

*Michał Gabriel Woźniak, prof. dr hab.*¹ 

Division of Research on Social Inequalities and Economic Development
University of Rzeszów

A new institutional orientation of the development of science, knowledge and human capital in Poland versus integrated development

INTRODUCTION

The transformations which took place in Poland during the last thirty years in the sphere of academic education, science and the development of human capital, which we will call the sphere of knowledge, took place mainly under the pressure of globalisation of liberalisation, that is the dissemination of neoliberal standard programmes of transition of post-socialist economy into market-oriented economy prepared by the experts from the International Monetary Fund and the World Bank. They recommended deregulation of markets, guarantee of property rights, privatisation of enterprises, reduction of budget deficit with emphasis being placed on tax cuts, creation of a broad tax base and moderate marginal tax rates, real positive interest rates determined according to market rules (in order to stop the outflow of capital and promote savings), exchange rate based on market rules ensuring competitiveness, liberalisation of import of goods and elimination of restrictions for direct foreign investments². They were delayed due to problems which occurred in the public financing of the development of this sphere. They resulted from the public debt towards foreign creditors which was inherited from the centrally planned economy and which exceeded the capabilities of the national economy to serve it as well as the consequences of deep transformational

¹ Correspondence address: University of Rzeszów, Institute of Economics and Finance, Ćwiklińskiej 2, 35-601 Rzeszów; e-mail: wozniakg@uek.krakow.pl. ORCID: 0000-0002-6596-4367.

² For more information see (Williamson, 1990), controversies related therewith (Stiglitz, 2002; 2006; Rodrik, 2008) and problems arising therefrom in relation to Poland (Woźniak, 2019a, pp. 61–80).

crisis³ caused by the adopted path to the transition to the market economy based on neoliberal recipes. In accordance with these recipes, a right response to the challenge of globalisation of liberalisation in relation to the knowledge sector, similarly to the entire public sector, was supposed to be new public management (NPM)⁴, which was consistent with the views promoted by mainstream economy referring to the Washington Consensus recommending the globalisation of liberalisation and adjusted macroeconomic stabilisation policy with potential modifications thereto. They took into consideration spatio-temporal cultural restrictions, but they still recommended the deregulation of markets, privatisation, reduction of the state budget deficits, with emphasis being placed on tax cuts, and other activities facilitating the standardisation of macroeconomic policies, internationalisation of national economies and economisation of all spheres of development.

New public management is the embodiment of the rules of neoliberal policy under the conditions of the globalisation of liberalisation and an advanced IT and telecommunications revolution in relation to the government sector. It promotes subordination to the rules of the market game of the knowledge sector which is the supplier of a particular type of goods generating positive external effects which are socially useful and determine the qualitative characteristics of human capital. The particular significance of these goods results from the fact that they determine the directions of modernisation in all spheres of human existence and activity. Therefore, they are significant not only in terms of business success, economic growth, the position of the national economy in the rankings of development of the knowledge-based economy, but also in terms of human and nation welfare.

The author of this paper proposes a thesis that institutional reforms in the sphere of knowledge should be programmed due to their consequences not only for an increase in GDP, which should be perceived as a fundamental set of measures of fulfilling development aspirations of nations. The possibilities of achieving the coherence of functions of objectives in the entire area of development, which consists of the sphere of economics, politics, technology and consumption as well as the social sphere, the sphere of nature and human biology and knowledge itself, are equally significant and perhaps even more significant than an increase in GDP. The degree of coherence of these functions of development objectives of an economical society is the indicator of their integration. GDP, technological

³ Costs of the transformational and stabilisation shock programmed by the so-called Balcerowicz Plan were related not only to a decline in GDP by nearly 12% in 1990 and by the next 7.6% in the following year, but also to an increase in unemployment up to 16.4% in 1993, a decline in the purchasing power of money by 40% and a decline in the real income of population by more than 22% in 1990. These problems were accompanied by the long-term spectre of crisis in public finances, which persuaded the next governments to search for savings, mainly by reducing the share of expenses on the sphere of knowledge in GDP. For more information on the costs and benefits of the transformation and the delayed reforms of the public sector see (Woźniak, 2012a).

⁴ For more information on the NPM see (Osborne, Gaebler, 1992; Zalewski, 2005).

progress, all symptoms of the modernisation of the economy and institutional changes are extremely important measures of fulfilling people's development aspirations. As key elements related to the reform efforts of politicians, they cannot be programmed in isolation from the coherence of development in all spheres of human existence and activity. Then, as the experience of many countries show, they stop being the indicator of eudaimonia, welfare, that is life with goods, being good and among the good ones. They easily become the tools of implementation of political and economic interests of selected social or national groups. The paper also proves a thesis that in order to overcome the syndrome of particularisms in all reform efforts, an orientation towards integrated development, that is with coherent development objectives of all spheres of human existence and activity, is necessary. This would enable the creation of the environment necessary to disseminate living in welfare. This is why the holistic reflection modernisation of human capital by making it capable of acting in support of integrated development, in which particular importance is attached to the sphere of science and knowledge is recommended. From this point of view, the author of the paper has conducted a detailed assessment of key assumptions of the Act on Higher Education and Science which has been implemented in Poland since October 2018. In order to appropriately understand the diagnostic purpose of the present case study oriented in this way, the author has briefly referred to threats which accompany the development of the knowledge-based economy originating from individualism, reductionism and the still dominating mechanistic rules of thinking and conclusions drawn from the attempts to reform the knowledge sector in Poland related to the transformation and accession to the EU.

A better understanding of unequivocal purpose of the attempt made in Poland to create permanent institutional foundations for the functioning of the sphere of knowledge corresponding to the challenges of contemporary globalisation required signalling positive aspects of the implemented reform in the first place. This paper in no way undermines the purpose of efforts made by the authors of this reform for the development of the traditional knowledge-based economy. However, the present paper searches for the answer to the questions of whether, in the face of the spectre of numerous, universal and specific, development threats, institutional Xerox-modernisation in the sphere of science by treating it due to the new Act on Higher Education and Science as part of a trend of changes in the European universities based on the new public management is sufficient for Poland to move in the direction of integrated development. The conducted research and presented conclusions were based on the study of literature particularly concerning government failure, market failure, public management in the sphere of knowledge and development threats arising therefrom as well as case studies of the reforms of the sector of science and higher education which have been undertaken in Poland since 1990. The entire research process was based on the inductive and deductive inference.

WHY THE NEW KNOWLEDGE-BASED ECONOMY IS NECESSARY

The theory of endogenous growth, whose authors made an attempt at endogenisation of technological progress, i.e. treating it as a result of conscious and organised decisions made by economical entities, provides theoretical justifications for promoting the knowledge-based economy in economic literature, economic politics and business practice. Although the first attempt to endogenise technical progress appeared at the end of the 1960s (Shell, 1966), it was only with a twenty-year delay that the first model of endogenous growth was developed which enabled approximate estimates of the impact of human capital on economic growth (Romer, 1986). Since then, research in economics and management sciences has been disseminated, and it proved that the main driving force of economic growth are improvements in the knowledge of how inputs are transformed into products, i.e. technological progress and innovations whose results can be measured and, most importantly, it can be stimulated and it is possible to manage the process of creating innovations at micro and macroeconomic levels. At the same time, the third technological wave associated with the IT and telecommunications revolution confirmed the theoretical evidence. In business practice the search for incentives to innovate and search for knowledge capable of creating technological, product, management, marketing and other innovations in order to maximise synergistic effects from their combined use have become widespread. This meant the spread of a new type of competition, i.e. competences to jointly use multiple (technological, product, management, marketing, institutional, financial and other) innovations to maximise the company's market position, its assets and profits. All of these processes required the globalisation of liberalisation, as combined with multiple innovations, it opened output markets and access to such production factors, including innovation and human capital, i.e. knowledge capable of acting in support of its users. And in these epistemological paradigms, the interests of human capital carriers are only respected in terms of their ability to achieve business objectives. These rapid transformations in the market sector and the related changes in the rules of thinking, acting and the way of living were assigned with various terms such as "post-capitalist society" (Peter Drucker) or "post-industrial society" (Daniel Bell), "third wave" (Alvin Toffler), "network society" (Manuel Castells), "connected economy" (Zbigniew Brzeziński), "digital economy" (Don Tapscott), "knowledge society" (John Naisbitt). Michael Porter's concept of innovation-driven economy became widespread in the USA, and knowledge-based economy or knowledge-driven economy became widespread in Europe. These are similar economies in the sense that their development is based on knowledge development.

The American model, which we call IDE (innovation-driven economy), is oriented towards the effectiveness of operations, maximising the productivity of production factors, company assets and profit levels in order to guarantee a dominant global market position. Knowledge is used in it to build an innovative

economy in the Porter's sense, i.e. it is supposed to enable competition on the basis of achieving synergistic effects from the ability of the business sector to jointly use all technological, product, management, marketing and other innovations (Porter, 1998). IDE, i.e. the Anglo-Saxon model of innovation-driven economy is the product of activities of business entities and the effective management of innovative process at the microeconomic level. Its mechanisms are supposed to operate according to the theoretical foundations of mainstream economics, according to neoliberal recipes possibly supported by new public management. At the macroeconomic level, its sense is expressed in maximising GDP per capita. Social development objectives, as well as institutions and non-market regulation mechanisms, are respected insofar as they favour increasing productivity and competitiveness. Universal civilisation and spiritual values such as truth, beauty, good, perfection, justice are instrumentalised in relation to economic values, which leads to a technotronic culture, objectification of human capital carriers, disregard for natural resources and hyperconsumerism.

In the European model of knowledge-based economy, which we will call KBE, knowledge is supposed to be used in economic politics and public management for the triple sustainable development of national economy and its regions in economic, environmental and social terms. The state by means of its policy with the involvement of local government institutions and enterprises, as a result of effective management methods, and universities by means of their knowledge resources, are all supposed to trigger incentives similarly to the three-bladed screw⁵, i.e. release synergistic effects from non-linear interactions to maximise the chances of achieving programmed development objectives. Currently, a quintuple helix model is being popularised, which is based on the cooperation of not only universities and R&D centres with industry, but also with public authorities, the media and society which uses innovations that respect the requirements of the environment and the need to build environmental awareness (Cariayannis et al., 2012).

The theoretical foundations of KBE are interdisciplinary and eclectic in nature, but unlike the IDE, they strongly emphasise the control of innovation and human capital development at the macroeconomic level. This model also makes reference to the theory of endogenous growth and thus neoclassical economics, but using the theory of sustainable development and trends indicating the need to improve markets by means of non-market strategic Community and national coordination tools to speed up sustainable development-oriented modernisation and adaptation of human capital characteristics, which has been supported since 2000 by means of separate programmes, such as "Human Capital" and "Innovative Economy", implemented under the long-term strategy decreed by the European Council, and since 2014 under the Europe 2020 Strategy (COM, 2010).

⁵ This mechanism is used in the triple helix model recognised as useful in the development of KBE. See (Etzkowitz, Leydesdorff, 2000, pp. 109–123).

The world technological leaders (*Frontier Area Technology*) include countries with the IDE and the KBE models. However, in general, Europe with its KBE model is lagging behind the USA in terms of an increase in GDP per capita, productivity of production factors and innovation indicators of the economy where IDE was born and is developing. The undeniable success of both models in human capital development and technological progress cannot hide the fact that there is a process of spectacular technological convergence in China, which is already successfully competing with the USA in the scope of the fifth generation of mobile technological networks (5G) enabling faster transmission, collection and processing of information and the development of artificial intelligence. Most importantly, however, the modernisation that has been taking place since knowledge has had dominant and increasing contribution to GDP growth is also accompanied by disproportionate, unstable, enclave-like development, excluding entire social groups on a global, national and local scale from participating in its fruits. As a result, modern world is faced with development threats that are difficult to overcome. These global threats have been clearly visible to a growing extent since the 1980s in all spheres of human existence and activity (Attali, 1998; Kołodko, 2013).

- 1) In the sphere of nature and biology, there is an increase in the risk of the greenhouse effect, degradation of fauna and flora, climate instability (Randers, 2014), generation and population incompatibilities and the demographic crisis in Europe threatening the entire Euro-Atlantic civilisation and increasing migration of people to Europe, the USA and other highly developed countries, the scarcity of certain raw materials and the related economic, political and social development problems, as well as those related to food security, which are particularly relevant for future generations.
- 2) With regard to the technological sphere, attention is drawn to an increase in IT risks, the risk related to intellectual property piracy, radioactivity and the development of biotechnology and artificial intelligence that can control the human imagination and individual decision-making process, manipulate lifestyles, limit free choice, subjectivity and threaten democracy.
- 3) In the social sphere, since the 1970s, there has been a return to the growing inequality of wealth and income, which occurred at the turn of the 19th and 20th century (Piketty, 2015), an increase in the risk of poverty, hunger, social exclusion from participation in the processes of modernisation and fair use of their fruits as well as the precarisation of labour (Standing, 2011).
- 4) In the economic sphere, the recent global financial crisis has revealed, contrary to the opinions promoted in mainstream economics, the growing risk of losing control over public finances, the negative consequences of the financing of economies (Dembiński, 2011), problems of regional integration which are difficult to overcome, growing problems associated with the shortcomings of international coordination and the resurgence of new nationalism (Kołodko,

Koźmiński, 2017). Attention is also drawn to the fact that new technologies associated with the digital revolution may prove incapable of overcoming a relative decline in labour productivity. This would mean a return of the world economy to the low GDP growth rate that occurred before the industrial revolutions.

- 5) In the sphere of consumption, despite the enormous advances in knowledge, the negative effects of hedonistic, irresponsible, immoderate consumption, the growing risk of hyperconsumerism (Barber, 2009), living in borrowed time and at the expense of future generations (Bauman, 2010) are being revealed.
- 6) The spiritual sphere is influenced by economic imperialism, individualistic, mechanistic and reductionist rules of thinking supported by moral relativism with rapid progress in the development of IT and telecommunications technologies and the emerging artificial intelligence. All this gives rise to information and intellectual noise that facilitates the interests of netocracy, the spread of technocratic culture, hyperconsumerism, the demand for hedonistic values and the building of a society of performance (Debord, 1967) susceptible to manipulation of its behaviour, phishing in various spheres of human activity, i.e. catching losers for particular interests (Akerlof, Schiller, 2015), and other new phenomena and processes that push away spiritual needs and moderation in terms of material insatiability, create pressure for permanent modernisation and growth for the sake of growth. These processes take place without axiologically ordered objectives and are incompatible with responsibility in the personal dimension within and between generations and, consequently, make it impossible to harmonise development in all spheres of human existence and activity.
- 7) In the political sphere, erosion of democratic state institutions is observed, as well as the growing ethnic and national conflicts between the USA and Russia, and oligarchic capitalism and the dynamically strengthening power of Chinese transnational capitalism built bureaucratically by one-party power of the heirs of communism and societies with different political cultures. The globalisation of liberalisation and the spread of developed IT and telecommunications technologies lead to religious and cultural disputes and the clash of civilisations (Huntington, 1996). In the background of these processes, the risk of local wars increases and new problems related to the maintenance of world peace arise.
- 8) The sphere of knowledge does not keep up with the answers to the development challenges and threats of the present and the search for coherent mechanisms, institutions, tools and coordination procedures enabling the construction of the knowledge-based economy and the innovation-driven economy oriented towards the transition from the GDP economy to the social, economic and political order oriented towards the harmonious improvement of the quality of valuable life in all spheres of human existence, in the spatial and intergenerational dimension.

The inadequate medical and organisational preparation of the sphere of knowledge for the rapid and fully effective neutralisation of the coronavirus threat, which became a pandemic in 2020, is a new example of the failure to keep up the sphere of knowledge which functions in the world of interests and moral relativism and which is fragmented by excessive reductionism, methodological individualism and the still dominant mechanistic approach. Although the governments of individual countries are taking drastic measures to defend themselves against COVID-19, the crisis is still ongoing and the pandemic damage is raising concern about the repetition of the economic consequences of this crisis on a scale comparable to that of 1929–1933. The question arises as to why the fragmented sphere of knowledge with its enormous resources and the spectacular scientific discoveries of recent decades, subordinated to new public management has not prevented the poor organisational and methodical preparation of globalised world economies and policies for a joint integrated effort from the expected eruption of the risk of a pandemic, for which the globalisation of liberalisation and new technologies form a particularly fertile ground.

In the case of Poland, attention should also be paid to contextual threats related to the development path of the economy and society which have determined the properties of human and social capital and the related problems of catching up with the world technology leaders in terms of development gap and quality of life. The most important of these are related to: the progressive process of social disintegration and the collapse of social capital, relatively low salaries and the related barrier of internal consumer demand, and the still insurmountable trend of the outflow of talent abroad, the demographic crisis and the increased risk of pension system collapse, the limited capacity of the public sector to adequately support pro-development tasks (concerning infrastructure, knowledge, education, science, innovation, health, etc.), servicing external debt and a rapid improvement of the quality of life.

Knowledge, i.e. true and reasonable beliefs, structured information that can be processed and used to make rational decisions in relation to all spheres of human existence and activity, has a particular role to play in solving these problems. It consists of:

- people's competences, the quality of human capital, i.e. knowledge they are equipped with which is capable of acting,
- the capacity of the organisation and the national economy to use this knowledge effectively in support of the functions of objectives across the entire integrated development space,
- the ability of human capital carriers to cooperate in an increasingly competitive environment.

It should be noted that fragmented knowledge, based on individualism, excessive reductionism and mechanistic approach practised since the Cartesian times, was a convenient tool providing logically consistent interpretations of man

as an individual, a production factor, a bearer of the objectified aspects of human capital, and therefore instead of leading to welfare and being good, it was used for such modernisation of management systems, institutions and procedures that facilitated the risk of the aforementioned global threats to human development, as well as contextual and specific for time and space, as is the case of, for example, the threats referred to in the case of Poland.

The orientation of IDE on the productivity of production factors and thus on GDP per capita by emphasising the combined use of multiple innovations and the appropriate management of the innovation process undoubtedly accelerates the modernisation of the economy, is beneficial for progress in the quality of goods and services produced, in terms of working conditions, travelling and many other processes positive in economic and social terms. However, these positive processes are associated with the confusion of the objectives of management and the means of achieving them, at the root of which lies the reduction of the perception of human nature to a one-dimensional existence that respects economic, hedonistic values, seeks for its own quantifiable benefit in market terms, carrier of the characteristics of human capital as a production factor and object of use. Also the channels of formal education, especially in the field of economic, social, engineering and technical sciences focus on development-oriented knowledge and technological progress corresponding to the interests of big business and political powers. This opens the space for the economy of manipulation and deception. Huge financial outlays, crowds of experts and people of science, and the latest developments in psychological, economic, political and other sciences are used for this purpose. This raises the question of whether it is possible, in such a widespread approach to investment in people, to acquire competences to self-limit one's own freedom and creativity due to respect for other entities and social entities (Wielecki, 2003, p. 351). Practice provides evidence that IDE does not create a favourable environment for such a subjectivity. It also does not create a favourable environment for institutionalisation which facilitates reducing unfair inequalities in the distribution of wealth and income within society, so that the fruits of modernisation can benefit as many people as possible and enable them to actively participate in it. It is also not oriented towards the creation of the knowledge and innovation needed to respect natural resources in such a way as to enable sustainable development thanks to which future generations will be able to enjoy leaving the environment in a condition that enables their successors to live in a valuable way.

KBE, i.e. the European knowledge-based economy model, with its Eurocentric vision of triple sustainable development, is intended to provide a constructive response to the weaknesses of the IDE model. It is an important, if only limited, step towards an integrated development, and it is more declarative than actual. Although this model, under the influence of the Lisbon Strategy, has placed emphasis on linking individualised development to universal development, it has

in practice taken on a diffusion-polarising character. The KBE model emerged where European funds were obtainable, and these funds more easily reached the places where local elites were better organised and were able to articulate local interests in terms appropriate to the priorities set out in the operational programmes of the national cohesion strategy under the open methods of coordination. These seemingly innovative methods of coordination consisted in building an objective and then writing it down in the form of scenarios. However, this did not happen in common participatory procedures, but through the bureaucratic apparatus of public authorities, which were tainted by the original sin of the fiction of apparent participation and the actual power of arrangements and autocracies made up of people who possessed the competences to interpret their interests in terms of the public good. Thus, addressing the problems of the general public in the interest of the welfare and of society, but without the participation of the interested parties themselves, survived, and the integration of development processes is still carried out according to the principle that key changes can be made by a narrow group of bureaucrats aware of the public good, but subordinated to their interests.

From the point of view of the development of human capital capable of acting in support of integrated development, the only way to reverse the negative trend of diffusion, polarising and enclave-like development is to reject the fiction of apparent participation in support of real empowerment of society and a holistic reflection on modernisation of human capital oriented towards the dissemination of competences to think and act in terms of integrated development. The idea is that people should be able to be guided in their choices, including political choices, by the values of a free and responsible order in such a way as to maximise the subjectivity of citizens within the limits that make this freedom permanent and mutually respectable. This is a fundamental prerequisite for the widespread acquisition of effective ways to improve people's living environment in cooperation and by using existing creative potential. This results in the emergence of the need to build human capital of a public and common good nature which is the knowledge of what kinds of public policies to support, what their implications for the implementation of the functions of objectives across the entire integrated development space are, and which political agendas best fit the development, how to vote or engage in political support, and how to consume responsibly on a personal level, towards others, including future generations, their own health and quality of valuable life.

The importance of human capital of a public good nature or increasing social welfare will become apparent if a sufficient number of voters gain more knowledge about the real consequences of different public policies for the possibility of implementing the functions of development objectives across all spheres of human existence in a harmonised way. Thus, if a sufficiently large number of people were equipped with human capital of a public good nature, then politicians would be forced to offer and implement development and institutional change programmes

focused on integrated development. This would allow public policies to become genuinely controlled by society, and politicians would have to bear in mind the risk of fulfilling their election promises. It can be assumed with a high degree of probability that it would then become possible to improve policies towards the objectives of integrated development, as political phishing would lose its effectiveness⁶.

In other words, the socially expected modernisation of the political sphere, the implemented development programmes and system reforms, also relating to the knowledge sector, should be sought for in the sphere of integrated knowledge transformed into creative human capital capable of creating institutional frameworks for building a common awareness of the objectives, costs, benefits and conditions of integrated development and mobilising social will to cooperate towards this goal. Support may come from the education system, which is not limited only to dissemination of fragmented and specialised knowledge based on individualism, reductionism and mechanistic approach oriented towards economic values and technological modernisation, but which patiently develops knowledge based on a holistic, interdisciplinary approach and uses it to shape competences to seek synergistic effects from alternative allocations of resources for harmonised implementation of the functions of development objectives from various spheres of human existence. It should be constantly remembered that the cost efficiency of human activities is only a means of achieving their development objectives specific to the sphere of consumption, from the area of spiritual values, subjectivity (supervisory powers), concerning non-personal beings (nature and biology). These values are to be achieved through development in the sphere of knowledge and technology, and institutional reforms in these spheres should be subordinated to them. After all, it is not only about the development of such human capital that would serve only business, political, bureaucratic purposes or new technology.

Therefore, the mission of the state, the entire education and science system should be to facilitate integrated development. The state should create an environment and social climate friendly to improving the quality of valuable life not only through appropriate institutional reforms, but also through its other entrepreneurial activities. However, this requires the mobilisation of civil society by independent experts and journalists and an education system to put pressure on political and business power centres to direct institutional modernisation towards integrated development. A democratic political space is not enough. The reason for this is that it functions as a structure of competition oriented towards gaining powers to pursue policies and institutional reforms. Its officers are guided by political interests, maximising the number of electoral votes under parliamentary democracy conditions, also by means of political phishing. It should therefore be

⁶ See (Olson, 2000, p. 52 et seq.).

stressed once again that if a sufficiently large number of people were equipped with human capital of a public good nature, then politicians, given the high risk of losing their supervisory powers, would have to offer and implement development and institutional change programmes oriented towards integrated development. Ignoring this risk would mean losing their supervisory powers in the future.

If the economy is to be oriented towards achieving people's development objectives in a harmonious way in order to guarantee the welfare of the participants in the economy, i.e. functioning among the goods that serve the purpose of valuable life and being good, then it is advisable for the state to promote investment in such competences that do not only determine the productivity of technology and the functioning of individuals in the world of goods, but also contribute to improving the quality of valuable life. The IDE and the KBE models do not guarantee this, which can be observed in all spheres of human existence, signalled by the threat to development objectives.

This means that there is a need for a model of economy in which knowledge and information can be a source of social capital transformations and strategy orientation towards coherent development in all spheres of human existence, quality of valuable life, respect for mutual interactions between the functions of objectives of individual spheres of human existence and the interspatial effects of the allocation of production factors (synergistic and entropy effects). This new model of knowledge- and innovation-based economy oriented towards integrated development is referred to as KIBE. The fundamental condition for its functioning is the modernisation of human capital and competences to act in support of integrated development. Only this new integrated theoretical knowledge and its new techniques (integrated analysis) with the use of IT and telecommunications technologies, inseparably from the computer, create a hope for its rational use for innovations useful in harmonising development in all spheres of human existence, for living in welfare and being good. After all, the sense of modernisation, innovation and development is not exhausted by business, political or bureaucratic objectives. Their proper purpose is a better quality of life achieved by harmonising development objectives in all spheres of human existence.

In the new knowledge-based economy it is not enough to be oriented towards the GDP per capita growth, as is the case of the American innovation-driven economy model, or even towards economically, socially and ecologically sustainable development implemented in the European knowledge-based economy model. After all, GDP reflects only quantitative and partial effects of development. It expresses the value of annual value-added transactions in a given country, regardless of whether they bring economic benefits or losses to society and the environment as a result of the development of material production, and is thus oriented towards short-term effects. Nobody is informed about how its fruits are shared, who uses them and to what extent, what their regional distribution is, and therefore whether they are inclusive or exclusive in terms of subjectivity and space.

It is obvious that neoliberal ideology, business and political institutions based on this ideology referring to the value of the individual who is supposed to search for their own benefit quantifiable in market terms, do not guarantee the appropriate human capital characteristics necessary to achieve the objectives of integrated development. The human capital that grows out of them is supposed to be knowledge capable of acting in support of its buyers, which does not have to be in line with the interests of its carrier, especially since the actual markets are ineffective, dominated by transnational corporations and monopolised.

Human capital with characteristics specific to the implementation of integrated development may be created by combining economic, social, territorial, behavioural, cultural and technological aspects in an analytical process. Only in a holistic approach can the full costs, benefits and operation of the national economy, i.e. market mechanisms, institutions and management procedures created by non-market entities (the state, local governments, civil society institutions) as well as the whole range of multiple opportunities and threats, inconsistencies and inefficiencies of their regulators, be examined due to the effects on the overall objectives of integrated development. Such an analytical process allows to gain knowledge that is not susceptible to biased manipulations as opposed to fragmented diagnoses. It is necessary to examine the functions which the entities of the economic system perform in relation to the objectives of integrated development. Business, political, employee and bureaucratic interests must not be ignored, as these are the characteristics of the existing rules of people's thinking and activity. Institutional orientation towards the ability to compete is not enough to harmonise development objectives, although it is necessary in order to make the results of actions more economical. It is also not enough to maximise synergistic effects from the use of broadly defined innovations. Business entities need to learn how to cooperate, i.e. focus their efforts on achieving common benefits resulting from synergistic effects from maintaining mutual cooperative relations within a co-opetition system (Cygler et al., 2013). This requires knowledge facilitating a stronger coordination of actions undertaken by entities at different levels of management and human capital of a public and common good nature and motivating for rational cooperation. The need to disseminate the rules of thinking and acting based on a holistic reflection modernisation of human capital useful for the development of KIBE is also justified by the already existing advanced IT and telecommunications technologies, new challenges and threats related to the spread of autonomous machines, robotisation, artificial intelligence, biotechnology, in order to make peace, not to decide on life and death and the unfair distribution of natural resources, property and income.

In an internationalised digital economy and technology, the knowledge needed to compete with prices and labour costs is no longer sufficient. Business success depends on the ability to obtain synergistic effects from multiple innovations, while personal success depends on competences, including innovative competences.

This means that it is not enough to limit ourselves to orienting the knowledge sphere towards the problems of human capital modernisation and innovation for the purpose of triple sustainable development. Economic development is supposed to serve the development at the personal level, i.e. to serve people, not just business interests, bureaucratic and political structures interested in achieving desired (for their purposes) levels of benchmark productivity of production factors, use of labour resources, enrolment rates and others, which do not reflect the qualitative problems of modernisation related to the dissemination of competences to reach current and reliable information which is needed at a given time, competences to communicate, to be creative, e.g. in terms of creating digital products and services. After all, the improvement of the institutional order cannot be abstracted from the reflection on why a person treated as a carrier of human capital in a form reduced to the production factor should strive for socio-economic development and not for their own monetary interests, regardless of the function they may perform in the socio-economic system. This is the reason for the need of a system of formalised education to disseminate a new kind of knowledge, which is holistic, integrated, useful for the creation of modernised human capital, enabling acting in support of integrated development, because the one rooted by generations in hedonistic values, based on reductionism, individualism and the mechanistic approach, is not able to prevent the risk of multiplying the threats to humanity. This could be achieved through well-programmed institutional reforms in the knowledge sphere. These Xerox-modernisation-based reforms of the scientific and knowledge sphere subordinated to neoliberal recipes are oriented towards building an innovative economy, but they focus on practical skills of solving the emerging problems, i.e. on the *techné* sphere, and are not properly integrated with the *sofia* (in Greek: *wisdom*) sphere (Piontek, 2020), and thus exclude integrated education system management. The attempts of the reforms which have been made in Poland since the transformation are also an example of this.

POST-TRANSFORMATION PATHOLOGIES OF THE REINSTITUTIONALISATION OF THE SPHERE OF KNOWLEDGE IN POLAND

For the reasons indicated in the introduction, the implementation of the new school system in Poland and in the field of academic education corresponding to the recommendations of the new public management was not undertaken together with the implementation of the Governmental Stabilisation and System Transformation Programme. It is true that the ideology of education and upbringing promoted for the needs of the concept of the communist man was spontaneously removed from the area of economic and social sciences and the *homo oeconomicus*⁷ ideology

⁷ For more information, see (Woźniak, 2020, pp. 173–188).

was introduced in this place. It was not until 1999 that under four reforms of the public sector, also the decentralisation of responsibility for education decisions and delegation of responsibility for education development from the state to local authorities took place. Apart from the quantitative successes expressed in high enrolment rates, plans to modernise curricula, instil creativity, entrepreneurial attitudes, release the ability to adapt to the changing needs of the labour market failed. Schools were not prepared for this in terms of staff, and the state did not secure the education sector with adequate material and financial resources. In connection with these problems, further reforms proved necessary. The one from 2009 was oriented towards popularisation of compulsory education for six-year-olds, modernisation of teaching at the junior high school level, and at the secondary and technical school level towards expanding the curriculum of Polish and foreign languages, mathematics, religion/ethics and physical education, and introducing subjects to be chosen by students. An increase in teaching effectiveness was to be facilitated by fewer classes, a larger number of groups and a new organisation of the secondary final school examinations. Unfortunately, decentralisation activities facilitated the dismantling of school supervision, they were not supported by the necessary motivational instruments, in terms of staff and material resources. The commonly repeated projects concerning the quality of education served the purpose of utilising free funds from the Human Capital operational programme rather than improving the curricula, adjusting them to the requirements of the labour market and the quality of education staff. The low quality of education at primary and secondary levels did not facilitate the construction of ambitious university programmes. Removal of shortages in staff with higher academic education inherited from the centrally planned economy was achieved through spontaneous development of non-public higher education institutions and an increase in the number of students at public universities, however, while at the same time the share of R&D and academic education expenditure in GDP decreased and there was a lack of curriculum reforms. This resulted in a decrease in the quality of teaching and the collapse of the R&D sector, whose share in GDP decreased from about 0.98% in 1990 to 0.65% in 1995 and after the next ten years to 0.58%⁸.

After institutional reforms carried out in the sphere of science and academic education, until the implementation of Act 2.0, the following were left: the pathology of low salaries and low expenditures on R&D, lack of conditions for the development of work of interdisciplinary research teams and consortia, and thus lack of significant competitive research results and the inadequacy of academic education in terms of the challenges of the innovation-driven economy. A shortage of graduates of engineering and technical faculties became apparent.

⁸ Already in the years 1994–1998 less than 0.5% of GDP was spent on R&D sphere from the state budget. Technological modernisation was to be implemented through the liquidation of the national R&D base and the inflow of direct foreign investments. See more information on the consequences of this policy for the innovation of the economy (Bal-Woźniak, 2020, pp. 214–248).

In academic education there were often didactic programmes based on obsolete knowledge, not adapted to the challenges of rapidly changing needs of the economy in connection with the development of IT and telecommunications technologies and the opening of national economies to the diffusion of innovation. After all, for many years, the knowledge that has not been updated has been structured in a better way. The one based on too far-reaching reductionism was also desired by the average student, who wanted to obtain a diploma with the best possible grade as easily as possible. Ambitious didactic programmes, saturated with new non-textbook knowledge oriented towards creativity, were more of an object of tolerance than desire, and were often met with disapproval, especially in the non-public sector of academic education, oriented towards producing as many diplomas as possible, because the financial income of higher education institutions depended on it. In the environment of public higher education institutions, their authorities also wanted to demonstrate before the accreditation committee the efficiency of teaching expressed in quantitative rather than qualitative indicators. Similarly, in the sphere of research and scientific publications, quantitative rather than qualitative indicators were important.

New types of institutional solutions in the sector of science and academic education, inconsistent with the challenges of increasing competition, have been modified three times since 1990: in 1998, together with other three reforms of the public sphere, and in 2007 and 2011 (Journal of Laws 2011, No 84, item 455), but these modifications did not change the essence of functioning of the education system and practising science. The pathology of low salaries and low expenditures on R&D continued, so there were no conditions for an active human resources policy, linking costs to the quality of the teaching product, and all this made it impossible to discount the benefits of opening the gateway to the original curriculum. As a result, higher education institutions did not respond adequately to what and who they were teaching for, they did not cooperate with employers and did not follow the fate of their graduates. They became “producers of the unemployed” with humanistic knowledge to a greater extent. In the areas of extended autonomy, the symptoms of freeing oneself from the responsibility for the quality of teaching, scientific and discretionary work were visible. In order to avoid this pathology, not only the objectives of the reform, but also its institutions, tools, mechanisms and detailed procedures must be oriented towards coupling autonomy with responsibility in an integrated way, and should be systematically monitored and adapted in this respect. It should also be noted that only then can institutional change in the sphere of knowledge foster inclusive modernisation, involving the widest possible range of social groups to participate in it and benefit from the fruits of this modernisation, if it spreads the competences to be creative, active, if it is oriented towards the welfare of all social groups and not the comfort of the academic world and its leaders. The question arises whether this is how the Constitution for science was decreed by Act 2.0.

WHAT TO EXPECT FROM ACT 2.0

The direct area of activity of the Act on higher education and science, implemented since October 2018, popularly known as Act 2.0, is the sphere of knowledge and technology (Journal of Laws of 2018, item 1668). However, indirectly, the fruits of this Act should be expected in a better implementation of the function of objectives in all spheres of human existence and activity, i.e. in the entire space of development. The resources and quality of knowledge, the axiology that science and education affirm, are the potential that determines the sustainability of economic growth, the condition of social capital, civil society, its understanding of the importance of freedom, subjectivity, justice, will and the way they use these and other values. They also influence the shape of institutional changes in the economy, the political sphere, the rules of thinking and acting, and thus people's work, the nature of consumption, the functioning of the family, the use of natural resources and the deposit of spiritual values.

The legislator's intention was to overcome the problems related to the failure of science and academic education to keep up with the development challenges and threats to the Polish economy resulting from the globalisation of liberalisation and the digital revolution. This meant that the idea of the reform relied on the Xerox-modernisation of models implemented since the beginning of the 21st century at European universities with the hope that thanks to the implementation of competition mechanisms, market competition, economic efficiency and orientation of higher education institutions towards a positive financial result, the costs of their functioning would decrease and the productivity of scientific work would increase. This is the reason for the reference to the canons of new public management, which emerged in response to the processes that are taking place under the pressure of the modern wave of globalisation, liberalisation and the IT and telecommunications revolution.

Act 2.0 changes the academic system and the relations between the people who create it (teachers, doctoral students, students). It also regulates many other issues that have so far been included in separate Acts (e.g. the problem of financing higher education institutions). It is a comprehensive but, at the same time, a weighty collection of about 470 articles additionally supplemented by the Act introducing it, which has about 350 articles with many references, often double ones. It also regulates aspects which have so far been included in other legal acts. Such comprehensiveness is not synonymous with the objectives of integrated development.

The positive side of the reform regulated by Act 2.0 is the system of financing public higher education institutions by means of an integrated subsidy for teaching purposes (for all institutions) and for research purposes (for academic institutions). The decision on its allocation will be made in an autonomous manner by the university authorities. The idea of linking its financing from public funds with

the quality of teaching and scientific results should have a positive impact on the quality of life from the perspective of supplying the economy with better human capital. A higher education institution obtains most money if there are 13 students per one academic employee, which is supposed to make it no longer profitable to maintain once admitted students and educate them in too large lecture and practice groups from the point of view of the quality of the didactic process.

The system of student scholarships, the issue of university federations, the issue of computerisation of higher education institutions, which may improve the quality of the academic environment and students' lives, have been precisely defined. Additional financial support for the following initiatives of excellence also gives hope in terms of the improvement of the financial condition of any higher education institution which is motivated by rational premises:

- 1) Teaching initiative for the 10 best universities whose graduates will perform best on the labour market (according to indicators taking into account the situation in the regional labour market)
- 2) Research initiative for universities with outstanding research achievements in the form of a guarantee of higher funding of at least 10% for 6 consecutive years, which may in the long term enable the emergence of higher education institutions able to compete on the transnational market.
- 3) Regional initiative of excellence, for regional specialisation for those higher education institutions that will operate in one of the three leading scientific disciplines in the region. However, this initiative is related to the risk of pursuing undue benefits by the political and lobbying forces of a given region or a higher education institution. This is the source of the problem of creating appropriate mechanisms protecting against this risk. The provided mechanisms for obtaining access to funding for regional higher education institutions do not guarantee a departure from the pursuit of undeserved benefits for formal rather than real scientific achievements.

The solution according to which the entity granting the postdoctoral degree refuses to grant it if the opinion is negative should also be positively assessed. However, allowing the postdoctoral dissertation to remain is ambiguous. There is no obligation to obtain the postdoctoral degree and the possibility of obtaining the position of professor who will have all the rights of an independent employee, except for being the supervisor of a doctoral dissertation, is open. This may have a negative impact on the development of scientific research and the appointment of higher education institution authorities, as it is difficult to expect a general ignorance of the alternative cost in the pursuit of promotions only because the ethos of a research and teaching employee requires it.

The reform was based on autonomy, which is a positive determinant of decision-making powers and the possibility to act, understood as limiting ministerial regulations concerning the functioning of a higher education institution in exchange for increasing the powers of the one-person authority, i.e. the rector. The rector,

supported by a new body (Council), may freely shape the financial and staff policy of a higher education institution and its internal structure. A higher education institution becomes a corporation employing employees who “produce” publications, and their main task is to “produce” graduates useful for the labour market and business. Thus, the emphasis is still placed here on the subjective approach to the carrier of human capital. The question arises about the presence in the curriculum content of the knowledge that is to serve the empowerment of the carrier of human capital, its self-reflection competences and how it is to influence this content and management in the academic sphere.

Management in the sphere of science and academic education will continue to be seemingly autonomous, but in practice it will be centralised in the hands of the rector, technocratic and carried out with the support of the new body, i.e. the Higher Education Institution Council. It does not contain “fuses” limiting the abuse of the rector’s authority beyond the generally applicable provisions of administrative, criminal and civil law. The market control mechanism cannot operate efficiently here, and with the adopted solution, the control mechanism of the founding body no longer operates. A higher education institution becomes a typical case of nobody’s property, whose rector manages public funds. The consequences of this type of supervisory powers are well known not only from practices used in the centrally planned economy⁹, but also from pathologies that occur when using subsidies from EU funds.

In the clash with the adopted procedures for the election of higher education institution authorities, there is a risk of exclusion, nonconformism and freedom of thought, concentration on seeking access to sources of power in the academic environment, and thus achieving formal and not real scientific promotions and access to financial resources. It also facilitates the selection of the reviewers’ palette, which is devoid of clearly defined criteria and does not eliminate the “I support your interests and you support mine” agreements, as well as a lack of proper protection of ownership supervision in the management of assets which are intended to accumulate knowledge in society and which, without having a private character, become nobody’s property. Symptoms of the phenomenon of pursuit of undue benefits are clearly observed already at the stage of Act 2.0 implementation .

In the parametric evaluation, which is decisive for the awarding of a specific scientific category to a higher education institution, and scientific promotions to employees, these are mainly publications in journals indexed in the most important international databases that count, and in the case of book monographs – published in the so-called prestigious publications, the list of which is created by committees of experts approved at the central level. The value of a scientific paper or book is therefore not determined by its content, but by the place of publication, the value that a scientific “production” can obtain on a market whose rules define international

⁹ For more information on economic consequences of non-private property, see (Woźniak, 1993, pp. 60–70).

and national “centres” and in reality cartels and monopolies. This is supposed to cause creative destruction in the scientific journals market. However, the fact that scientific discoveries have a different nature from business innovations and are not only intended for business purposes is ignored. They are born in an exchange of views, preferably in an interdisciplinary dialogue that enhances the quality of scientific products. That is why scientists, above all, need interdisciplinary research teams, open meetings, conferences and scientific seminars, which are a source of raising the general level of the academic community, as they quickly and continuously assess and inspire each other and develop their understanding of the world. In order to disseminate this conference dialogue, they need publications after them. The practical importance of scientific discoveries is best expressed in their ability to achieve integrated development objectives. Therefore, they need to be evaluated in interdisciplinary research teams.

The adopted system of parametric evaluation may result in a decrease in interest in publications in national scientific journals and their marginalisation, similarly to what happened in the business sphere as a result of subjecting national business entities to asymmetric competition in the early 1990s. Financial support for the best national scientific journals is supposed to prevent it. However, reducing the parametric evaluation to one, possibly the highest-scoring, annual publication per researcher and underestimating scientific conferences must result in the extinction of national scientific journals, conferences, seminars and open debates. If it is a creative destruction, then it will have external effects in the form of weakening the academic debate in Poland and also lowering the prestige of regional academic circles. Another problem is to apply the same or structurally analogous criteria to the evaluation of achievements in all scientific disciplines. From the point of view of integrated development, underestimating the specificity of social sciences and humanities is dangerous. The risk is that one will get stuck in a technocratic culture and underestimate the holistic approach to development, which depends not only on the processes taking place in the technological and business sphere. Better technologies are intended to serve a better quality of valuable life, which is the product of the possibility of harmoniously achieving the functions of development objectives not only in the economic and technological sphere. These are intended to serve social and individual welfare. If we want to pursue integrated development, i.e. achieve the function of development objectives across the entire space of personal development, it is necessary to properly assess the contribution of various sciences to achieving synergistic effects from alternative allocations of resources to various spheres of human existence.

Division of higher education institutions into research entities (universities and polytechnics) may strengthen the position of Polish science. Higher education institutions which, after evaluation based on such criteria, will not obtain at least B+ category in at least two disciplines, will not have the right to offer doctoral studies (in the new nomenclature: doctoral schools) or even MA studies of a general academic

profile. Such a solution does not automatically mean increasing the usefulness of the products of science and academic education to achieve development objectives in personal, social and even economic terms.

The development challenges and threats of the world of globalisation of liberalisation and digital revolution create a demand for new theoretical knowledge and new techniques of its acquisition. The importance of integrated analysis based on external reflection and self-reflection, the ability to use technologies that connect the physical, digital and biological worlds, including human psyche and spirituality, is growing. They will determine changes in all spheres of human existence and activity, not only when pursuing business and political objectives, and ultimately progress in the development of an innovation-driven economy whose purpose is to improve the quality of valuable life. The reforms oriented towards the creation of integrated knowledge and the competences that emerge from it, opening a perspective for the development of interdisciplinary research, promoting such initiatives are necessary for this purpose.

Transformation of traditional university education techniques (hybridisation) can be facilitated by university consortia offering a common basket of courses conducted by top-class academic teachers, whose programmes may be prepared by the best scientists. Such modernisation of the teaching process would open the way for the dissemination of an integrated approach in academic curricula. Students prepared at earlier stages of education to self-reflect, to formulate their own objectives of self-organisation of the educational process could participate in it. However, universities must first prepare the teaching staff of lower levels of education to develop their competences to actively participate in the process of creating and disseminating knowledge capable of acting in support of integrated development. Therefore, there is a need for institutionalised procedures for compulsory cooperation between the science and academic education sector and education and upbringing at different levels. In the light of the signalled weaknesses of Act 2.0, the problem of finding a decalogue of knowledge for integrated development remains open.

CONCLUSIONS – WHAT SHOULD BE CHANGED

Building a new knowledge-based economy is a much more complicated problem than overcoming the Fata Morgana of *Frontier Area Technology*, which seems to be the main objective of Act 2.0. In the institutionalisation decreed by this Act, Poland's place in the world economy and its prestige, and, more specifically, the sphere of knowledge, especially Polish science in world rankings, is important. However, the improvement in the quality of valuable life, which is people's objective, requires a holistic reflection modernisation of human capital (Woźniak, 2012b, pp. 191–231; Woźniak (Ed.), 2020). This extremely complex process requires an

integrated approach in which fragmented knowledge, orientation towards economic values, technotronic culture, individualistic approach, mechanistic thinking and extreme reductionism are not enough. These vast and useful knowledge resources need to be brought together in a coherent whole, and used not only for external reflection oriented towards resources and living environment of the carrier of human capital. In an open economy and in advanced IT and telecommunications technologies, it is even more important to enable internal reflection oriented towards understanding one's own emotional, informational and cognitive limitations, the multiple consequences of these limitations in personal and group interactions and the decision-making process as well as the mechanisms enabling their reduction.

The realisation of a holistic reflection modernisation of human capital requires showing the functions of different values in relation to the possibility of achieving the functions of development objectives specific to different spheres of human existence. However, coherent institutional changes extending the freedom of initiative, strengthening the subjectivity of the person and the possibilities of activity and the inclination to bear responsibility for free choice are of a key importance.

The dissemination of psychological knowledge regarding self-management and solid knowledge about the functioning of social and political spheres, as well as reflection on the functionality of spiritual values may help to rationalise individual decision-making process, to protect against modern techniques of manipulating these limitations by various interest groups and limit a person's subjectivity. These objectives cannot be achieved within the framework of institutions oriented towards building an innovation-driven economy and even towards triple sustainable development as it is practiced in the EU. These complex problems are also not promoted by Act 2.0.

Spontaneous efforts at the level of research units are not enough. A good institutional economic system, especially in the sphere of science, education and social policy, should create sufficiently strong incentives to modernise teaching and research programmes in this direction, protect such initiatives from being obstructed by groups operating at universities and pursuing undue benefits as resources which are public property, and in fact nobody's property, are particularly exposed to it in the absence of effective control mechanisms on the part of the Ministry of Science and Higher Education.

In the search for better institutional solutions for the functioning of the sphere of science, knowledge and human capital development, it should be borne in mind that they play an ancillary role not only towards the sphere of business, politics and knowledge itself. The social mission of science at a time when soft development factors are of a key importance and when the classical ones are becoming scarce is also important. Its social mission is expressed not only in seeking the truth about what is going on. It would then serve mainly itself. For a better quality of valuable life in all spheres of human existence, its mission is fulfilled when scholars can

provide a coherent recipe for what to do to make it better for all social groups and for everyone individually. In view of this understanding of the social mission of science and knowledge, it should be borne in mind that no founding body of the public sector, where the assets of its entities are exposed to the risk of being treated as nobody's property, can renounce the tools that guarantee an effective performance of the tasks by the entities it establishes. In the case of the sphere of science and education, these tools are also related to the entrepreneurial, stimulation and control functions of the state in support of the directions of human capital modernisation, development of scientific research and cooperation of science with the sphere of business, desired from the point of view of the possibility of achieving the objectives of integrated development.

Higher education institutions should devote more attention to trainings and practical entrepreneurship courses and additional activities (projects, initiatives, measures), both for students and teachers aspiring to the role of academic entrepreneurs, in order to encourage the emergence of creation of entrepreneurial intentions and knowledge capable of acting in support of integrated development. Such university activities should be supported by educational curricula and educational policy guidelines, so that they can be coherent with integrated development policy objectives and national entrepreneurship.

Institutional changes in the sphere of science and academic education decreed by Act 2.0 do not guarantee proper fulfilment of the state's entrepreneurial and promotional functions in support of human capital modernisation adjusted to the implementation of the strategy oriented towards integrated development. There has been a failure to apply effective institutional brakes to the pursuit of undue benefits and the provision of human capital unsuitable for harmonisation of objectives across the entire space of development. The reform of the sphere of science and knowledge is anchored in the recipes of neoliberalism and its coherent new public management focused on the *techné* sphere.

Academic self-government and free choice cannot be detached from the social responsibility of the executive authorities of its subjects simply because the sphere of science and education disposes human resources most equipped with knowledge. Its carriers have their own interests, and therefore it must be borne in mind that it is not the social mission of science but the logic of a minimum effort to guard them that can be a fundamental determinant of their rules of operation. For this reason, the fourth mission of science expressed in the social service of a higher education institution under the regulations decreed by Act 2.0 will not materialise itself. Neither the rector nor the interest groups that conditionally support their autonomy will have a legitimate interest in this mission. Apparent activities are to be expected in this respect to which the regional initiative of excellence may therefore be exposed. Experience shows that radical reforms should be properly monitored so that the inevitable shortcomings in such cases can be remedied in

time. The introduction to the Higher Education Institution Council of an observer representing its founding body in an advisory capacity could change the nature of its functioning. It would not affect the autonomy of the higher education institution granted by this Act, but could reduce information delays and asymmetry, which are the fundamental limitations of the rational decision-making process (Akerlof, Shiller, 2015). It would also *ex ante* make the founding body better armed with information to take possible advisory and remedial measures and improvements of statutory regulations.

It is also an urgent task to launch a path of grants, also addressed personally to individuals who have demonstrated outstanding research achievements and in organising team research, in particular of an interdisciplinary nature, which requires an orientation towards integrated development. The process of monitoring the research results of a higher education institution and rewarding such results should also be subject to this objective.

The de-bureaucratisation of procedures concerning research grants and academic didactics, which are the source of popularisation of patronage and which promote management by obstruction, and, above all, which kill creativity, initiative and originality, are also important. They are also the source of high transaction costs. Students are required to fulfil a large number of information duties and formalities. Student assessments of the didactic process are highly unreliable when they are not obligatory and are not standardised. Random assessments can only result in highly charged applications. This has a negative impact on the academic staff, who instead of developing in the desired direction, spend their time on meeting the requirements imposed by common law or internal regulations of higher education institutions. In order to rationalise bureaucratic procedures, there is a need for obligatory permanent monitoring, a register of unnecessary procedures and a report containing relevant, consulted and subsequently implemented recommendations. However, the de-bureaucratisation should be associated with opening opportunities for the reliable accounting of higher education institutions, and thus their organisational units, for what they have declared in their scientific development, teaching and transfer programmes at the national and international levels. It is necessary to end the functioning of such programmes mainly in the sphere of declarations, which are then not reliably accounted for. Act 2.0 opened the door to moving an employee without scientific achievements to pursue an academic career in the area of a didactic path. These quasi free promotions may cause many negative consequences for the quality of the didactic process. It is necessary to require that the statute of a higher education institution define the criteria of promotion for teaching achievements. Such a pattern should be clarified as a matter of urgency. Teaching evaluation should not focus on compliance with formal teaching procedures, but on its qualitative characteristics, adapting curricula to the challenges of the future, in particular the dissemination of knowledge capable of working towards integrated development, the modernisation of teaching methodology and the technical base. This process

will not be carried out spontaneously without revitalising the teaching career by appropriately rewarding the teaching mastery, taking into account achievements in this respect in the system of financing higher education institutions and promoting by the Ministry of Science and Higher Education in the educational process the holistic reflective modernisation of human capital in order to make students capable of thinking and acting in terms of integrated development.

It is just a signalling register of changes which could initiate the orientation of functioning of the sphere of science towards integrated development, which aims at encouraging a wide debate on institutional and procedural adjustments in the sector of science and academic education in cooperation with the educational sector oriented towards investing in human capital characteristics which are useful for development of the new knowledge-based economy, and for acquisition of synergistic effects from rational decision-making process in the scope of implementation of development objectives in all spheres of existence and activities of carriers of effects of such an investment.

BIBLIOGRAPHY

- Akerlof, G. A., Shiller, J. A. (2015). *Phishing for Phools. The Economics of Manipulation and Deception*. New Jersey, Princeton: Princeton University Press.
- Attali, J. (1998). *Dictionnaire du sécul XXI*. Paris: Fayard.
- Bal-Woźniak, T. (2020). Sfera technologii w perspektywie podmiotowej. In: M. G. Woźniak (Ed.), *Gospodarka Polski 1918–2018. Modernizacja w kierunku zintegrowanego rozwoju*, vol. 3 (pp. 207–248). Warszawa: PWN.
- Barber, B. R. (2009). *Skonsumowani. Jak rynek psuje dzieci, infantyлізуje dorosłych i polityka obywateli*. Warszawa: Wydawnictwo Literackie Muza.
- Bauman, Z. (2010). *Życie w czasie pożyczonym. Rozmowa z Citali Rovinsona Madrazo*. Kraków: Wydawnictwo Literackie.
- Carayanis, F. G., Barth, T. D., Campbell, D. F. (2012). The Quintuple Helix Innovation Model: Global Warming as a Challenge and Driver for Innovation. *Journal of Innovation and Entrepreneurship*, 2(1), 1–12. DOI: 10.1186/2192-5372-1-2.
- COM (2010). *Europe – 2020. A European strategy for smart, sustainable and inclusive growth*. European Commission Brussels, 3.3.2010.
- Cygler, J., Aluchna, M., Marciszewska, E., Witek-Hajduk, M. K., Materna, G. (2003). *Kooperencja przedsiębiorstw w dobie globalizacji. Wyzwania strategiczne, uwarunkowania prawne*. Warszawa: Oficyna a Wolters Kluwer Business.
- Debord, G. (1967). *La Société du Spectacle*. Paris: Buchet-Chastel Éditeur.
- Dembinski, P. H. (2011). *Finanse po zawale. Od euforii finansowej do gospodarczego ładu*. Warszawa: Studio EMKA.
- Etzkowitz, H., Leydesdorff, L. (2000). The Dynamics of Innovation: From National Systems and 'Mode 2' to a Triple Helix of University-Industry-Government Relations. *Research Policy*, 29(2), 109–123. DOI: 10.1016/S0048-7333(99)00055-4.

- Huntington, S. P. (1996). *The Clash of Civilization and the Remarking of World Orde*. London: Simon & Schuster.
- Kołodko, G. W., Koźmiński, A. (2017). *Nowy pragmatyzm kontra nowy nacjonalizm*. Warszawa: Prószyński i S-ka.
- Kołodko, G. W. (2013). *Dokąd zmierza świat. Ekonomia polityczna przyszłości*. Warszawa: Prószyński i S-ka.
- Olson, M. (2000). Big bills left on the sidewalk. Why some nations are rich, and others poor. In: M. Olson, S. Kähkönen (Eds.), *A Not-so-dismal Science* (pp. 52–54). Oxford: Oxford University Press.
- Osborne, D., Gaebler, T. (1992). *Rządzić inaczej. Jak duch przedsiębiorczości przenika i przekształca administrację publiczną*. Poznań: Media Rodzina of Poznań.
- Piketty, T. (2015). *Kapitał XXI wieku*. Warszawa: Wydawnictwo Krytyki Politycznej.
- Piontek, F. (2020). Zarządzanie nauką i edukacją a budowa nowej cywilizacji. *Nierówności Społeczne a Wzrost Gospodarczy (Social Inequalities and Economic Growth)*, 61, 184–196. DOI: 10.15584/nsawg.2020.1.13.
- Porter, M. E. (1998). *On Competition*. Boston: Harvard Business School.
- Randers, J. (2014). *Globalna prognoza na następne czterdzieści lat*. Raport dla Klubu Rzymskiego dla upamiętnienia 40 rocznicy „Granic wzrostu”. Warszawa: WSP im. J. Korczaka w Warszawie.
- Rodrik, D. (2008). *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*. Princeton: Princeton University Press.
- Romer, P. (1986). Increasing Returns and Long-Run Growth. *Journal of Political Economy*, 94(5), 1002–1037.
- Shell, K. (1966). Towards a Theory of Inventive Activity and Capital Accumulation. *American Economic Review*, 56(1/2), 62–68.
- Standing, G. (2011). *The Precariat: the New Dangerous Class*. London and New York: Bloomsbury Academic.
- Stiglitz, J. E. (2002). *Globalization and Its Discontents*. Washington, DC: W.W. Norton Company.
- Stiglitz, J. E. (2006). *Making Globalization Work*. New York-London: W.W. Norton Company.
- Ustawa o zmianie ustawy Prawo o szkolnictwie wyższym, ustawy o stopniach naukowych i tytule naukowym oraz o stopniach i tytule w zakresie sztuki oraz o zmianie niektórych innych ustaw*. Dz.U. 2011, nr 84, poz. 455 z późniejszymi zmianami.
- Ustawa z dnia 20 lipca 2018 r. Prawo o szkolnictwie wyższym i nauce*, Dz.U. 2018, z dnia 30 sierpnia 2018 r., poz. 1668.
- Wielecki, K. (2003). *Podmiotowość w dobie kryzysu postmodernizmu. Między indywidualizmem a kolektywizmem*. Warszawa: Centrum Europejskie Uniwersytetu Warszawskiego.
- Williamson, J. (1990). What Washington Means by Policy Reform. In: J. Williamson (Ed.), *Latin American Adjustment: How Much Has Happened?* Washington: Institute for International Economics.
- Woźniak, M. G. (1993). *Kierowanie. Rynek. Transformacja. Bariery stabilizacji*. Kraków: Instytut Badań Rynkowych.

- Woźniak, M. G. (2012a). *Gospodarka Polski 1990–2011. Transformacja*, vol. 1. Warszawa: Wydawnictwo Naukowe PWN.
- Woźniak, M. G. (2012b). Holistyczna modernizacja refleksyjna kapitału ludzkiego odpowiedzią na wyzwania i zagrożenia rozwojowe współczesnej fali globalizacji liberalizacji. In: M.G. Woźniak (Ed.), *Gospodarka Polski 1990–2011. Droga do spójności społeczno-ekonomicznej*, vol. 3 (pp. 191–230). Warszawa: Wydawnictwo Naukowe PWN.
- Woźniak, M. G. (2019a). *Gospodarka Polski 1918–2018. W kierunku zintegrowanego rozwoju*, vol. 1. Warszawa: Wydawnictwo Naukowe PWN.
- Woźniak, M. G. (2019b). Integrated development and modernisation of human capital are needed. *Nierówności Społeczne a Wzrost Gospodarczy (Social Inequalities and Economic Growth)*, 60, 7–30. DOI 10.15584/nsawg.2019.4.1.
- Woźniak, M. G. (2020). Duchowe wyznaczniki modernizacji w kontekście aksjologii zintegrowanego rozwoju. In: M. G. Woźniak (Ed.), *Gospodarka Polski 1918–2018. Modernizacja w kierunku zintegrowanego rozwoju*, vol. 3. Warszawa: Wydawnictwo Naukowe PWN.
- Zalewski, A. (2005). Reformy sektora publicznego w duchu nowego zarządzania publicznego. In: A. Zalewski (Ed.), *Nowe zarządzanie publiczne w polskim samorządzie terytorialnym* (pp. 17–66). Warszawa: Wydawnictwo Szkoły Głównej Handlowej.

Summary

The author of the paper demonstrates that in order to overcome contemporary developmental threats, it is necessary to shift towards a new model of the knowledge-based economy. The features of this model are compared with both the American model of the innovation-driven economy and the European model of the knowledge-based economy. Against this specific background, the drawbacks are presented of reforms carried out in the knowledge sector in Poland since 1990. The focus is placed on an analysis of the reforms in science and higher education implemented in Poland since late 2018. Despite the fact that it was based on recommendations of the new public management system, the author considers not only the strengths but also the weaknesses of the approach, and the fact that the latter may prove to be an obstacle in the modernisation of human capital, which is to effectively harmonise development goals in all spheres of human existence and activity. The author calls for the following solutions to limit the drawbacks referred to above: inviting an observer to the University Council in an advisory capacity, launching a path of individual-oriented interdisciplinary research grants, introducing a reliable process for the university and its organisational units to account for the actual implementation of previously declared programmes of scientific development, student teaching and transference of own achievements, mandating and standardisation of student appraisals in teaching programmes, development of a criterion matrix as a reference for promotions related to teaching achievements, enhancing the status of awards for teaching excellence, with obligatory and permanent monitoring of management procedures at universities in order to reduce bureaucracy.

Keywords: economy of Poland, economic policy, human capital, integrated development, public management, knowledge management.

Nowa orientacja instytucjonalna rozwoju nauki, wiedzy i kapitału ludzkiego w Polsce a zintegrowany rozwój

Streszczenie

Autor artykułu dowodzi, że dla przewycięzania współczesnych zagrożeń rozwojowych konieczne jest przejście do nowego modelu gospodarki opartej na wiedzy. Konfrontuje cechy tego modelu z amerykańskim modelem gospodarki napędzanej innowacjami i europejskim modelem gospodarki opartej na wiedzy. Na tym tle ukazuje wady reformy sektora wiedzy przeprowadzanych po roku 1990 w Polsce. Koncentruje analizę na wdrażanej w Polsce od końca 2018 r. reformie w sferze nauki i szkolnictwa wyższego. Pomimo, że oparto ją na zaleceniach nowego zarządzania publicznego, zauważa w niej obok zalet wady, które mogą okazać się przeszkodami w modernizacji kapitału ludzkiego zorientowanej na efektywne harmonizowanie celów rozwojowych we wszystkich sferach bytu i działania ludzkiego. Dla ograniczenia tych wad postuluje: wprowadzenie do Rady Uczelni obserwatora reprezentującego jej organ założycielski z głosem doradczym, uruchomienie ścieżki grantów adresowanych personalnie zorientowanych na interdyscyplinarne badania, rzetelne rozliczanie uczelni i jej jednostek organizacyjnych z deklarowanych programów rozwoju naukowego, dydaktyki i transferu własnych osiągnięć, standaryzację i obligatoryjność studenckich ocen programów dydaktycznych, zdefiniowanie wzorca kryteriów awansów za osiągnięcia dydaktyczne, dowartościowanie nagradzania za mistrzostwo dydaktyczne, obligatoryjny permanentny monitoring procedur zarządzania w uczelniach w celu ich odbiurokratyzowania.

Słowa kluczowe: gospodarka Polski, polityka gospodarcza, kapitał ludzki, rozwój zintegrowany, zarządzanie publiczne, zarządzanie wiedzą.

JEL: A30, E10, I26, I29, Q02.