii Rozwoju Województwa Łódzkiego na lata 2007–2020. Obszary i cele strategiczne* [2011], unpublished material.

²² Art and culture, incl. the film industry, media, design, cultural heritage (*Creative, cultural and digital industries. Guide for the West Midlands region*, Business Link in the West Midlands, Birmingham 2008; *Creative industries and development* [UN, 2004], http://www.unctad.org/en/docs/tdxibpd13_en.pdf, 30.11.2012).

in the manufacturing industry, where the annual average rate of unemployment (particularly in textile and clothing manufacturing, manufacturing of leather products and tobacco products) has remained at 1% since the beginning of the 1990's. Manufacturing of other transport equipment, rubber and plastic products has been an exception as it has recorded an increase in the rate of employment.

Table 2

Growth and change in manufacturing production in EU27 in the years 1990–2011 (in %)

Sector	Cycle			Growth			Crisis-induced production losses
	max	min	change intensity	max	min	average growth rate	
1	2	3	4	5	6	7	8
Clothing	5.8	-7.6	1.0	11.4	-17.7	-4.5	-17.7
Leather and leather products	6.3	-9.7	1.2	8.3	-22.5	-4.0	-22.5
Tobacco products	8.7	-6.9	0.9	18.5	-22.9	-3.5	-22.9
Textile products	6.7	-12.0	1.0	14.5	-25.3	-2.7	-25.3
Mining	6.2	-5.6	0.7	17.2	-16.5	-1.1	-16.5
Repair, maintenance, installation of machinery	20.9	-19.3	2.0	20.0	-31.8	-1.1	-15.3
Other manufacturing	8.8	-9.5	1.0	10.7	-21.5	-0.8	-21.5
Other non-metallic mineral products	8.6	-11.8	1.1	13.4	-24.0	-0.2	-24.0
Coke and refined petroleum products	4.2	-3.9	0.5	14.3	-11.2	0.2	-11.2
Wood and wooden products	8.0	-9.8	1.1	13.6	-22.1	0.3	-22.1
Printing and reproduction	3.3	-5.0	0.6	13.5	-8.2	0.3	-8.2
Metals	13.7	-21.8	1.6	36.2	-40.3	0.5	-40.3
Other transport equipment	5.2	-4.8	0.7	16.7	-14.4	0.5	-14.4
Construction	5.1	-4.2	0.7	10.7	-13.7	0.5	-10.7
Ready-made metal products	12.6	-15.8	1.4	13.3	-27.9	0.7	-27.9
Furniture	6.1	-6.9	0.8	12.1	-23.3	0.7	-9.3
Beverages	3.8	-3.3	0.5	15.2	-9.4	0.8	-7.3

Table 2 (contd)

1	2	3	4	5	6	7	8
Machinery and equipment otherwise non-classified	16.0	-21.3	1.8	20.4	-30.6	1.0	-30.6
Electrical equipment	12.7	-17.3	1.5	16.5	-27.5	1.2	-27.5
Paper and paper products	5.7	-8.1	0.7	10.8	-15.1	1.2	-15.1
Food products	1.7	-1.9	0.2	5.9	-3.4	1.3	-3.4
Rubber and plastic products	9.4	-12.3	1.1	17.7	-22.0	1.4	-22
Electricity gas, water	3.4	-3.6	0.4	15.4	-13.1	1.4	-13.1
Chemicals and chemical products	7.4	-12.1	0.9	17.1	-22.2	1.7	-22.2
Motor vehicles	17.1	-22.9	1.8	34.9	-44.6	2.8	-44.6
Computers, electronics	14.5	-16.0	1.6	23.2	-19.6	3.4	-19.6
Pharmaceuticals and medicine	2.1	-4.2	0.4	16.8	-8.7	5.1	-2.7

Source: *EU industrial structure 2011. Trends and Performance*, European Commission, Luxembourg 2011 (Publications Office of the European Union).

Analysis of the proposed sectors from the perspective of the level of technological and knowledge advancement indicated that among the initially proposed specialisations most were low and medium-low tech manufacturing and less knowledge-intensive market services. This creates a threat of a partial dependence of the voivodeship's development on industries based on relatively mature and aging technologies with a low and decreasing innovation potential and a low potential for generating economic growth (Fig. 2). Additionally, some of these industries (e.g., those whose competitive advantage lies mostly in labour costs) are characterised by strong susceptibility to delocalisation²³. This particularly applies to the clothing industry²⁴. In the case of other industries (e.g., manufacturing of

²³ H. Armbruster *et al.*, *ManVis Report No. 3. Manufacturing Visions – Integrating Diverse Perspectives into Pan-European Foresight (ManVis). Delphi Interpretation Report* [2005], http://www.forera.jrc.ec.europa.eu/documents/Final_Report_final.pdf, 30.11.2012; *Study on the competitiveness, economic situation and location of production in the textiles and clothing, footwear, leather and furniture industries. Final report* [2007], http://www.acte.net/infoflash3_files/ifm_final_report_2007_vol1.pdf, 30.11.2012.

²⁴ A. Rogut, *Barwy włókiennictwa. Potencjał przemysłu włókienniczo-odzieżowego w województwie łódzkim*, Instytut Badań nad Przedsiębiorczością i Rozwojem Ekonomicznym, Społeczna Wyższa Szkoła Przedsiębiorczości i Zarządzania w Łodzi, Łódź 2007.

furniture, wood and wooden products), delocalisation is part of wide globalisation, rationalisation and modernisation processes, and an increase in productivity²⁵. Agriculture and food processing is an exception here, as its transfer abroad is not profitable since the benefits that result from maintaining a short, flexible value chain are higher than the potential savings gained from cost reduction²⁶. Therefore, it would be advisable to expand the regional base for smart specialisation by high-tech manufacturing and services²⁷, so far poorly represented in the region's economic structure²⁸.

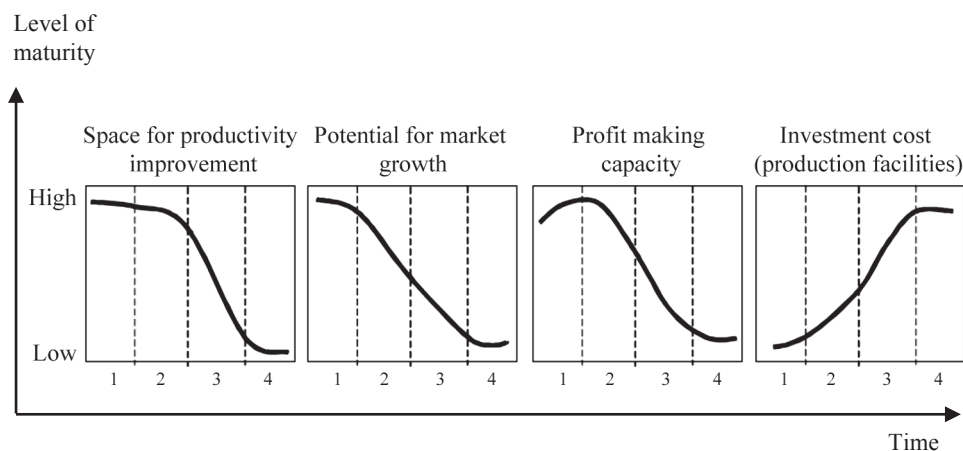


Fig. 1. Development potential of technologies at various levels of maturity

Source: C. Pérez, *Technological change and opportunities for development as a moving target*, "Cepal Review" 2001, Vol. 75, p. 112.

²⁵ ECORYS. *Measuring and benchmarking the structural adjustment performance of EU industry. Key findings* [2009], http://www.ec.europa.eu/enterprise/policies/industrial-competitiveness/industrial-policy/future-of-manufacturing/files/key_findings_measuring_and_benchmarking_en.pdf, 30.11.2012; Recon LLP. *A sectoral survey of relocation: A factual background* [2006], http://www.eesc.europa.eu/sections/ccmi/docs/documents/A_sectoral_survey_of_relocation_a_factual_background_Final_report.pdf, 30.11.2012.

²⁶ D. Pila et al., *The changing nature of manufacturing in OECD economies*, "OECD Science, Technology and Industry Working Papers" 2006, No. 9 (OECD Publishing, Paris).

²⁷ High-tech encompasses areas and products characterised by a high intensity of R&D activity (T. Hatzichronoglou, *Revision of the high-technology sector and product classification*, "OECD Science, Technology and Industry Working Papers" 1997, No. 2, (OECD Publishing, Paris)). The following factors are measures of R&D activity: i) the relation of direct expenditure on R&D to the value added; ii) the relation of direct R&D expenditure to production value (sales); iii) the relation of direct R&D expenditure increased by indirect expenditure "embodied" in investment goods and semi-finished products to production value (sales).

²⁸ *Science and Technology in Poland in 2009*, Central Statistical Office of Poland, Warsaw 2011.

Analysis of the proposed sectors from the perspective of the competitive position of the voivodeship indicates that in some of these sectors, it will be difficult to find unique competitive advantages which significantly distinguish Łódź Voivodeship from other voivodeships²⁹.

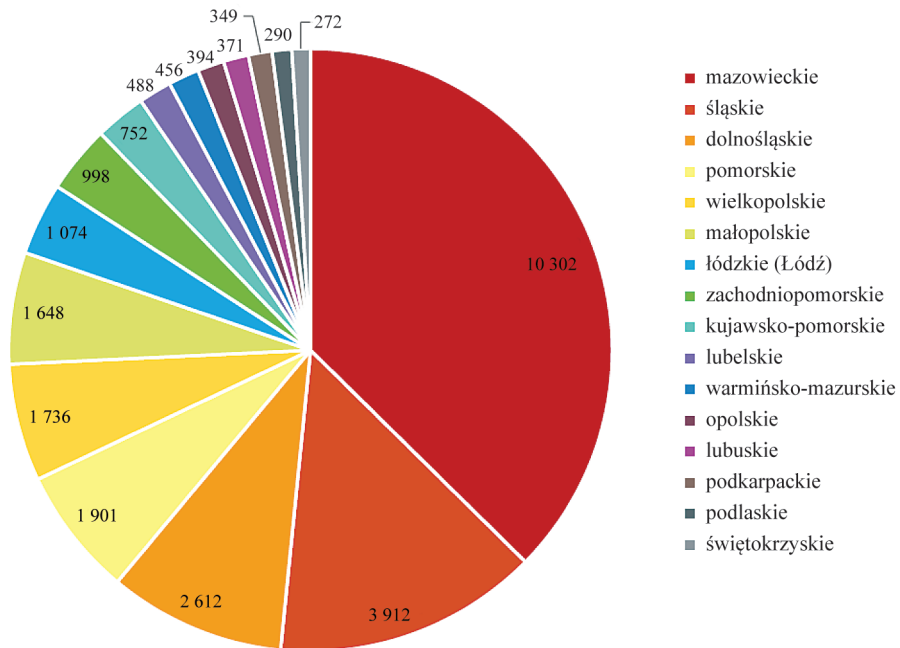


Fig. 2. Value added in creative industries by voivodeship in 2008 (in million PLN)

Source: P. Lewandowski, J. Munk, L. Skrok, *Znaczenie gospodarcze sektora kultury. Wstęp do analizy problemu. Raport końcowy*, Instytut Badań Strukturalnych, Warszawa 2010, p. 52.

For example, creative industries are characterised by a relatively large concentration in Poland. The scale of this concentration is illustrated, for instance, by the fact that five voivodeships generate 75% of the domestic production, though Łódź Voivodeship is not one of the five (Fig. 2). Łódź, however, has great hopes connected with creative industries, particularly taking into account its film and artistic traditions. Apart from tradition, there are also other location factors that facilitate the creation of a strong economic sector, yet the situation is worse in this respect according to the reports prepared for the latest Congress of Polish Culture. A relatively low regional level of cultural needs may also be a barrier, which,

²⁹ P. McCann, R. Ortega-Argilés, *op. cit.*; J. Walendowski, *op. cit.*

in combination with a relatively low level of tourist attractiveness of the voivodeship, creates a certain demand obstacle³⁰.

The situation is different in the case of SSC/BPO services which result from global trends connected with the rationalisation of costs of business activity. Poland so far seems to be an attractive place for the location of such services. In the medium and long term, a decrease in the interest of global enterprises in the European market is projected and a shift of business activity to the so-called E7 countries, which consists of China, India, Brazil, Russia, Indonesia, Mexico and Turkey, is expected³¹. Specific location decisions are dictated, among others by: i) access to and the quality of skilled labour with command of foreign languages and the costs (incl. the cost of labour) of business activity in this particular location; ii) transport accessibility, particularly in relation to the most important routes/communication centres; iii) the quality and level of infrastructure development, e.g., office space; iv) the quality of investor service in a given city; v) the city image; vi) the available investment incentives, and vii) the quality of life in a given city. The combination of these factors has so far worked for the benefit of such agglomerations as Warsaw (comprising 54 centres), Cracow (43 centres) and Wrocław (38 centres). Cracow, according to the latest ranking of the UNCTAD Division on Investment and Enterprise, also belongs to the ten most attractive BPO locations. Łódź (31 centres) ranks

³⁰ J. Białyńska-Birula, *Rynek dzieł sztuki w Polsce Aspekty prawno-ekonomiczne* [2009], www.kongreskultury.pl/library/File/RaportRynekSzt/rynek_dziel_sztuki_raport_w.pelna%281%29.pdf, 30.11.2012; P. Bochińska, I. Palczewska, *Diagnoza stanu wzornictwa* [2009], http://www.kongreskultury.pl/library/File/RaportWzornictwo/wzornictwo_raport_w.pelna%281%29.pdf, 30.11.2012; P. Dobrołęcki *et al.*, *Raport o stanie kultury. Przemysł książki* [2009], www.kongreskultury.pl/library/File/RaportKsiazka/ksiazka_raport_w.pelna.pdf%281%29.pdf, 30.11.2012; D. F o l g a - J a n u s z e w s k a, *Muzea w Polsce 1989–2008* [2009], http://www.kongreskultury.pl/library/File/RaportMuzea/muzea_raport_w.pelna%281%29.pdf, 30.11.2012; J. G r a b o w s k a, J. S z y m a j d a, *Raport o tańcu współczesnym w Polsce w latach 1989–2009*, http://www.kongreskultury.pl/library/File/RaportTaniec/taniec_raport_w.pelna%281%29.pdf, 30.11.2012; T. M i c z k a, *Raport o stanie polskiej kinematografii* [2009], http://www.kongreskultury.pl/library/File/RaportKinema/kinematografia_raport_w.pelna.pdf, 30.11.2012; P. P ł o s k i, *Przemiany organizacyjne teatru w Polsce w latach 1989–2009* [2009], http://www.kongreskultury.pl/library/File/RaportTeatr/teatr_raport_w.pelna%281%29.pdf, 30.11.2012; D. P u r c h l a (ed.), *Raport na temat funkcjonowania systemu ochrony dziedzictwa kulturowego w Polsce po roku 1989* [2009], http://www.kongreskultury.pl/library/File/RaportDziedzictwo/dziedzictwo_raport_w.pelna%281%29.pdf, 30.11.2012; *Preferencje kulturalne mieszkańców województwa łódzkiego. Raport końcowy* [2011], Question Mark. Biuro Badań Społecznych, http://kongres-kultury.pl/rkk_files/File/Raport_23.10.2011.pdf, 30.11.2012.

³¹ F. L. Bartels, S. Lederer, *Outsourcing markets in services: International business trends, patterns and emerging issues, and the role of China and India*, United Nations Industrial Development Organization, Vienna 2009; *Onshore, nearshore, offshore: unsure?*, Jones Lang LaSalle, Warsaw 2011, http://www.grafton.pl/images/stories/grafton/CEE_Shoring_Paper_2011.pdf, 30.11.2012.

lower, followed by the agglomerations of Katowice, Poznań and Trójmiasto. All these locations comprise 20 centres. The number of the analysed entities does not exceed 10 in any of the other cities. The ranking of cities according to their employment rate in SSC/BPO services looks similar: this time Cracow and Wrocław rank first, followed by Warsaw. Interestingly, Wrocław is characterised by the highest growth rate in employment in this sector, which reached 100% in the period of 2008–2010. Poznań and Szczecin were also characterised by a high share of new jobs (approx. 90% in both cases). Łódź, with a 70% growth rate, ranked lower. At the same time, other locations (e.g., Cracow and Warsaw) reduced the number of some of the existing jobs³².

Yet another situation is observed in wind power, where Poland has a real opportunity to not only use wind turbines to produce electricity but also to benefit as a producer of wind turbines and their parts for other countries or by providing transport services. Taking into consideration the existing technological and growth potential, mostly in the steel and smelting industry, the growth in the production of construction elements for power plants rather than their high-tech electrotechnical components can be expected in Poland in the next years. Ship building companies and similar enterprises are already taking advantage of this opportunity – for instance, the Gdańsk Shipyard will be able to construct 400 towers annually by 2012. The development of wind power, however, encounters several obstacles in Poland (difficulties with connecting SES to the grid, no access to information concerning the network, technical requirements for connection without the guarantee of purchasing the power produced the application of regulations that are not consistent). Thus, it is still at the early development stage and the main investments in the manufacturing of components for this sector are made by foreign capital companies, such as KK Electronics, ABB, LM Glasfiber, Aarslef and Euros³³.

Thus, the final decision concerning the choice of these or any other areas for smart specialisation requires a prior, detailed analysis of the regional potential and competitive position of the voivodeship as Łódź Voivodeship is not the only region planning to base its development on these specialisations (Box 1).

³² *Sektor SSC/BPO w Polsce*, Związek Liderów Sektora Usług Biznesowych w Polsce [Association of Business Service Leaders in Poland, 2010], http://www.absl.pl/web/guest/conference16_09_2010, 30.11.2012; *Sektor nowoczesnych usług biznesowych w Polsce*, Związek Liderów Sektora Usług Biznesowych w Polsce [Association of Business Service Leaders in Poland, 2011], http://www.absl.pl/en/c/document_library/get_file?uuid=0ed1add6-f7cd-488b-9910-1d1c83ae4fb8&groupId=10155, 30.11.2012.

³³ *Rynek małych elektrowni wiatrowych w Polsce 2010*, Instytut Energetyki Odnawialnej, Warszawa 2011; *Energetyka wiatrowa w Polsce* [TPA Horwath, IDZP, 2011], http://www.paiz.gov.pl/publikacje/opracowania_sektorowe, 30.11.2012.

Box 1. Areas of specialisation in regional innovation strategies and regional development strategies. Examples

Dolnośląskie Voivodeship treats chemical and pharmaceutical manufacturing, manufacturing of motor vehicles, electricity production and mining, as well as IT as strategic industries. Other emerging industries include healthy food production, manufacturing of modern materials, electronics and machinery, as well as industrial design. In the case of household appliance manufacturing, it is assumed that its competitiveness is based on typical cost advantages, thus its position will be weakened over the next dozen or so years (projected pay increase in Poland).

Kujawsko-Pomorskie Voivodeship focuses on the following industries: information and communication technology, biotechnology, tool manufacturing, electronics and furniture manufacturing, printing, agriculture and food processing, chemical, electronic, electrotechnical and electromechanical manufacturing, hospitality, as well as spa and wellness.

Lubelskie Voivodeship concentrates on BPO, the development of medical services (incl. tele-medical) and logistics. Other sectors include eco-energy and agrotourism.

Opolskie Voivodeship focuses on traditional market services such as construction, trade and transport services (particularly river and air transport), as well as less popular ones for which great demand arises in such industries as: financial intermediation, IT or the business environment. The growth of non-market services in the area of education, health and culture, as well as traditional services, e.g. smithery and handicraft, will also be supported. The development of tourism-related and agrotourism services should gain particular importance and it ought to be accompanied by the creation of a modern tourism base as well as a recreation and entertainment base.

Pomorskie Voivodeship concentrates, among others, on: the shipyard industry, electronics, IT, telecommunication, petroleum industry, pharmaceuticals and light chemicals manufacturing, biotechnologies and the metal industry.

Podkarpackie Voivodeship concentrates on the development of tourism and the creation of a logistics cluster on the basis of the “dry port” within the complex of the border crossings Medyka – Żurawica. It also is planning the development of SES.

Source: A. Bukaluk *et al.*, *Regionalna Strategia Innowacji Województwa Kujawsko-Pomorskiego do 2015 roku* [2007], http://www.ris.kujawsko-pomorskie.pl/dokumenty/REGIONALNA_STRATEGIA_INNOWACJI_DO_2015.pdf, 30.11.2012; L. Palmén *et al.*, *Regionalna Strategia Innowacji dla Województwa Dolnośląskiego na lata 2011–2020* [2011], http://pi.gov.pl/PARPFiles/file/POLITYKA_INNOWACYJNA/Tresci_stale/RSI_WD.pdf, 30.11.2012; B. Sawicka, D. Mazurkiewicz, *Regionalna Strategia Innowacji Województwa Lubelskiego* [2004], <http://www.rsi.lubelskie.pl/str.php?wsk=ind>, 30.11.2012; *Strategia rozwoju województwa opolskiego*, Sejmik Województwa Opolskiego [Council of Opolskie Voivodeship], Opole 2005, http://www.po.opole.pl/u_informacje/download/fundusze/strategia_rozwoju_województwa_opolskiego.pdf, 30.11.2012; *Regionalna strategia innowacji województwa podkarpackiego na lata 2005–2013*, Zarząd Województwa Podkarpackiego [Management Board of Podkarpackie Voivodeship], Rzeszów University of Technology, Rzeszów 2004.

As for the criterion of the potential for radical technological development, the current lack of regional analyses regarding determinants of this potential made it impossible to conduct this sort of test on the initially selected areas of regional specialisation.

Box 2. Determinants of the potential for radical technological development

The potential for radical technological development is a derivative of the following:

- technological competitiveness of the region's economy and/or of its individual segments, which means the capacity to create and commercialise more radical innovations and
- competence competitiveness of the voivodeship that encompasses a set of technical and organisational competences, access to and the quality of institutions/financial markets, as well as the quality and efficiency of territorial administration.

The first of the areas forms the base for the development capacity of the region, while the latter for its absorptive capacity. This latter area encompasses the capacity (of individuals, organisations) to acquire and assimilate (potential capacity), as well as to transform and exploit (realised capacity), new external knowledge. These four dimensions combined enable the region (and the companies based on its territory) to reconfigure the resource base and adapt to the changing market conditions in order to achieve a competitive advantage.

This means that the selection of segments/sectors of the economy with the potential of more radical technological development cannot be a purely administrative choice, but the consequence of a thorough analysis that takes into account at least:

- in reference to science (supply side) – the level of technology readiness and the difficulty level of research and development, as well as, in the auxiliary capacity: (i) available bibliometric studies and (ii) the assessment of the voivodeship's competitive position compared to the leaders and the main competitors;
- in reference to the economy (demand side) – the level of innovativeness of individual research and technology directions and, in the auxiliary capacity: i) the level of manufacturing readiness and ii) the level of programming readiness.

Source: *Economic survey of Europe*, "United Nations Publication" 2004, No. 2, (Economic Commission for Europe, Geneva); J. Fagerberg, M. Srholec, M. Knell, *The Competitiveness of Nations: Why Some Countries Prosper While Others Fall Behind*, "World Development" 2007, Vol. 35, No. 10, p. 1595–1620; F. A. J. van den Bosch, R. van Wijk, H. W. Volberda, *Absorptive capacity: Antecedents, models and outcomes* [2003], http://www.papers.ssrn.com/sol3/papers.cfm?abstract_id=411675, 30.11.2012.

4. SUMMARY

Smart specialisation has become one of the main principles of contemporary concepts of regional development management. Originally, it:

- refers to the theories that regard technology (and technological progress) as the main driving force of economic development³⁴, and assume that a high po-

³⁴ P. Aghion, P. Hewitt, *Endogenous growth theory*, Institute of Technology, Massachusetts (MA) 1998; J. Fagerberg, M. Srholec, M. Knell, *The Competitiveness of Nations: Why Some Countries Prosper While Others Fall Behind*, "World Development" 2007, Vol. 35, No. 10, p. 1595–1620; A. Greiner, *The forces of economic growth: A time series perspective*, Princeton University Press, Woodstock 2005; H. Hagemann, S. Seiter, *Growth theory and growth policy*, Routledge, London 2003; N. Salvadori (ed.), *The theory of economic growth. A 'classical' perspective*, Elgar Publishing, Cheltenham 2003; W.-B. Zhang, *Economic growth theory: capital, knowledge and economic structures*, Ashgate Publishing, Aldershot 2005.

tential for the creation and commercialisation of new technological knowledge is (almost exclusively) the domain of innovation leaders, i.e., the richest countries with a high level of technological competitiveness³⁵;

- states that radical technological development based on the so-called general purpose technologies and/or their combination (e.g., bioinformatics) is the role of innovation leaders and the remaining regions specialise in the so called ‘co-invention of application’, i.e., in the import of general purpose technologies and their implementation in one or several areas of the regional economy³⁶.

On the other hand:

- a high level of innovativeness requires an equally high level of competence and technological competitiveness³⁷;

- the rate of competence competitiveness convergence is higher than the rate of technological competitiveness convergence³⁸. This is supported by the existing character of international technology transfer between the innovation leaders and the other countries/regions, which are limited (most often) to more or less outdated technology³⁹.

Thus, the adaptation of the concept of smart specialisation requires double effort on the part of each region:

- leading to finding such technological niches where they may achieve the position of innovation leader and hence specialise in the development of general purpose technologies. The highest probability of success should be found in (new) general purpose technologies that – unlike mature technologies – are still open to the entry of new competitors⁴⁰;

- leading to finding such sectors/groups of related sectors where they can specialise in the implementation of technologies developed by other innovation leaders.

This procedure, however, cannot be fully applied in the regions at present as they do not have at their disposal all the necessary information. Nevertheless, the procedure indicates the existing information gaps and stimulates the introduction of new diagnostic instruments, laying the foundation for a reliable selection of regional areas of smart specialisation.

³⁵ *Global Economic Prospects. Technology Diffusion in the Developing World*, The International Bank for Reconstruction and Development, The World Bank, Washington 2008.

³⁶ D. Foray, P. A. David, B. Hall, *Smart Specialisation...*

³⁷ *PRO INNO Europe, European Innovation Scoreboard 2009. Comparative analysis of innovation performance*, “Paper” 2010, No. 15, (European Union, Belgium).

³⁸ J. Fagerberg, M. Srholec, M. Knell, *op. cit.*; *Global Economic...*

³⁹ S. Manic, *Is technological leadership decisive for competitiveness?*, “Analele Stiintifice ale Universitatii” 2008, Alexandru Ioan Cuza din Iasi, Vol. 55, p. 190–197.

⁴⁰ C. Pérez, *Technological change and opportunities for development as a moving target*, “Cepal Review” 2001, Vol. 75, p. 109–130.

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Anna Rogut

INTELIĞENTNA SPECJALIZACJA – W KIERUNKU NOWEJ GENERACJI REGIONALNYCH STRATEGII INNOWACJI

Inteligentna specjalizacja stała się jednym z zasadniczych wątków współczesnych koncepcji zarządzania rozwojem regionalnym. W oryginale oznacza sztywny podział ról między regiony–liderzy innowacji i pozostałe regiony. Te pierwsze specjalizują się w tzw. technologiach ogólnego zastosowania i/lub ich kombinacji (np. bioinformatyce), drugie zaś w tzw. „koinwencji zastosowań”, czyli w imporcie technologii ogólnego zastosowania i wdrażaniu ich w jednym lub kilku obszarach regionalnej gospodarki. Tego typu koncepcja niesie ze sobą pewne niebezpieczeństwo, bo – jak wynika z doświadczeń międzynarodowych: 1) wysoki poziom innowacyjności wymaga wyrównanego poziomu konkurencyjności kompetencyjnej i technologicznej; 2) szybkość konwergencji konkurencyjności kompetencyjnej jest wyższa niż szybkość konwergencji konkurencyjności technologicznej, czemu również sprzyja dotychczasowy charakter międzynarodowego transferu technologii między liderami innowacji i pozostałymi regionami, ograniczający się (najczęściej) do technologii mniej lub bardziej przestarzałych. Stąd adaptacja koncepcji inteligentnej specjalizacji wymaga od każdego z regionów podwójnego wysiłku: a) znalezienia takich nisz technologicznych, w których mogą osiągnąć rolę lidera innowacji, i tym samym specjalizować się w rozwijaniu technologii ogólnego zastosowania; b) znalezienia takich sektorów / grup pokrewnych sektorów, gdzie mogą się specjalizować we wdrażaniu technologii rozwijanych przez innych liderów innowacji. Procedura określania takich obszarów inteligentnej specjalizacji uwzględnia przewagi konkurencyjne województwa, jego podstawowe zasoby (konkurencyjność technologiczną i konkurencyjność kompetencyjną) i potrzeby modernizacyjne jego bazy społeczno-ekonomicznej oraz globalne uwarunkowania.