

Cooperation in the field of academic entrepreneurship

Cooperation between academia and business is one of the priorities in the state innovation strategies. One of the mechanisms supporting the development of academic entrepreneurship is the creation of public and private partnerships in the field of research and development policy.

The goal of the article is to analyse the very process of cooperation that leads to the enhancement of academic entrepreneurship. The author identifies four aspects of that process: (1) opening up of the public sphere, (2) transformation of universities, (3) the role of academic entrepreneurship, (4) private-public partnerships as a mechanism supporting the development of academic entrepreneurship.

In the process of the analysis the author aims to tentatively answer the question, what trends affect the process of cooperation in the public-private sphere that support the development of academic entrepreneurship.

Keywords: academic entrepreneurship, cooperation, public-private partnership, public management, research and development innovation policy.

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Introduction

The theme of the article encompasses the newest trends in the development of higher education and formulation of research and development policies, underlying the meaning of cooperation between public and private partners.

In the paper the author attempts to synthesize the four identified aspects that influence the process that leads to the cooperation¹ of public and private partners in the field of academic entrepreneurship: opening up of the public sphere, transformation of universities, the role of academic entrepreneurship, private-public partnerships as a mechanism supporting the development of academic entrepreneurship.

In the last three years, the European Union established strategies² that unequivocally emphasize the meaning of

sustainable social development, where exploitation of the scientific potential as an instrument that would intensify the international competitiveness of Europe becomes a priority. It has been stated that all activities supporting the innovative development of states should occur equally on political, economic and social level. Education, research, commercialization of knowledge have become the most important areas to achieve sustainable development³. It is required that the subjects from public sphere open to cooperation with the external environment. In the context represented in the paper the elementary part of that public sphere are the scientific institutions⁴.

What has been observed in the past years is the growing influence of scientific institutions on the economic development. Academic entrepreneurship contributes to the development of state entrepreneurship with the growing number of knowledge-based firms.

¹ Cooperation is the ability to act together in order to achieve common goals. When defining cooperation, the author sets the key assumptions within the rational choice theory (and game theory as its analytical instrument). When talking about any social interactions, as Max Weber indicates («Economy and Society», 1922, 1968, 2002): they involve two or more intentional actors, and are guided by mutual expectations about how the other person(s) will behave (see: Porta D. della, Keating M., Approaches and Methodologies in the Social Sciences. A Pluralist Perspective, Cambridge University Press 2008, p. 138). Which pattern will be chosen by individuals in the end depends on the costs and benefits of their actions – individuals behave in a rational way. In the context of effective cooperation, the author also incorporates a concept of trust and concept of social capital (see: P. Bourdieu 1986, J. Coleman 1988, R.D. Putnam 1993). According to P. Sztompka the cooperation takes place only on the condition that the individuals appoint goals that are not accessible when acting independently (see P. Sztompka, «Zaufanie. Fundament społeczeństwa», Wydawnictwo Żnak, Kraków 2007, pp. 138-139). Sine qua non of a successful cooperation (and a fundamental constituent of social capital-see: R. D. Putnam, «Making Democracy Work. Civic Traditions in Modern Italy», Princeton University Press, 1993, Chapter VI) is trust (definition: see footnote 16, page 6 of the paper).

² See: Europe 2020, A strategy for smart, sustainable and inclusive growth, COM(2010) 2020, Brussels, 3.03.2010; «Innovation Union», Flagship Initiative Europe 2020, COM(2010) 546, Brussels, 6.10.2010; Partnering in Research and Innovation, COM(2011) 572, Brussels, 21.9.2011; Horizon 2020 – Framework program for research and innovation, COM(2011) 808, Brussels, 30.11.2011.

³ For more information on sustainable development, see: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0642:EN:NOT>, 17.12.2013.

⁴ The author lists scientific institutions according to Polish science system: universities, research institutions, research and development institutes (Ustawa z dnia 30 kwietnia 2010 r. Przepisy wprowadzające ustawy reformujące system nauki Dz. U. z 2010 r. Nr 96, poz. 620).

The educational programs that promote entrepreneurship among students and scientists become more and more desirable. The research conducted at universities regarding the effects of such programs⁵ show that they positively affect the development of entrepreneurial attitudes and behaviors. The academia has become the part of economy, where innovation and entrepreneurship comprise the strength of the competitiveness of states⁶.

Academic entrepreneurship is a substantial instrument that can be applied to the process of opening the public sphere. In the paper it is indicated that one of the supportive mechanisms for its development is a broadly defined cooperation between the public and private actors. Hence, in the final part of the article, the author lists some of the legal and institutional solutions and examples of the public-private partnerships in academia and business in Poland and other member states of the European Union (EU).

The process of opening up the public sphere in the context of innovation policy

The ongoing globalization process requires constant modifications in a changing social, political and economic reality. The opening up of the public sphere, based on competition and cooperation of public and private partners, is supposed to lead to an improvement of living conditions of the global society.

One of the concepts that describe the observed changes is the knowledge-based economy concept (late 1980s, 1990s)⁷. The researchers of the field (Dominique Forray, Bendt-Åke Lundvall) underline the meaning of knowledge as a product. According to Krzysztof Porwit (2001): «The level of knowledge and the effectiveness of its impact on the economies are considered as the basic reasons for the rise of productiveness of production factors and for the accessible pace of the economic growth»⁸.

In reference to the knowledge-based economy concept, the issues of the state and its role in the described global conditions cannot be overlooked. In social sciences, for which the notion of the state comprises a particularly important research subject, there is a departure from perceiving state as a self-contained entity, acting in isolation and out of social context. To a large extent it

is a result of the enlargement of social, economic and political structures that participate in the public sphere's management.

The term «policy»⁹ might denote, inter alia, as Jerzy Hausner (2008) indicated: «a specified domain of public authorities' act»¹⁰. The very term of public policy is defined as a kind of policy aimed to design and to implement public policies. It is inseparably connected to the concept of public management¹¹. There is diffusion of authority among the governing units. This diffusion leads to a change from hierarchy to polyarchy. As Giovanni Sartori (1998) points out: «Policy, in the end, is dependent on the relations between the governing and the governed»¹². State action that serves a coherent steering and implementation of the described processes in the field of research and development (R&D) is innovation policy¹³.

In literature there is a noticeable discussion in the definition range of this sectoral policy. As Leszek Kweciński (2005) describes, there are several terms that need to be considered: technological, research, innovation, scientific, research and development policy¹⁴. As Franz Feldmann (1994) indicates: «The innovation policy equates to research (science) policy, channeled to general economic activity and to the application of research findings»¹⁵.

The R&D innovation policy tends towards polyarchy as well, as its most meaningful constituent is cooperation, in the sense of partner and network relations that allow to optimize the information and knowledge share among the contributors of these relations.

The key issue is trust¹⁶, as it affects the quality of mutual communication and the implementation of the set goals.

The Third Generation Universities and the role of academic entrepreneurship

One of the essential factors of changes in the innovation policies' orientations is the current perception of the role of scientific institutions by state authorities, and by enterprises. The factors affecting the transformation of scientific institutions' model are presented in Table¹⁷.

⁵ Effects and impact of entrepreneurship programmes in higher education, Report, European Commission, Brussels, March 2012.

⁶ Matusiak K. B., Matusiak M., Pojęcie i ekonomiczne znaczenie przedsiębiorczości akademickiej, w: *Innowacje, przedsiębiorczość i gospodarka oparta na wiedzy*, red. P. Niedzielski, E. Stawasz, K. Poznańska, «Zeszyty Naukowe» nr 453, «Ekonomiczne Problemy Usług» nr 8, Wydawnictwo Uniwersytetu Szczecińskiego, Szczecin 2007, pp. 157-158.

⁷ In the article the author applies the definition of knowledge-based economy introduced in the OECD report «Knowledge-based economy» (1996), where the knowledge-based economy is defined as «Economy which is directly based on the production, distribution and use of knowledge and information. [...] Knowledge is a specific product that drives the development».

⁸ K. Porwit, *Cechy gospodarki opartej na wiedzy (G.O.W.), ich współczesne znaczenie i warunki skuteczności*, w: *Gospodarka oparta na wiedzy. Wyzwanie dla Polski XXI wieku*, red. A. Kukliński, Komitet Badań Naukowych, Warszawa 2001, p. 111.

⁹ Karl von Beyme, in his book «Political theories today: an introduction» (2000) distinguishes three different terms concerning the political realm: (1) polity-political order; (2) politics-process of making decisions; (3) policy-the effects of the decisions. See: K. von Beyme, *Współczesne teorie polityczne*, Wydawnictwo Naukowe Scholar, Warszawa 2007, pp. 136-137.

¹⁰ J. Hausner, *Zarządzanie publiczne*, Wydawnictwo Naukowe SCHOLAR, Warszawa 2008, p. 35.

¹¹ *Ibidem*, p. 46.

¹² G. Sartori, *Teoria demokracji*, PWN, Warszawa 1998, p. 115.

¹³ The author employs definition of innovation policy introduced in: *The measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data*, Oslo Manual, OECD, 1996, p. 6.

¹⁴ L. Kweciński, *Parki technologiczne jako element polityki badawczo-rozwojowej w Polsce i w krajach Unii Europejskiej*, Wydawnictwo Uniwersytetu Wrocławskiego, 2005, p. 50. In the paper the author focuses on the R&D innovation policy.

¹⁵ *Ibidem*, p. 50.

¹⁶ «Trust is a bet about uncertain future actions of other people» (P. Sztompka, «Zaufanie. Fundament Społeczeństwa», Wydawnictwo Znak, Kraków 2007, pp. 69-70).

¹⁷ The list of factors introduced here is not finite.

Factors affecting the transformation of scientific institutions' model

Factors affecting the transformation of scientific institutions' model	
On the side of scientific institutions	On the side of enterprises
Increasing research costs and a necessity to acquire alternative sources of financing; global demand (and competitiveness) for distinguished students, scientists and research projects; necessity of a growing cooperation with the external environment, especially with enterprises; increasing role of academic entrepreneurship; the role of the state and state strategies towards the growth of the innovation level	Growing demand for advanced research and lack of well-developed research infrastructure; high level of research offered by scientific institutions; increasing market demand for advanced research (technologies); added value resulting from the creation of public-private partnerships; structural funds (EU) supporting innovative companies

Source: author, based on: J.G. Wissema, *Towards the Third Generation University. Managing the University in Transition*, Edward Elgar Publishing Ltd, January 2009.

As J. G. Wissema (2009) describes¹⁸, the Third Generation University consists of the following characteristics: basic research is still the core research of the university; transdisciplinary research becomes more and more meaningful; the university is opened to cooperate with many partners; lack of direct state financing; application of knowledge becomes a priority goal¹⁹. The tool bridging the scientific institutions and the external environment is the academic entrepreneurship.

In the Anglo-Saxon literature on the subject the definition of academic entrepreneurship stands mostly for spin-off and spin-out enterprises²⁰. The broader understanding of the very definition functions, inter alia, in Polish literature. Krzysztof B. Matusiak (2010) introduced the holistic concept of knowledge on academic entrepreneurship. Among the dimensions of university's functioning, K.B. Matusiak lists forms such as: entrepreneurial management of a university; entrepreneurial education; entrepreneurship of students and graduates; transfer and commercialization of technology; spin-off and spin-out enterprises²¹.

The academic entrepreneurship fulfills its role by contributing to the meaningful quality transformation of the scientific institutions in the context of new challenges of R&D policies.

Creating public-private partnerships and supporting academic entrepreneurship

One of the mechanisms supporting the development of academic entrepreneurship is the broadly defined cooperation²² of public and private entities.

Leszek Gilejko and Rafał Towalski (2002) indicate that partnerships might have important economic and social functions. They are important factors contributing towards the successes of enterprises and stimulating a stable economic growth²³.

In the EU member states the partnerships for academic entrepreneurship are becoming more apparent. One of the initiatives is the European Institute of Innovation&Technology and Knowledge and Innovation Communities. Another examples are: Fraunhofer Gesellschaft (Germany), VTT (Technical Research Centre of Finland), IMEC (Belgium), TNO Research Facility Holland, Holst Centre (The Netherlands) and other members of EARTO²⁴, Sweden's Innovation Agency VINNOVA, or research institutes in UK and other member states of the EU. In Poland²⁵ the private-public cooperation is still a new phenomenon in the field of R&D and innovation.

A question can be asked, if it is at all possible to find a model describing the most effective process of cooperation that would support a stable development of academic entrepreneurship. Up to now the proposed models of interactions among scientific institutions, authorities and enterprises, in the scope of R&D innovation policy were (inter alia): Sabato's Triangle Model (1968), National System of Innovation Model (Christopher Freeman, Bengt-Ake Lundvall, 1988), Mode-2 Model (Michael Gibbons et al., 1994), Triple Helix Model (Henry Etzkowitz, Loet Leydesdorff, 1995). These models appoint further research of the aspects introduced in the paper.

Summary

With the current global trends, it is not possible to create a strong, competitive economy without continuation of the public sphere's opening process. In the knowledge-based economy the elementary parts of that sphere are the scientific institutions. One of the instruments that help to create relations between scientific institutions and the external environment is the academic entrepreneurship, which needs the application of adequate mechanisms

¹⁸ J. G. Wissema, *Towards the Third Generation University. Managing University in Transition*, Wydawnictwo Edward Elgar Publishing Ltd, January 2009, pp. 16-33.

¹⁹ *Ibid.*, p. 43.

²⁰ See broader, inter alia: S. Shane, *Academic Entrepreneurship. University Spinoffs and Wealth Creation*, New Horizons in Entrepreneurship, Edward Elgar, 2004.

²¹ K. B. Matusiak, *Budowa powiązań nauki z biznesem w gospodarce opartej na wiedzy. Rola i miejsce uniwersytetu w procesach innowacyjnych*, Oficyna Wydawnicza SHG, Warszawa 2010, p. 182.

²² Here, it is worth mentioning that there are different types of relations oriented towards cooperation, such as: networking, coordination and partnership-based cooperation (see: *Partnerskie współdziałanie w sektorze publicznym i prywatnym*, red. B. Plawgo, W. Zaremba, Fundacja Współczesne Zarządzanie, Białystok 2005, p. 13).

²³ *Ibid.*, p. 8.

²⁴ Association of Research and Technology Organisations.

²⁵ It is important to define, what a partnership is in its formal and legal meaning: in Poland activities based on partnerships in public policy are regulated (very generally) in the Act on private-public partnership (from 19.12.2008, Dz. U. from 2009 nr 19 poz. 100, art. 2), where it is stated that the subject of a private-public partnership is a corporate activity based on division of risks and tasks between public and private entities. In the context of academic entrepreneurship private-public cooperation is also regulated by the Act on higher education (from 18.03.2011, Dz.U. z 2012 poz. 572).

that would support its development. The directions of the scientific discourse in the field of R&D policy, and the global guidelines in the scope of new challenges for the sustainable development show that cooperation is the key issue. Without partnership between public and private entities that share the risks and responsibilities, the desirable level of progress will not be feasible.

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Сотрудничество в сфере академического предпринимательства

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Взаимодействие науки и бизнеса является одним из стратегических приоритетов инновационного развития государства. Важным механизмом, обеспечивающим развитие академического предпринимательства, является налаживание сотрудничества между государственным и частным секторами в области научно-технической политики.

Цель статьи — проанализировать процесс такого взаимодействия, который приводит к расширению возможностей академического предпринимательства. Автор статьи выделяет четыре аспекта этого процесса: (1) открытость деятельности органов государственной власти, (2) трансформация университетов, (3) роль академического предпринимательства, (4) партнерство между государственным и частным секторами как механизм поддерживающий развитие академического предпринимательства.

В ходе анализа автор стремится ответить на вопрос, какие тенденции оказывают влияние на процесс взаимодействия государственных и частных организаций, способствующий развитию академического предпринимательства.

Ключевые слова: академическое предпринимательство, сотрудничество, взаимодействие государственно-го и частного секторов, государственное управление, научно-техническая политика государства.