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## EDUCATIONAL POLICY OF UNIVERSITIES AND THE NEEDS OF LOCAL PRODUCTION SYSTEMS

**Abstract.** Traditional mission of a university includes two elements: research and teaching by making reference to the state-of-the-art cognitive content. A third, new element of the mission is their direct public service. In recent years we have been stressing the role of higher education institutions in the shaping of social and economic reality, where active involvement in development processes of regions and countries are a challenge. The paper discusses educational policy of universities in the context of needs and expectations of the economy, especially of local production systems. Theoretical considerations are the point of departure for the presentation of the results of studies conducted under the Project *Policy and tools of creating human capital in the region* in higher education institutions in the Lodz Region.

The market of educational services evolves dynamically and, as a result of overlapping external and internal conditions, the latest 20 years provoked revolutionary changes also in the universities in the Lodz Region. On the one hand, universities seek their own, individual development paths, diversify their educational offer to be competitive and, on the other hand, they start cooperating with one another and with the external world both in the area of education and research. That initiates or enhances economic cooperation and the development of network relations through, inter alia, developing and supporting territorial forms of cooperation, e.g., LPS, various types of economic collaboration, improved communication and integration between economic circles and educational institutions.

**Keywords:** local production systems, educational policy, universities, educational offer.

### 1. INTRODUCTION

Nowadays, educational institutions face the challenge of educating staff for a dynamic economy of a region or a country and the deepening of integration of the so called knowledge triangle: science, education and innovation (Matusiak 2010: 10). Universities are a vital link of the education system, which throws comprehensive, territorial and systemic perspective at economic innovation. They are the leading institutions, which shape human capital and improve the quality of human resources through education, training and advisory services, disseminating the patterns of positive action and mobilising economic activities under market conditions (pre-incubators and academic incubators of entrepreneurship).

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Traditional mission of a university has evolved. Its new aspect, besides research and teaching the latest cognitive content, is “direct public service” (Chmielecka 2012: 102). It stresses the role of universities in the shaping of social and economic reality, where the challenge consists in “active creation of development processes, wide opening and bringing operations closer to regional needs” (Nowakowska 2012: 152). Increasing expectations of the social and economic environment vis-à-vis universities and implemented institutional and organisational solutions, deriving from international agreements, provide a completely new framework for their operations. Accumulation and dynamics of changes make universities seek their own individual development path, redefine their missions and goals and highlight their main functions and fields of activity.

In endogenous growth models human capital and accumulation of knowledge increase the productivity of other resources. Human capital is identified with knowledge, education and individual human competences needed to deliver undertaken tasks and social goals. Looking from this perspective, the paper aims to identify conditions and ways of adjusting universities, in the face of changing environment and generally increased importance of knowledge in economic processes, to active involvement in local production systems. Crucial is then the question, to what extent higher education institutions meet the expectations of the environment and what are the key fields of study in the scope of Science and Technology in Łódź voivodeship.

Theoretical considerations are the starting point for the presentation of results of studies conducted under the Project *Policy and tools of creating human capital in the region* in the universities in the Lodz Region. The main source of knowledge were questionnaire studies conducted in 2012 in higher education institutions in the Lodz region and quantitative studies based on the data from the Statistical Office in Lodz and the Central Statistical Office. They were complemented with source materials from the Ministry of Science and Higher Education, National Centre of Research and Development and the National Centre of Science.

## **2. UNIVERSITIES IN THE REGION AS KEY ENTITIES OF LOCAL PRODUCTION SYSTEMS**

Educational institutions have the potential to generate new ideas and concepts, they also provide conditions to establish and maintain cooperation links among various actors (Marszałek 2010: 132). Their multifaceted impact upon the environment makes them an important element of various interactions in the local and regional community and a key entity in cooperation networks. “Networks are collections of selected relationships with chosen partners (...). They

are effects of seeking complementary resources and their main drive is synergy and the wish to reduce uncertainty of operations. Links in the network are flexible and may create various combinations” (Jewtuchowicz 2001: 82). D. Maillat noted that networks include industrial companies and services, research and educational centres, supporting institutions, etc., which maintain more or less intensive relations and generate production dynamics of the system (Maillat 2002: 10). Network relations are reflected in considerations on the local production systems (LPS).

The term of local production systems was developed in the eighties and nineties of the twentieth century by regionalists, it corresponds to systems that are organized around interactions between the industrial sphere (in a wide range) and territorial sphere (Jewtuchowicz 2005: 91). This is one of the territorial forms of production organization, including industrial districts and technopoles. The main theoretical trends justify the cooperation of enterprises connecting it with the resource theory and transactional costs theory. Local production systems are strongly territorially determined and defined through material and immaterial resources of the territory, i.e., the potential of manufacturing entities (firms, services, public institutions, intermediary organisations, educational and research institutions), sustainable and strong formal and non-formal relationships, abilities to cooperate, identity and the climate of entrepreneurship. Geographic proximity of firms and institutions and repeatable contacts among them deepen collaboration and trust and, consistently, improve the capacity of absorption, production and diffusion of innovation. Generating knowledge, sharing it, technology transfer, development of human capital are natural attributes, which build up the innovation potential of the LPS (Nowakowska, Przygodzki, Sokołowicz 2009: 279). What is particularly needed is the intensification of cooperation among firms and academic centres through the development of “knowledge alliances”<sup>1</sup> for:

- cooperation at planning and common delivery of education,
- reduction of the risk of mismatch and information from the labour market,
- absorption and diffusion of knowledge,
- interactive learning by exchange of experience,
- adaptation of education systems to the needs of businesses, including “knowledge-based businesses”.

Knowledge generation and transfer are the most effective when they happen between actors located close to each other (Marszałek 2010: 54) for the economies of scale, positive externalities, reduction of transaction cost, including the cost of seeking knowledge. Operating in a network also forces out updating of knowledge, its expansion and deepening and mobilises to search it.

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<sup>1</sup> The term “knowledge alliance” was used in the Project *Innovation Union*.

On the one hand, the presence of educational institutions, universities, in the LPS allow for synergy effects as a result of knowledge diffusion, openness to innovation and absorption capability and ensures constant updating of knowledge through flexible offer of “life-long learning”. On the other hand, however, as pointed by R. Florida, firms locate in places with high concentration of talented, valuable people, who power innovation and economic growth (Florida 2002: 221).

Universities are strongly territorially embedded, their history and traditions associate them with a concrete space and reflect the potential of the territory and that is why they are an important link in network cooperation. New organisational models of universities stress the economic aspect of their operations and their role in the economy of a region or a country without undermining their educational relevance. On the contrary, the models highlight the importance of education for building and fostering human capital for the economy and the role of universities in creating conditions for the development of entrepreneurship.

Despite the evolution, the primary educational function of universities, independently of circumstances and trends, remains valid and, in many cases, even leading. Higher education institutions, universities, research or technology oriented, are the key link of the system of education, the centre of “knowledge creation”, responsible for its diffusion and use for the benefit of human beings and the society (*Strategia...* 2009: 63). Educational policy actively involves them into economic processes and impacts them directly and indirectly, which we can observe in the operations of local production systems.

### **3. EDUCATIONAL POLICY IN HIGHER EDUCATION INSTITUTIONS IN POLAND – PRACTICAL KNOWLEDGE FOR A COMPETITIVE ECONOMY**

For more than 20 years Polish universities have been experiencing intensive transformations triggered by systemic transformations of the state and the economy. Systemic transformation enabled legal, organisational and institutional changes in the area of higher education and market economy intensified the “expansion” of higher education<sup>2</sup>. As a result, a completely new framework emerged for universities accompanied by conditions for the development of the market of educational services, which at present must meet new national and international challenges (Figure 1).

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<sup>2</sup> In other countries higher education became a “mass” phenomenon much earlier. In the United states in the 1960s, in Canada in the 1970s and in countries of Western Europe in the 1980s.

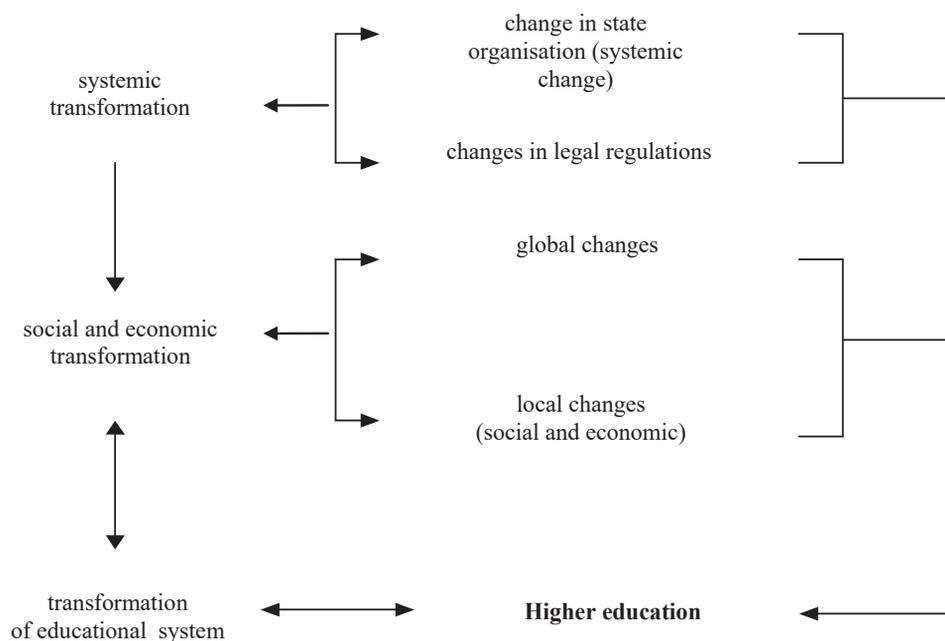


Figure 1. Conditions which stimulated the evolution of higher education system in Poland

Source: Rzeńca A. (2013), *System szkolnictwa wyższego w Polsce w obliczu wyzwań gospodarki opartej na wiedzy*, [in:] Z. Przygodzki (ed.), *Regionalny wymiar polityki rozwoju kapitału ludzkiego. Przykład Włoch, Wielkiej Brytanii, Niemiec i Polski*, Difin, Warsaw, p. 168.

First years of the reform of higher education, which happened under difficult economic circumstances and in the years of big problems on the labour market, led to the development, on an unprecedented scale, of educational offer. Within 10 years (1990–2000) gross enrolment rate increased from 12.9% (1990/1991) to 40.7% (2000/2001), while net enrolment rate from 9.8% to 30.6%. First problems were experienced with the “overproduction” of university graduates, matching their professional skills and changing needs of the labour market. At the same time the population of students at technical courses rapidly shrank. The mere completion of a higher education was more important than the subject one selected to study (*Edukacja dla pracy...* 2007: 147). In the academic year 1990/91 technical courses were selected by 17% of students, in 2005/2006 engineering and technical courses were selected by 7.9% of students and IT by 5.3%. Three years later, the percentage of students at these technical courses decreased to 6.9% and 4.6%, respectively (academic year 2008/2009)<sup>3</sup>. Popularity and low costs of teach-

<sup>3</sup> *Szkoły wyższe i ich finanse w 2005 r., Szkoły wyższe i ich finanse w 2008 r., Szkoły wyższe i ich finanse w 2010 r.* (Universities and their finances), Central Statistical Office; for more see: Rzeńca A. (2013), *System szkolnictwa wyższego w Polsce w obliczu wyzwań gospodarki opartej na wiedzy*,

ing at economic, administration and pedagogical courses largely reduced demand for technical studies. Unfavourable trends gave an impulse for changes, which in Europe started a bit earlier.

In 2000 Lisbon Strategy clearly pointed to human capital as the foundation of contemporary growth, which determines the accomplishment of economic and social goals. It gave education the leading role in the building of knowledge-based society and economy. Since 2006, as a result of the increase of the “price” of knowledge and attempts to link education with the economy, especially in the context of the implementation of the Lisbon Strategy and, at present, Europe 2020 strategy, education at engineering, science and technology courses has clearly intensified.

“External” support to educational policy at higher education institutions designed to adjust education to the needs of the labour market and to economic conditions, cooperation among universities, employers and R&D institutions, which has modernised the teaching process, and more stress put on practical training (internships, placements) importantly changed and expanded educational offer of Polish universities. The major initiatives include programmes, which aim at:

1. Strengthening and development of the teaching potential of universities and increasing the number of graduates for courses fundamental for knowledge-based economy by starting new undergraduate courses or specialty courses and offering post-graduate courses. It consists also in the expansion of educational offer at existing faculties, in particular in areas vital for the economy.

2. Development and modernisation of infrastructure used for educational purposes at higher level and development, R&D efforts combined with teaching at priority courses.

3. Supporting innovative academic entrepreneurship through the cooperation of science and economy, where the key task is to, inter alia, work out communication standards between research centres and firms, development of technology transfer centres, etc.

At present, besides the most important local, regional and national embeddedness of universities, European framework comes into play together with the above programmes, which derive from it. Reorientation of education as a consequence of the Bologna process and the implementation of National Qualifications Framework for higher education consists in making education more flexible and international and highlighting three equally important and inter-related areas of knowledge, skills and social competences. Recently adopted Resolution of the European Parliament on modernising Europe’s higher education systems identifies the following leading challenges:

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[in:] Z. Przygodzki (ed.), *Regionalny wymiar polityki rozwoju kapitału ludzkiego. Przykład Włoch, Wielkiej Brytanii, Niemiec i Polski*, Difin, Warsaw, p. 168.

- 1) inclusion of the idea of life-long learning into curricula offered by higher education institutions,
- 2) maintaining the autonomy of teaching and research ensuring at the same time certain courses that meet the needs of professionals,
- 3) the need to continue traditional education in academic spirit, and not to permit the education system to be totally subordinated to the labour market, in view of the need to shape ethical and moral values among students at the same time as caring for the academic progress (*Resolution...* 2012).

Nowadays, stagnation in educational policy is not possible as legal regulations force out the reorientation of approach to how universities are managed and how educational offer is construed. Autonomy of universities creates conditions for individual identification of the scope of the policy of education and its implementing tools, identification of advantages and pursuing various activities for tightening or intensifying relations within local production systems.

#### **4. EDUCATIONAL POLICY OF UNIVERSITIES IN THE LODZ REGION IN SUPPORT OF THE COMPETITIVENESS OF LOCAL PRODUCTION SYSTEMS**

In 2000 there were 19 higher education institutions in the Lodz Region with 99 712 students, in 2012 in 29 universities there were 107 227 students and since 2009 we have been observing a systematic drop in students' population. The leader of educational services market is the University of Lodz, which represented 38% of the total students' population in 2012 and offered the widest array of courses (62 courses, more than 40 K students). Lodz University of Technology has got slightly more than 20 K students at 37 courses (7<sup>th</sup> technical university in Poland in terms of the number of students) and the non-public University of Social Sciences offered education to more than 16 K students at 21 courses. Almost 1/3<sup>rd</sup> of students in the region study at non-public universities<sup>4</sup>.

When analysing the market of educational services from the point of view of the number of available courses, we can identify nine universities, which in the period 1999–2012 expanded their offer. That can be attributed to:

- 1) the openness of universities to changes and following market solutions in the area of organisation of education,
- 2) seeking competitive advantages to reduce the consequences of population decline,

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<sup>4</sup>The ratio is much higher than in other European countries. In 2008 it was 20% in Portugal, 14% in France, and 11% in Spain; OECD (2008b), *Higher Education to 2030*, vol. 1: *Demography*, vol. 2: *Globalisation*, [after:] *Diagnoza stanu szkolnictwa wyższego w Polsce*, Partial report prepared by the consortium of Ernst&Young Business Advisory and Gdansk Institute for Market Economics, November 2012.

3) drafting educational offer in response to labour market needs.

Universities covered by the study face the challenge of opening courses, which are desired, attractive and, preferably, developed in cooperation with economic operators (specialist industries) or public institutions. “Knowledge-based firms” address the most of its expectations to universities, which are for them the leading cooperation partners in investing in knowledge and human capital (38.2% of answers) (Przygodzki 2014: 64–65). Another equally important impulse for launching new courses is the EU policy of supporting and promoting education in the field of Science and Engineering (S+E)<sup>5</sup>, the foundations of the philosophy of “knowledge-based economy” and the goals of the new Europe 2020 Strategy.

In 2012, subjects from the Science and Technology group were offered in nine higher education institutions of the region (mainly computer science). A very diversified offer has the Lodz University of Technology. Most of the students were studying the following subjects: technical-engineering (half of the students in the Science and Technology group) and computer science, then production and processing, architecture and construction, mathematical sciences and statistics. Almost 76% of the students of this university were studying in the area of Science and Technology, while at the University of Lodz (UL) it was almost 14% of the students (subjects: mathematics, physics, computer science and biotechnology). Other higher education institutions that offered subjects in the Science and Technology group: University of Computer Science and Skills in Łódź (computer science), University of National Economy in Kutno (environmental engineering, geodetic surveying and cartography), Social Science Academy in Łódź (computer science, architecture and urban planning, geodetic surveying and cartography), State College of Applied Sciences in Skierniewice (computer science and horticulture). At other universities only one field of studies in this area has been offered (The Higher School of Art and Design in Łódź – architecture and urban planning, Medical University – biotechnology; Higher Vocational School of Łódź Educational Corporation – chemistry).

Attempts to find innovative courses through real collaboration with businesses results in attractive educational offer at universities. One of the leaders is the Lodz University of Technology (Polish abbr. PŁ), which was awarded by the Ministry of Science and Higher Education for the best curricula developed in cooperation with firms<sup>6</sup> (Table 1). Particular attention when it comes to awarded curricula should be paid to:

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<sup>5</sup> Education in S+E (*Science and Engineering*) includes the following sub-groups of courses: biology, physics, mathematics and statistics, computer sciences, engineering and technology, manufacturing and processing, architecture and construction.

<sup>6</sup> Out of 207 applications to the competition, 62 courses were awarded from 37 universities (including 9 non-public) in 17 cities in Poland. Lodz University of Technology was one of 9 awarded

1) practical aspect of teaching by using modern hardware and software, infrastructure and access to modern, specialist laboratories in various technical specialties,

2) collaboration with manufacturing companies and other businesses in the Lodz region where students have internships, go on study visits and tours, hold thematic meetings with professionals and prepare their diploma theses<sup>7</sup>.

Table 1

Award-winning curricula at the Lodz University of Technology

Course (rank)	Degree	Course profile	Score
Automatic Control and Robotics (6)	second	general	108.5
Occupational Safety Engineering (7)	first	general	108.0
Chemistry of Building Materials (21)	first	general	101.0

Source: own study based on the list of results of the competition for the best curricula [http://www.nauka.gov.pl/g2/oryginal/2013\\_05/a4bd077386d194ebd405d37f68ccbb7d.pdf](http://www.nauka.gov.pl/g2/oryginal/2013_05/a4bd077386d194ebd405d37f68ccbb7d.pdf).

In 2007 in the Lodz Region 22.4% of the total population of students studied at first degree engineering programmes. Significant progress was made within 5 years (by 7 percentage points) and in 2012 as many as 29.1% of the total population of first degree students studied engineering programmes. The only one technical university in the region, Lodz University of Technology, reported only 37.9% of students taking up engineering courses in 2007. In 2012 the situation radically changed and over 70% of first degree students enrolled at engineering courses. Recent years witnessed positive changes with this respect mainly as a result of the so called “ministry-booked courses”<sup>8</sup>. Also other universities, including non-public, expand their offers with engineering courses. As a result, the offer of engineering programmes in universities in the region became wider (Figure 2). At present, engineering programmes are offered by 9 universities where students can find courses in computer science, transport, mechatronics, geodesy and cartography.

technical universities. Despite strong competition among submitted curricula (maximum score was 112 pt., minimum 90) its curricula ranked in the top (ranks 6, 7 and 21).

<sup>7</sup>[http://www.nauka.gov.pl/g2/oryginal/2013\\_05/900d0f241adb26b5b208358d11526287.pdf](http://www.nauka.gov.pl/g2/oryginal/2013_05/900d0f241adb26b5b208358d11526287.pdf).

<sup>8</sup>Systemic project “ordering technical, mathematical and biology courses” was designed to make them more popular, to support their development and to offer more attractive conditions to students. It was financed under Sub-measure 4.1.2 “Increasing the number of graduates from faculties of key importance for knowledge-based economy”, Priority IV Operational Programme Human Capital.

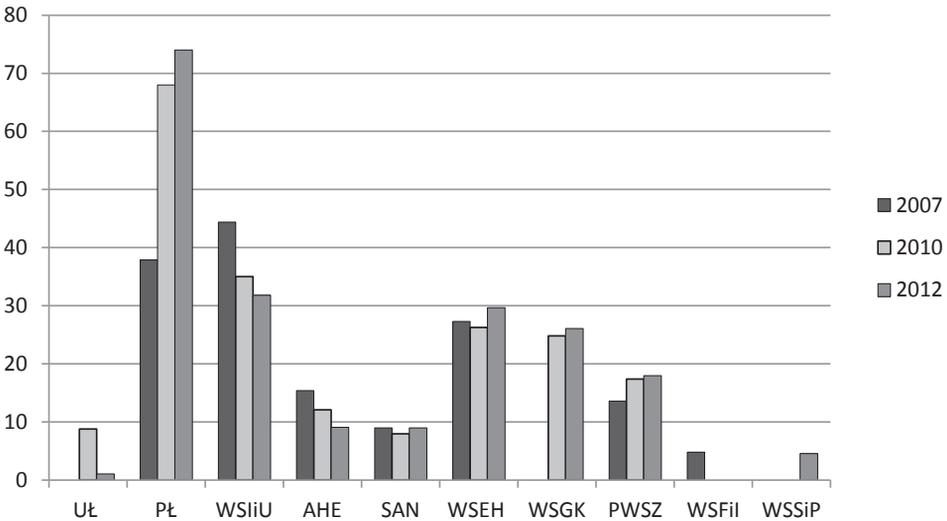


Figure 2. Share of students of first degree engineering programmes in the total population of students in the Lodz Region in 2007–2012

University of Lodz (UŁ), Lodz University of Technology (PŁ), University of Computer Sciences and Skills in Lodz (WSiIU), University of Humanities and Economics in Lodz (AHE), University of Social Sciences in Lodz (SAN), College School of Economics and Humanities in Skierniewice (WSEH), Higher School of National Economy in Kutno (WSGK), State College of Applied Sciences in Skierniewice (PWSZ), Higher School of Finance and Computer Science in Lodz (WSFiI), Higher School of Art. and Design in Lodz (WSSiP).

Source: own study based on the data of the Statistical Office in Lodz.

Diversification of educational offer takes place through the development of new courses, very specialist or interdisciplinary, and proposing a wide range of flexible educational opportunities, such as post-graduate programmes or training courses addressed to various age groups (Rzeńca 2014: 27–51). Besides flexible forms of education, universities use modern technologies to improve accessibility, scope and to enrich educational offer. The development of digital communication technologies gives such a possibility and lets them reach a wider group of recipients.

Universities want to build their potential on innovative and open education they also seek instruments that would enable them effectively pursue their development policies to comprehensively stimulate the development of all activity areas.

## SUMMARY

International challenges connected with the building of a competitive knowledge-based economy, which highlight the importance of human capital, point to universities as leading entities of positive transformations.

EU documents clearly stress the role of universities as strategic partners in a knowledge-based society and economy, which should consist in: generating new knowledge, its transfer, through education and training activities, diffusion using ICT technologies and use in modern industrial and service solutions (*Role of universities in Europe of knowledge 2003*). The main objective is to tighten collaboration between universities and business, adjusting curricula to market requirements and the development of Poland's scientific and research potential. Universities may respond by getting actively involved in local production systems in educational, scientific and research terms. Europe 2020 Strategy and its initiative *Innovation Union* stress the need to ensure appropriate number of graduates of sciences, faculties of mathematics and engineering and the introduction of elements of creativity, innovation and entrepreneurship in national systems of education. For sure alliances for knowledge, which bring business closer to education, are innovative projects in science and research sector (*Innovation Union...*).

"The third mission" of universities somehow forces out relations between a university and its environment. On the other hand, universities see the need to establish, develop and tighten collaboration with economic operators and institutions. Adapting to changes and using the links with the economy for effective education, providing graduates with knowledge and skills necessary in the economy and society are all separate issues. Hence, tools are needed that could motivate universities to effectively meet the needs of the environment in education. An example of a programme oriented at technology transfer, commercialisation of research results and strengthening the links between science and industry is "Top 500 Innovators" initiative.

Trends observed for educational offer, its expansion and higher flexibility are attempts to meet labour market needs but they also reflect increasing competition among higher education institutions. Universities should be open to the idea of "life-long learning" and continue traditional education in academic spirit taking care of academic progress. Knowledge is valuable when it is updated, hence "life-long learning" concept increases productivity of the resource and supports innovative potential of businesses. Supporting the development of modern human resources and human capital in the region through educational policies of universities, in particular through the development of unique scientific and educational activities, fostering internal, regional collaboration of universities and deepening the cooperation with economy and administration are also important. As a result, mutual benefits can be identified: educational institutions teach expected skills and competences and local production systems, thanks to active cooperation, create conditions for multiplication of knowledge and building knowledge generating capacities. By building partner relations with businesses and public institutions and taking care of the quality of education, universities build up their competitive position on the market of educational services.

**Streszczenie.** Tradycyjna misja szkoły wyższej zawiera dwa elementy: prowadzenie badań naukowych oraz nauczanie odwołujące się do najnowszych treści poznawczych. Trzecim, nowym, elementem misji jest bezpośrednia służebność publiczna. W ostatnich latach podkreślana jest rola szkół wyższych w kształtowaniu rzeczywistości społeczno-gospodarczej, gdzie wyzwaniem staje się aktywne współuczestnictwo w procesie rozwoju regionu i kraju. Przedmiotem artykułu jest polityka edukacyjna szkół wyższych w kontekście potrzeb i oczekiwań gospodarki, szczególnie Lokalnych Systemów Produkcyjnych. Rozważania teoretyczne stanowią punkt wyjścia do zaprezentowania wyników badań realizowanych w ramach projektu *Polityka i narzędzia kreowania kapitału ludzkiego w regionie* w szkołach wyższych regionu łódzkiego.

Rynek usług edukacyjnych dynamicznie się zmienia, a ostatnie 20 lat za sprawą nakładających się uwarunkowań zewnętrznych i wewnętrznych spowodowały rewolucyjne zmiany również w szkołach wyższych regionu łódzkiego. Z jednej strony szkoły poszukują własnych, indywidualnych dróg rozwoju, dywersyfikują ofertę kształcenia, by być konkurencyjnymi, z drugiej zaś zaczynają współpracować ze sobą i podmiotami z otoczenia, zarówno na polu dydaktycznym, jak i naukowym. W efekcie następuje zainicjowanie czy wzmacnianie współpracy gospodarczej i rozwój powiązań sieciowych m.in. poprzez tworzenie i wspieranie terytorialnych form współpracy (np. LSP), różnych form kooperacji gospodarczej, poprawę komunikacji i integracji środowisk gospodarczych i instytucji edukacyjnych.

**Słowa kluczowe:** Lokalne Systemy Produkcyjne, polityka edukacyjna, szkoły wyższe, oferta kształcenia.

## REFERENCES

- Chmielecka E. (2012), *Elastyczność systemu kształcenia a realizacja „trzeciej misji” szkoły wyższej*, [in:] *Benchmarking w szkolnictwie wyższym. Wybrane problemy: elastyczność, e-learning, wewnętrzne systemy zapewniania jakości w systemie kształcenia, gospodarka zasobami dla poprawy produktywności i konkurencyjności – kontrola zarządcza*, collective work edited by J. Woźnicki, Warsaw, Polish Rectors Foundation, <http://www.frp.org.pl/publikacje/FRP-Bench2012.pdf> (access on 10.12.2013).
- Education for Labour. Human Development Report Poland 2007* (2007), UN Development Programme, Warsaw.
- Florida R. (2002), *The rise of the creative class. And how it's transforming work, leisure, community and everyday life*, Basic Books, New York.
- Jewtuchowicz A. (2001), *Rozwój, środowisko, sieci innowacyjne i lokalne systemy produkcyjne*, [in:] K.B. Matusiak, E. Stawasz, A. Jewtuchowicz, *Zewnętrzne determinanty rozwoju innowacyjnych firm*, Publishing House of the University of Lodz, Lodz.
- Jewtuchowicz A. (2005), *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz.
- Marszałek A. (2010), *Rola uczelni wyższych w regionie*, Difin, Warsaw.
- Matusiak K.B. (2010), *Uwarunkowania rozwoju infrastruktury wsparcia w Polsce*, [in:] *Ośrodki innowacji i przedsiębiorczości w Polsce*, Report 2010, Polish Agency for Enterprise Development, Warsaw.
- Nowakowska A., Przygodzki Z., Sokołowicz M.E. (2009), P. Niedzielski, K. Poznańska, K.B. Matusiak (eds.), *Stan rozwoju klastrów w Polsce w ujęciu regionalnym*, [in:] *Kapitał ludzki – innowacje-przedsiębiorczość SOOIPP, Annual 2008*, Research papers no. 525, Ekonomiczne problemy usług no. 28, Szczecin.

- Nowakowska A. (2012), *Rola uczelni wyższych w regionalnym systemie innowacji*, [in:] *Materiały Partnerskiej sieci współpracy i wymiany doświadczeń dotyczących interwencji w ramach PO Kapitał Ludzki wspierających realizację Regionalnych Strategii Innowacji INTREGRISNET*, Marshal Office in Lodz, Department for Operational Programme Human Capital.
- Maillat D. (2002), *Globalisation, territorial production systems and innovative milieus*, Rector's Lectures no. 52, Cracow University of Economics, Cracow.
- Przygodzki Z. (2014), *Zdolność absorpcji i percepcji roli kapitału ludzkiego w innowacyjnych środowiskach przedsiębiorczości w regionie łódzkim*, [in:] Z. Przygodzki (ed.), *Kapitał ludzki w regionie łódzkim z perspektywy przedsiębiorstw i rynku pracy*, Publishing House of the University of Lodz, Lodz.
- Resolution of the European Parliament of 20 April 2012 on modernising Europe's higher education systems* (2011/2294 (INI)), <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2012-0139&language=PL&ring=A7-2012-0057> (access on 14.05.2014).
- The role of universities in the Europe of knowledge* (COM (2003) 58 final – not published in the Official Journal), Communication from the Commission of 5 February 2003, [http://europa.eu/legislation\\_summaries/education\\_training\\_youth/lifelong\\_learning/c11067\\_en.htm](http://europa.eu/legislation_summaries/education_training_youth/lifelong_learning/c11067_en.htm) (access on 12.05.2014).
- Rzeńca A. (2013), *System szkolnictwa wyższego w Polsce w obliczu wyzwań gospodarki opartej na wiedzy* [in:] Przygodzki Z., *Regionalny wymiar polityki rozwoju kapitału ludzkiego. Przykład Włoch, Wielkiej Brytanii, Niemiec i Polski*, Difin, Warsaw.
- Rzeńca A. (2014), *Stan i kierunki zmian na rynku usług edukacyjnych. Przykład szkół wyższych regionu łódzkiego*, [in:] Z. Przygodzki (ed.), *Kapitał ludzki w regionie łódzkim. Społeczeństwo, edukacja, przestrzeń*, Publishing House of the University of Lodz, Lodz.
- Strategia rozwoju szkolnictwa wyższego 2010–2020. Projekt środowiskowy* (2009), Publishing House of the University of Warsaw, [http://www.krzasp.pl/files/Strategia\\_tom-1.pdf](http://www.krzasp.pl/files/Strategia_tom-1.pdf) (access on 15.12.2013).
- Innovation Union. Flagship initiative of Europe 2020 Strategy*, file:///C:/Users/user/Desktop/unia-innowacji-projekt-przewodni-strategii-europa-2020.pdf (access on 4.04.2014).