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*Iwona Kowalska*\*

*Warsaw University of Life Sciences – SGGW, Poland*

## Sources of Financing Knowledge-Based Economy: the Case of Formal, Non-Formal and Informal Education in Poland

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**Abstract:** *Globalization, negative demographic trends, new sources of knowledge and volatile job market are the determining factors behind the change in approach to the education system in Poland. Formal, non-formal and informal education is the sine qua non of the implementation of a knowledge-based economy in Poland. This process, however, requires an in-depth analysis of the funding of education. So far there have been no Polish publications analyzing the funding of the three aforementioned forms of education. Therefore, the aim of this paper is to assess the possibilities to implement knowledge-based economy with regard to the current funding of formal, non-formal and informal education in Poland. The study involved the analysis of national and EU documents on subject and object oriented funding of educational tasks and procedures for determining the amount of funding allocated to these tasks. The analysis showed that the barrier inhibiting the implementation of knowledge-based economy is the lack of legal regulations enabling*

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\* Contact: [iwona\\_kowalska@sggw.pl](mailto:iwona_kowalska@sggw.pl), Warsaw University of Life Sciences – SGGW; Faculty of Economic Sciences; Department of Education Economics, Communication and Counselling 166 Nowoursynowska Street, 02 – 787 Warsaw, Poland

*the implementation of new solutions for financing education in Poland. These solutions involve the effective joint funding from the state budget, local government budgets and private funds (provided by employers and learners). This requires urgent conceptual work and initiating implementation projects in the area of public finance in Poland.*

## Introduction

Knowledge-based economy (KBE), according to the OECD definition, is an economy which is directly based on the production, distribution and use of knowledge and information. The same three processes constitute the three basic pillars of modern economic development. KBE is often contrasted with the industrial economy – where mass, Ford-type production of goods and the economy of scale (see Drucker, 1999), gives way to the production and distribution of knowledge regarded, (along with raw materials, capital and labour), as the most significant resource. There is also recognition that an important manifestation of the development of a knowledge-based economy is the creation of a new department of financial accounting, i.e. the accounting of assets of individual competence and intellectual capital (cf. Niemczyk, 2013). Other authors list the following prerequisites necessary for KBE development:

- The economy must achieve a high level of development – today it hovers around 20 thousand USD per capita and the GDP structure is characterized by a 70- percent share of services;
- The society is characterized by a high level of education, in which secondary education is considered a common measure and at least half of the economically active population has higher education;
- KBE is an innovative economy – the share of expenditure on R & D amounts to about 3% of GDP;
- Innovation is a function of at least three variables: people's creativity, the demand for innovation, and the pro-innovation sentiment created by the state;
- The economy and society are open – KBE creates new economic and social structure and forces important changes in the functions of the public sector (Kuklinski (Ed.), 2003).

Poland's economy is heading towards a knowledge-based economy. However, according to the KBE measuring methods, adopted by the World Bank, Poland does not yet have this type of economy as the measures below demonstrate:

- In KAM – Knowledge Assessment Matrix, (a multi-method which takes into account 33 partial indicators), a fully developed KBE scores 10

points, the minimal score for a country to be classified as KBE is 7 points, and Poland scored 5.7 points;

- Macro I methods – the criterion is the share of employment in 5 major KBE segments (science, industry, high technology, information society services, knowledge intensive services and education) in total employment (in%). The minimum score for KBE is 12%, and Poland scored 9.3%;
- Macro II methods – the criterion is the number of Internet users per 1 thousand residents. The minimum score for KBE is 330-340 users, and Poland has achieved the result of 233 users (Kleer, 2009 p.78).

Therefore, the answer to the question whether in the second decade of the twenty-first century a knowledge-based economy will develop in Poland, depends on the attitudes and development priorities adopted by Polish society and its political and economic elite. Building a knowledge-based economy is declared as the most important strategic element in defining the future of united Europe in the context of the competitive US economy (cf. Wolf *et al.*, 2014, pp. 1- 21). In a democratic country the role of education in this process cannot be underestimated (cf. Gyamera, 2014, pp. 421- 422). Learning may take place within the framework of formal, non-formal and informal education. All these forms of education raise the level of education in the society, and an educated population creates demand for knowledge intensive products and services. Finally, the increase in the educational level of the society accelerates the pace of diffusion of both technological and social innovations. However, the implementation of KBE in Poland is not possible without creating a coherent system of financing educational services. Therefore, the aim of this paper is to assess the feasibility of the KBE implementation in Poland with regard to the current financing of formal, non-formal and informal education. So far, there have been no Polish publications analyzing the sources of funds for education embracing its three organizational forms.

### **Research Methodology**

In order to accomplish the aim of this paper, the following hypothesis was formulated: The barrier to the implementation of knowledge-based economy in Poland is the lack of legal regulations enabling the introduction of new solutions in the field of financing education through the effective integration of diverse systemic sources of funding from the state budget, local government budgets (LGBs) and private funds (employers and participants in education).

The hypothesis has undergone verification through the desk-based analysis of the national and EU documents concerning the subject and object-oriented scope of financing educational tasks as well as procedures determining the amount of fund transfers for these tasks. The analysed documents include:

- literature in Polish and foreign languages regarding KBE and the economics of education,
- domestic and foreign reports and expert studies regarding the subject,
- national and EU legislation in the field of formal, non-formal and informal education.

The analysis of documents was both quantitative and qualitative. The period under analysis covered both completed EU programming periods in Poland, i.e. years 2004–2006 and 2007–2013.

The method of document analysis was supplemented with the observation of the procedure of allocating the EU funds for education in the role of an expert from the list of the Ministry of Infrastructure and Development assessing applications for the EU funds in the field of education (including innovative testing). This was the uncategorized observation involving observation logs technique.

### **Reasons for the Analysis of Sources of Funding for Formal, Non-Formal and Informal Education in Poland**

The urgent need to carry out analysis of the sources of financing for formal, non-formal and informal education in Poland stems from four main reasons:

- The impact of globalization on education and vocational training – the effects of globalization include the expanding international trade, geographical and occupational mobility, transformations in the economy, new techniques and technologies (cf. Greiff *et al.*, 2014, pp. 74-83) and changes in work organization, resulting from technological change and increased employers' expectations in terms of qualifications and competence of employees. This results in a continuous confrontation of the system of education and vocational training with these requirements, and consequently forces the adjustment of the supply of skills and competencies to the needs of the labour market, awaiting new skills for new jobs.
- The growing significance of new information channels and wide recognition of the key role of information and communication technology

(ICT) with regard to education and training (including e.g. distance learning). Online educational resources facilitate the use of digital content in everyday life, which reduces the risk of digital exclusion. What is more, developed ICT skills facilitate getting a job in the expanding sector of electronically supplied services (with mobile telephony, digital radio, television and broadband Internet access).

- The aging society – a new challenge for the labour market. Following the increasing Europeans' life expectancy and a reduction in fertility rates a diminishing group of working people has to maintain a growing number of pensioners. The number of people aged over 60 is now increasing twice as fast as before 2007, i.e. approximately by 2 million people a year. Efficiently functioning knowledge-based economy would enable the Europeans to stay at work longer, which in turn would alleviate the burden on the system. However, the raising of the retirement age for men and women (in Poland to 67 years of age) increases the risk of obsolescence of the employees' competence. The study "Entrepreneurs on the Raised Retirement Age" has showed that employers perceive older workers as less productive and unwilling to upgrade their qualifications. The results of the research "Human Capital Balance" are consistent with the concerns of employers. Middle-aged and older people are not only less likely than younger generations to upgrade their qualifications, but rate almost all of their generic competences lower, including the ability to learn. The coexistence of these elements can activate the mechanism of a vicious circle: they are less likely to continue their education, because they assess their ability to learn new things lower, and this in turn causes the obsolescence of competence (PARP, Jagiellonian University, 2011, pp. 13-14.) However, adults, and particularly older workers, will have to update and broaden their skills and competencies through training. This increased demand for lifelong learning requires more flexible training offers tailored to the needs of the clientele and well-established systems of validation of non-formal and informal learning.
- The idea of combining formal, non-formal and informal education in lifelong learning (LLL) is a priority in the European policy on education and employment. Therefore, the learner's needs assessment sets the direction for the review of fund allocating models in education in such a way that the allocation of funds from various sources does not duplicate, and is tailored to the diverse needs of an individual learner. It is not the institution or system, but the learner who should be a major determinant and beneficiary of the funds. This position was presented by a representative of the Polish Committee of the Regions at the plenary ses-

sion on 3 and 4 December 2014. (Committee EDUC-V-043) – an institution representing the EU local and regional authorities. These institutional actors have a key role to play in the field of education and training policy.

The impact of the abovementioned conditions on educational processes will increase. Thus, the social costs of the implementation of a knowledge-based economy will grow at a rapid pace driven by the absence of a coherent system of financing education in its formal, non-formal and informal shape.

### **Sources of Funding for Formal Education in Poland**

According to the glossary drawn up by CEDEFOP (European Centre for the Development of Vocational Training) in 2008, formal education is defined as learning that takes place in an organized and structured environment, and is designed to be an educational activity (in terms of intended learning objectives, defined time and resources). Formal learning leads to the attainment of a registered qualification. The funding of formal education in Poland, including vocational education and training, is governed by the constitutional principle ensuring free education for children and youth up to 18 years in all public primary and secondary schools. Also adult education within the school system is financed from the state budget. In this segment of educational services there are many entities that participate in the system of financing education in Poland. These include domestic and foreign, as well as public and private entities. Under the current legislation, the state budget remains the most important entity in the field of financing educational tasks (within the scope of formal education). There are three instruments which serve the purpose: the educational part of the general subvention (GS), earmarked subsidies and specific provisions. In terms of the amount of funds transferred, the dominant source is general subvention. According to the law on the income of local government units the amount of the educational part of the general subvention for all local government units is set annually in the budget. The education subvention is fixed for a given calendar year and transferred to the local government units from the state budget. Because of the complex structure of educational tasks carried out by local government units, the algorithm of the division of educational subvention takes into account a number of factors and parameters reflecting specific components of the subvention, covering both school and out-of-school operations. The allocation algorithm for education subvention is modified every year and the need for this modification results from the

analysis of economic indicators showing the average cost of education and operating schools and educational institutions. The principle behind the algorithm is "the money follows the student", which means that the calculation of the subvention is based on the number of pupils attending schools and educational institutions operated or administered by individual communes (gmina), districts (powiat) and provinces (województwo). The scarcity of financial resources results in the majority of self-government funding for education is spent to cover mandatory expenses, such as salaries, insurance premiums and the Labour Fund premiums. This represents over 85% of educational expenses (86% in communes and 87% in districts and provinces) (ReferNet, 2010, p. 109). Subvention funding for educational tasks calculated per student is not associated with the actual costs generated by a given type of school. This is a basic objection to the current method of financing – the money is calculated per capita, but is spent on an education unit. Consequently, there are e.g. differences in the financial effects of teachers' pay rise. Often, data show an increase in the educational subvention per student, but at the local level this increase is not visible. Even though every student "brings" money to the school budget, the number of students in a school is decreasing and the number of schools in the area is not falling. And even if the number of schools is declining, the process is slower than the decline in the average number of students per school. Also, the fixed costs of running schools are not falling down (administrative staff salaries and fixed expenditure).

The adopted model of allocating public funds to local governments results in time consuming disputes between local governments and between local governments and the Ministry of National Education in the Joint Commission of Government and Territorial Self-Government (KWRiST). For example, the KWRiST educational team failed to reach agreement on the distribution of the educational component of the general subvention for 2015, despite holding two separate meetings in October and November. Even the KWRiST in plenary sitting was not able to pass an opinion. The province governments refused to agree to reduce funds for pupils in youth detention centres using the accommodation, the counties, in turn, refused to accept reduced funding for part-time students of schools for adults and rural communes did not approve of decreased weights for lower secondary schools in their area. To sum up, the proposal regarding the distribution of funds for 2015 made by the Ministry of National Education generated five conflicts over weights between local governments. Clearly, the discussions do not address the introduction of standards regulating funding for education in order to make it transparent what entity is financially responsible for what tasks and how they should raise public funds. The discussions focus

entirely on haggling over the prospective rates of the educational component of the general subvention in 2015 compared to the amounts received in 2014 (See Table. 1).

**Table 1.** Change [in %] in the amount of the education part of the general subvention in 2015 in relation to the amounts received by communes in 2014 as forecasted by the Ministry

Province	Highest Increase	Highest Decrease
	[%]	[%]
Dolnośląskie	5.9	-1.9
Kujawsko – pomorskie	6.6	-1.7
Lubelskie	24.5	-3.0
Lubuskie	4.6	-1.5
Łódzkie	4.5	-2.1
Province	Highest Increase	Highest Decrease [%]
	[%]	
Małopolskie	3.0	-2.0
Mazowieckie	6.8	-2.2
Opolskie	3.9	-1.6
Podkarpackie	5.0	-2.2
Podlaskie	5.4	-2.4
Pomorskie	3.5	-1.7
Śląskie	2.4	-2.1
Świętokrzyskie	4.1	-1.9
Warmińsko – mazurskie	5.6	-2.1
Wielkopolskie	3.7	-4.6
Zachodniopomorskie	3.7	-1.9

Source: author's own elaboration based on data from the Ministry of Education included in the Local Government Service PAP (Serwis Samorządowy PAP) in the fourth quarter of 2014.

In addition, the dispute escalates because the consultations on subvention distribution are held under considerable time pressure which in turn results in the inability of the local governments to prepare for the implementation of the statutory range of educational tasks under the new rules for calculating the amount of funding. The Ministry of National Education customarily outlines the proposals for the allocation of funds for the next year very late – at the turn of October and November, and the regulation on the distribution of education subvention comes into force on 1 January.

Reaching agreement on the criteria for the distribution of the reserve of education component of general subvention is equally problematic. For

example, in 2015 the Ministry proposed to allocate the reserve funds to the following tasks:

- Equipping the premises to conduct practical examinations confirming qualifications in schools providing vocational courses which had not been taught before;
- Equipping canteens in primary and secondary schools run by communes which in 2015 receive the basic amount of the compensatory part of the general subvention;
- Emergency reserves;
- Statistical error committed by aggregating data from Education Information System.

The Ministry's proposals in this field, presented in a meeting of KWRiST education team always provoke a lively discussion about the appropriateness of the selection of educational tasks included in the distribution list of public funds and the planned dates for the launch of these funds. Every year the scenario of discussion between decision-makers and local government is repeated – but there are no ongoing talks about reforming the system of financing education from the state budget, even though there are studies of school finance which have been conducted abroad and may serve as an inspiration (cf. Epple & Ferreyra, 2014, pp. 1326-1351; Hendricks, 2014, pp. 50-63).

Other entities participating in the funding of formal education either because of its limited competence or occasional forms of funding remain of secondary importance and are only complementary to the state budget. The state budget is supported by the local government units at the level of a commune, district and province. Local governments, as school governing bodies, are responsible for their financial maintenance. Polish self-governments, however, are very dependent on the financial condition of the state and therefore their real possibilities of co-financing the education system do not meet the expectations of the local community regarding the scope and quality of educational services. Apart from the local self-governments, the list of other social partners supporting the state in financing education includes legal entities (e.g. non-governmental organizations: foundations and associations) and natural persons (e.g. parents of students gathering funds for under so-called parental committee). Although the effort of these entities should not remain unappreciated, they operate locally and out of good will to support a noble goal either through fund raising or sharing the financial surplus. This form of financing education, even though of marginal scale, in the long run may contribute to the diversification of the school starting and career of students, depending on their place of residence. The state budget is also supported by foreign entities, such as

the World Bank and the European Funds (educational programmes: Socrates, Leonardo da Vinci, Youth, LLL), focusing on the development of human resources in the context of shaping the labour market (e.g. the Sectoral Operational Programme - Human Resources Development (SOP-HRD), Operational Programme Human Capital (OP-HC)). Despite the large number of actors participating in financing formal learning, in Poland they do not form a system of interconnected entities which would be regulated by the law. Consequently, funds from several sources are accumulated to finance one task, while others do not have financial coverage. Doubling public funds allocated to support formal education takes place in particular in the case of transfers earmarked for welfare-related purposes (school scholarship, back-to-school expenses refund, educational benefits for families, etc.).

### **Sources of Financing Non-Formal and Informal Education in Poland**

Contrary to formal education (compulsory full time and part-time education), non-formal and informal education in Poland does not have the attribute of being compulsory. This feature of the educational services sector is reflected in the structure of the sources of funding. According to Article 70 of the Constitution, every person has the right to education and education in public schools is free of charge until the age of 18. Therefore, people over 18 years of age interested in broadening or supplementing their knowledge and skills cannot count solely on state-funded educational services. Formal education is only one form in which learning takes place. The other two forms include non-formal and informal education. Non-formal education is any organized educational activity outside the established formal system-whether operating separately or as an important feature of some broader activity-that is intended to serve identifiable learning clientele and learning objectives (e.g. workshops, training, distance learning courses). Informal education is the truly lifelong process, whereby every individual acquires attitudes, values, skills and knowledge from daily experience and the educative influences and resources in his or her environment,(from family, neighbours, work, play and the mass media) (Okoń, 1996, pp.140-141). Although, unlike in formal education, out-of-school education does not provide the final certificate confirming qualifications, it often provides a valuable experience, which is often a key element in an effective job seeking.

Polish legislation contains provisions partly regulating the organization of the system of adult education. These regulations are included in different acts of law e.g. the Education System Act, the Law on Higher Education, the Labour Code, the Law on Associations, the Law on Foundations, the Commercial Companies Code, Act on Employment Promotion and Labour Market Institutions. But the problem still remains unresolved: are all the provisions consistent in the field of adult education taking place within the framework of non-formal and informal education in Poland? There are at least three major sources of funding for this sector of education services:

- EU funds,
- State budget,
- Private funds provided by individuals.

The structural funds provided funding for non-formal and informal education earmarked for two main purposes. Firstly, the funds were used for the implementation of trainings mainly in the field of non-formal education and, secondly, the funds were used to implement the mechanisms of recognition of learning outcomes achieved through non-formal and informal learning. In the first of the abovementioned cases, the most representative example of the operational program in the EU perspective 2007–2013 was the Operational Programme Human Capital (OP HC). The total cost of the implementation of the Programme amounted to 11.5 billion EUR, over 9.7 billion EUR of which was provided by the European Social Fund. The issue of education and vocational training was addressed in nine priorities implemented at the central and regional levels. At the central level the issues were addressed in the following priorities:

- II: Development of human resources and adaptation potential of enterprises and improvement in the health condition of working people,
- III: High quality of the education system,
- IV: Tertiary education and science.

At the regional level the educational issues were included in Priority IX: Development of education and competences in the regions.

Operational Programme Human Capital (OP HC) was to increase the employment level and develop adaptation potential of enterprises and their employees. All actions carried out under OP HC were intended to boost the competitiveness of the economy based on knowledge and entrepreneurship. However, when it came to setting the criteria for the allocation of EU structural funds - institutional actions were not aimed at creating conditions to foster adults' internal need for continuing learning, but at the very process of administering EU funds (designing and complying with procedures, documents flow, taking measures to eliminate possible irregularities etc.).

This approach resulted in a number of pathologies in the absorption of EU funds. The most important of them include:

- Lack of interest in some projects, (consequently, the number of beneficiaries participating in the project was smaller than planned, which, in the most pessimistic scenario, could result in the necessity to return the funds to the EU).
- Uneven consumption of EU funds by beneficiaries, (consequently, the funds were accumulated and used by the same group of beneficiaries participating in various actions of operational programs, or in the subsequent editions of the same action).
- Lack of financial participation of the beneficiary in the cost of the training project, (consequently, the training courses were undervalued and people were not interested in participating in adult learning forms which required investing their own funds).
- Impaired balance between supply and demand in the labour market, (consequently, the trainees often find it difficult to get a job where they would use the competencies they attained on a training course) (cf. Kowalska, 2010).

The biggest problem generated by the adopted procedure of financial support for the project, was the difficulty to determine to what extent the needs of various industries have been satisfied, and to identify the areas in which the needs are still not met and support would be necessary. Assistance was addressed in a fragmentary and diffused way, and definitely not in a rational manner. This criticism applies, not only to OP HC, but also the Rural Development Programme (RDP) 2007–2013 and other EU programmes in the soft projects area. This assessment could not be improved even by the flagship programme of the European Union "Lifelong Learning", because it did not include the analysis of fundraising for adult learning in non-formal and informal contexts.

In the second case, the use of EU funds for the preparation of innovative projects relating to the recognition of the learning outcomes of non-formal and informal learning was made possible by the provisions of art. 3 of Regulation 1081/2006 of the European Parliament and of the Council of 5 July 2006 on the European Social Fund and repealing Regulation (EC) No 1784/1999. Innovative projects seem to provide a great opportunity to look for new solutions, the implementation of unusual and hitherto unknown forms of support and the ability to integrate new target groups into project actions. However, the lack of large-scale dissemination of the already validated final product of such innovative project results in a relatively low efficiency of the financial efforts from EU funds. The situation is difficult to accept as the national legislation makes it obligatory for universities

from 1 October 2015 to recognize the outcomes of out-of-school learning, but validated products in this area are virtually known to a relatively narrow range of users, i.e. the designers themselves and universities testing the final product. As a result, public money is spent twice (once from EU funds, and once from the university budget) on the same priority, which is to develop a legal, organizational and instrumental model of recognizing the outcomes of non-formal and informal learning. Wasted time and public funds cannot be returned and these two valuable assets could have been used in a more rational way e.g. on developing a motivational, charge-free system for candidates interested in recognition of their non-formal and informal learning outcomes. Instead, the fee for this procedure, often perceived as too high, may cause poor responsiveness in terms of the actual implementation of the recommendations of the EU Council of 20 December 2012 on the validation of non-formal and informal learning. In line with this recommendation, the EU Member States should ensure that by 2015 a national system of validation of non-formal and informal learning is established providing citizens with the possibility to obtain full or partial qualifications attained through learning in forms other than formal.

The second source of funding discussed in this paper is the state budget. Its role in financing non-formal and informal education compared to its role in financing formal education is considerably limited. On the one hand, the funds from the state budget complement the EU funds under the national contribution to the implementation of projects contracted in various operational programmes of the EU perspective. The amount of this contribution depends on the scale of interest of projects deliverers and the amount they applied for. On the other hand, the funds from the state budget are allocated to labour market institutions (e.g. job centres) and earmarked for active forms of combating unemployment (e.g. trainings, job placement). The problem with this area use of public expenses is lack of legal possibilities to assess the real, not formal, economic status of the unemployed. Consequently, public funds are transferred to beneficiaries who should not receive such assistance, as they can afford to pay for their education despite the fact that formally they have no income.

The third source of funding, which needs to be addressed in this paper, are private funds of a citizen. Unfortunately, Polish tax law does not provide any tax reliefs, (apart from interim student tax relief), encouraging individuals to spend their own money on non-formal and informal education. It would be an incentive for a taxpayer who paid for a certified training in a job of strategic importance for the economic development of the country, to be able to have a proportion of the incurred expanses returned. Without depreciating the legitimacy of child tax reliefs, paying more atten-

tion to the future of adult citizens would be worth considering. It would alleviate the system, if they could hold the status of personal income tax payers (i.e. remain active in the labour market to 67 years of age) as long as possible. The raising of the retirement age in Poland could be a reason to implement solutions aimed at motivating citizens to save private financial resources for educational purposes (cf. Lewiatan, 2013). An example solution here is the Educational Personal Account or Individual Educational Funds. Both instruments represent a necessary change in the approach to financing adult learning (non-formal and informal education) in Poland. The initiative and organization of adult education (form, time, location) is shifted from the supply side (educational institutions) to the demand side (client). Implementation of these solutions could be an alternative to:

- solutions used in economic crisis on the basis of art. 22 of the Act of 1 July 2009 on mitigating the effects of the economic crisis for employees and entrepreneurs and the Minister of Labour and Social Policy of 24 August 2009 on specific conditions for financing training and post-graduate studies, scholarships and social security premiums from the Labour Fund.
- diagnosed low efficiency of the training fund – a statutory instrument supporting the process of adult learning and one of the instruments for the development of human resources as stated in the Act of 20 April 2004 on employment promotion and labour market institutions.

To sum up, there are no interconnections between the three identified sources of funding for formal and non-formal education, which increases the risk of irrational spending of both public and private funds.

## **Conclusions**

The analysis conducted to assess the current system of funding for formal, non-formal and informal education in Poland shows that lack of legal regulations enabling the introduction of a coherent system integrating diverse sources of funding in educational sector of public services is the barrier to the implementation of a knowledge-based economy. This observation, in turn, suggests the need to develop and implement changes in the system of public finance in Poland. The conceptual work in this area should be commissioned by tender to a consortium composed of representatives of science, local government, consulting firms and employers. There are three aspects of the funding system for this sector of services which should be tackled: funders; procedures for determining the amount of money transfers; the scope of the tasks financed from various sources. The success of

this project at the legislative stage can be ensured by a visible social lobbying. It should stem from the Poles' awareness of the fact that by the end of 2020 the cost of conducting these legislative changes can be lower due to the absorption of EU funds earmarked for this purpose in the programming period 2014–2020. If such systemic actions are not taken, our national human capital identified, among others, with the ability to learn and motivation to share information and knowledge (Fitz-Enz, 2009, p. XVIII) will degenerate for many generations, taking into account the pace of socio-economic changes in the 21<sup>st</sup> century.

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