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Innovation trapped in the benchmarking mechanism

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ABSTRACT

RESEARCH OBJECTIVE: The aim of the article is the analysis of innovation policy of OECD in the perspective of constructivist model of cognition.

THE RESEARCH PROBLEM AND METHODS: The main problem of the article is to prove that the utility of the innovation system, currently deployed in dozens of countries around the world, determines excessively structuralist model of innovation policy. The applied research method is the case study of Finland and critical analysis of the literature studies of innovation.

THE PROCESS OF ARGUMENTATION: The reasoning process consists of three basic stages. The first is an analysis of the genesis of the so-called European tradition of innovation studies. The second is the reconstruction of the process of implementation of the national innovation system in Finland. There was made an attempt to identify certain social impact, including political mechanisms, of the construction of knowledge about innovation in Europe. There was also made a brief critique of the OECD system of internationally comparable indicators to measure innovation, presented by the organization in the "Oslo Manual."

RESEARCH RESULTS: The reconstruction of the genealogy of the Finnish innovation system has shown that it is a tool extensively involved in the complex relations of power and knowledge. The analysis proved that it is unreasonable to assign the rapid economic development of Finland to innovation policy pursued by the state. There is also no legitimation to popularize the case of Finland as a model for other countries struggling with the problem of economic recession. The idea of innovation advocated as a remedy for increased competitiveness ignores the fact of unique historical circumstances that have played as important role for the success of Finland.

CONCLUSIONS, INNOVATION AND RECOMMENDATIONS: The utility of the national innovation system determines the structuralist model of innovation policy that marginalizes cultural conditions for innovative attitudes. The discourse about innovation should be complemented by the research from the humanistic perspective, mainly in the area of education for entrepreneurship.

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In recent years, the issue of innovativeness has been present both in the scientific discourse, reflected in studies on innovation existing since the 2nd half of the 20th century, and in a political tool of the national innovation system implemented by the majority of developed and developing countries. Despite dynamic expansion of the innovative strategy e.g. to the economic and scientific policy, there has not been enough critical humanistic reflection on its assumptions. This paper is an attempt to fill this gap. Therefore, the objective of the text is to prove that a tool of the innovation system, constructed in accordance with the assumptions of international organisations and involved in power relations, determines the overly structuralist model of innovation policy, which in turn marginalises the cultural determinants of innovative attitudes, so important e.g. in the field of academic entrepreneurship.

The constructivist model of cognition is the method of analysis adopted in the article. Quoting A. Zybertowicz: "… what we notice as reality is constituted (or constructed) as the part of culturally regulated social practices, also cognitive ones, and the truth of our beliefs depends on the social context they act with" (Zybertowicz, 1995, p. 95). Consequantly, also the academic cognition is not always ultimate and knowledge is not independent from the social structure but it promotes the interests of the group whose position determines the cognitive outlines dominating within it. The applied research method is a case study of Finland, which was the first European country to implement a national system of innovations, and critical analysis of literature concerning studies on innovation.

In the 2nd half of the 20th century, in the face of economic crisis which severely affected especially European countries, international actors represented by the Organisation for Economic Cooperation and Development, and since the 1990 also by the European Union, attempted to popularise the view that the commercialisation of technological innovations was a remedy for the increasing recession. Because the disproportions in the speed of development of European OECD member states, especially in comparison to the USA and Japan, were attributed to the difference in innovativeness of their state economies, the goal was to draw up internationally comparable indicators of that activity, which were then to provide the basis for the development of a coherent innovative policy. It occurred in the circumstances of constructing the idea of techno-nationalism, manifested by the conviction that "The technological capabilities

of a nation's firms are the key source of their competitive prowess, with a belief that these capabilities are, in a sense, national and can be built by national action" (Nelson & Rosenberg, 1993, p. 3).

The time when the idea of innovativeness was intensively promoted as a remedy for European countries' economic problems was the 1960s, as the process of preparing the climate favourable for the OECD strategy began in that decade. As early as at the first Ministry meeting in 1963, the demand of intensifying the organisation's work so as to identify the role of science in economy was strongly advocated (Godin, 2002). Only a few years later, in 1969, a crucial OECD report, *Gaps in Technology*, was issued, in which the comparative results of innovation measurement in the USA and in Europe were presented in a way that supported the thesis of innovativeness as the motor of development of competitive economy (OECD, 1968). However, the data from studies carried out in the USA clearly showed that the level of companies' R&D expenditure did not significantly affect their innovative activity, which – as the OECD supposed – would stimulate economic growth. It is worth noting that the American school of studying technological change avoided the formulation of a thesis assuming direct impact of innovative activity on the improvement of the country's economic situation. The OECD felt the need to fill this gap in the early 1970s, in the face of deepening recession. That need also became the catalyst for scientific activity of the editor of the *Gaps in Technology* report, Ch. Freeman, who was the first scholar to clearly formulate the thesis of direct impact of technological innovations on the improvement of states' economic situation. This British economist, an OECD expert from the beginning of the 1960s, is considered to be the founder of the so-called European tradition of studies on technology, referred to as innovation studies. We could even say that the European tradition would not exist if it had not been for the OECD's demand for empirical data to confirm the view that innovative activity of companies is an effective way to increase the economic competitiveness of countries, and as a result also the welfare of their citizens. In 1974, in the book *The Economics of Industrial Innovation* (Freeman, 1974), Freeman announced commercial technological innovations to be the area for exploration of a new tradition of studies on technology, distinct from the tradition existing since the turn of the 19th century. "An invention is an idea, a sketch or a model for a new or improved device, product,process or system (...). An innovation in the economic sense is accomplished only with the first commercial transaction"– he explains (Freeman, 1974, p. 22). In the cognitive perspective defined this way, non-technological inventions which did not follow the principles of commercialisation were

quite dramatically eliminated. Cultural innovations were practically absent from the field of study. It is, however, not true that technological innovation had not been the object of scientific study before. Innovation is a category deeply rooted in the USA, where it has been the object of multidimensional scientific reflection ever since the 2nd half of the 19th century (Gilfillan, 1935; Ogburn, 1937; Ogburn & Nimkoff, 1955). Interestingly, the precursor of studies on the social effects of innovations was a historian of economy, W.R. Maclaurin, the author of *Invention and Innovation in the Radio Industry* (Maclaurin, 1949), who was the first to consider technological change as the object of economic study. It was him that defined technological innovation as a commercial product. Yet, his name is absent from studies on innovation.

It is concerned with innovation as the commercialization of technological inventions. Here lies Freeman's point and originality. He was in fact inventing a second tradition, different from the first. Some Americans paved the way, as discussed below, but the tradition owes its origins mainly to Europeans, among them Chris Freeman – tries to explain B. Godin (Godin, 2010, p. 7).

At the turn of the 1990s, along with the strengthening scientific legitimisation of the idea of commercialised technological innovations, state institutions were systematically becoming engaged in the OECD strategy, and specific demands concerning economic and scientific policy were formulated with regard to those institutions. In the strategy promoted by the organisation, commercial R&D activity was transferred from the field of industry to governmental and academic research centres. As a result, the process of nationalisation of costs connected with activity generating private profit began. Countries and the innovative policy they were implementing were supposed to guarantee, i.e. finance, the proper conditions for the development of so-called socially useful knowledge. An example of economisation of universities understood this way is among others the application of contracts in the academic area, quality control of the effects of research activity and limitation of budgetary resources transferred to universities, and instead creating legal conditions encouraging commercial institutions to co-finance them. Higher education institutions should become the 'locomotives' of economic development, and academic research should be the foundation of knowledge-based economy. In a national innovation system, higher education institutions were to be evaluated through measurable and verifiable effects of scientific work, and the criteria of that evaluation were to be determined on the basis of guidelines from international organisations. These recommendations were justified among others by Freeman's conclusions made in part three of *The Economics of Industrial*

Innovation, where he argued that technological innovation was a sine qua non for social development and a critical element in the competition of enterprises and nations (Freeman, 1974). The national perspective was then continued in the work *Technology, Policy and Economic Performance. Lessons from Japan* (Freeman, 1987), where the national innovation system was defined rather broadly as „…the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies" (Freeman, 1974, pp. 1-2). Therefore in 1992, in Tokyo, under the OECD program S*cience, Technology, Economy and Society*, was held the conference, on which the-instrument of national innovation system was presented. In fact, the purpose of the conference was to "…identify various factors that influence the development, adoption and diffusion of technology and, ultimately, the rate of productivity growth" (Lindbeck, 1991, p. 13).

In the discourse of international organisations, the case of Finland, where the government adopted the category of innovation system as early as in 1990, was used as a great example to demonstrate the influence of innovative policy on the condition of the society. The rapid development of Finnish economy in the late 1990s, mostly reflected in the history of Nokia, became the basis for reference to the so-called Finnish model, regarded as the optimal example of proper application of innovation system. M. Castells and P. Himanen, in *The Information Society and the Welfare Society. The Finnish Model* (Castells & Himanen, 2002) even argue that the success of information society guarantees may finance the welfare state, which generates citizens educated so that they would contribute to further development of the knowledge society. Similar theses were presented in reports from OECD and EU studies, among others in the publication *The Finnish National Innovation System* (OECD, 2005), which publication was justified by the pursuit "…to understand European success stories on research and innovation: to diffuse and disseminate those successes as widely as possible" (Ahlback, 2005, p. 46). However, despite the jargon used by international organisations, it is hard to consider Finland's economic success as the effect of implementation of the national innovation system since the adaptation of the system category was the crowning of the policy of regulating relations between science and technology, implemented consistently since the 1960s. Those actions were the result of disproportion in the level of economic growth between the economies of industrialised countries. In Finland, just like in the other OECD countries, there was a common belief then that the development of technology determined economic growth in a country and guaranteed its international competitiveness. But the first two stages in the evolution of Finnish economic strategy, described by

T. Lemola, were independent from international organisations (Lemola, 2006). The phase of constructing institutional foundation for the future regulation of relationships between science and technology in the 1960s and 70s, as well as the subsequent stage manifested with concentration on technology in economic and scientific policy, were determined by the decisions of authorities not yet entangled in the innovative strategy of the OECD. Hence, until the early 1990s, the term 'innovative policy' was virtually absent from government's rhetoric. What was mentioned was rather the need for cooperation between science, technology and industry. The response to that need was the establishment of the Finnish National Fund for Research and Development (SITRA for short) in 1967. In the 1970s, new higher education centres, such as The Academy of Finland, directly subjected to the Minister of Education, began to operate. The next, technological, stage, was mainly characterised by three events: the appearance of the National Technology Agency in 1983 – an institution designed so as to support the development of technology by governmental programmes, the increase of GDP used for the development of science and research up to more than 10%, and the establishment of the Science and Technology Policy Council in 1987 to integrate the issues of science and technology. The fundamental goal of the institution is to determine the basic assumptions and direction of development of Finland's scientific and technological strategy in a report issued every 3 years. In 1990, the Council used the category of national innovation system in such a document, defining it very generally as: "…whole set of factors influencing the development and use of new knowledge and know-how" (Science and Technology Council of Finland, 1990, p. 21).

Importantly, the reorientation of governmental strategy occurred in the circumstances of profound recession which affected Finland in the years 1990-1994. The level of unemployment rose from 3% in the year 1990 to 20% in 1994. According to the supporters of the idea of national innovation system, the economic crisis revealed that the previous form of scientific and technological policy was exhausted, and the previously implemented linear model promoting extensive financing of the basic scientific research from public funds was regarded as inadequate as the technological and economic competition was becoming global. As a result, this quite imprecise concept borrowed from the field of international discussion became a tool to officially regulate the issues of internal policy, legitimised by documents drawn up by governmental institutions, especially the Council. The objective of innovative policy was then the development of a national innovation system including purposeful, recurrent and to some extent structured relations occurring between companies

and other institutions which carried out at least some activity based on technology. Thus, in the governmental rhetoric, the regional innovation system and the technological system were treated as synonyms, quite vaguely referring to the concept of national competitive advantage drawn up by M.T. Porter.

In his work *The Competitive Advantage of Nations* (Porter, 1985), the economist tried to justify the thesis that global competitive advantage of a country was the result of synergy, specific national determinants and the strategies of individual companies. In his opinion, the most important determinants of national competitiveness were geographic proximity of companies and links between associated and auxiliary industries. He referred to such a regional organisation as a cluster, defined as

> …a geographically close group of mutually connected firms, specialised suppliers, entities providing services, companies operating in related sectors and institutions associated with them (such as universities, normalisation entities and industry associations) in particular areas, competing with each other, but also collaborating (Porter, 1990, p. 197).

Porter emphasised, however, that

> Clusters which achieve the critical mass (the necessary number of firms and other institutions creating the effect of agglomeration) and which have unusual competition successes in certain areas of activity, are a striking characteristic of almost each national, state, and even city economy, mainly in economically developed countries (Porter, 1990, p. 203).

The economist assumed that physical proximity of organisations intensifies the flow between them and accelerates the development of institutions, which increases the effectiveness and competitiveness of the cluster, and then non-market centres, such as universities, become its integral part. The bottom-up process of cluster formation, initiated by the stakeholders themselves, causes the division of work between enterprises and thus stimulates their innovativeness. Thus, Porter did not assume a scenario in which clusters were created as a result of administrative activity of the country. Nowadays, yet, this mechanism is typical for the innovative policy of many developing countries.

Still, in the early 1990s, the thesis concerning the importance of clusters and science and technology parks in stimulating regional innovation activity was strongly advocated in the scientific discourse represented by studies on innovation and in the political jargon of OECD member states. So the project of cluster formation was initiated in Finland even in 1993. As a result, in 1996, eight projects of the kind were being carried out by six

separate ministries. However, a study of such centres operating in Finland carried out by P. Vourinen, T. Tikka and R. Lovio shows that firms which belong to clusters more often establish relationships with enterprises that are not part of clusters (Vourinen, Tikka & Lovio, 1989). In this situation it is hard to take into consideration the synergy effect which – according to Castells and Hall – these institutions play in the process of evolution of the society towards the "innovative milieu" (Castells & Hall, 2002, p. 233).

It can be supposed, however, that the effective functioning of institutions established as part of the national innovation system was of secondary importance. J. Jaaskelainen proves this in a study devoted to the genesis of establishment of those centres. The project of cluster formation was created on the initiative of the Research Institute of the Finnish Economy, at the time managed by economist P. Yla-Anttila, who admitted in an interview given to Jaaskelainen that:

> The important thing for the new industrial strategy was that there was a recession in the country. (…) Visions were needed of how to survive in the long run. It was largely understood that the economy of Europe and the whole world was changing. There was also a need to state things in fresh and clear ways to induce action. Porter's model of competitive advantage just happened to be the framework within which different stakeholders could be included in the discussion. It was a language that was largely understood. Porter's model was not the purpose in itself and the framework could also have been some other. But since we had a large on-going research project based on in, it was natural to adopt its framework and results as a starting point (Jaaskelainen, 2001, p. 10).

According to Jaaskelainen, building the institutions assigned to innovation system had no significant impact on the policy pursued by the government – that was in fact already agreed – but allowed to convince groups of different stakeholders about its legitimacy.

> The implementation of cluster model did not change the policy. Instead, it supplied a credible and convincing argument for a policy whose need had already been recognized, and it helped to make that policy widely accepted. It turned out to be a powerful means of making it scientifically credible and, at the same time, simple enough to appeal to divergent groups and institutions in the society (Jaaskelainen, 2001, p. 12).

According to E. Allardt, broad social support for the innovation policy was being built this way. In the paper with the meaningful title *Technology Rhetoric as a Means of Constructing the Finnish Reality*, the sociologist describes the performative function of political discourse on innovativeness (Allardt 1995). An example that justified Allardt's thesis was the

rhetoric the Finnish government used with regard to science and technology parks. Analyses performed out of the community associated with the OECD and the EU show that most scientific parks, as their founders called them, were established in Finland in the 1980s, before the government adopted the category of national innovation system. Besides, those parks were established by local entities, not subject to state policy regulation (Vuori & Vuorinen, 1994). Still, as the Finnish innovative policy evolved, the success of scientific parks was attributed to the strategy implemented by the government. In the pages of the report issued by Science and Technology Council in 1996 year, it was stated that „Eight technology parks of Finland have proved their efficiency and vitality; the number of both the enterprises and the employees working within them kept growing all through the recession in the early 1990's" (Science and Technology Council, 1996, p. 44).

So it is no coincidence that in Finland at the turn of the 1990s, governmental initiatives constituting new relations between research organisations and firms were intensified. The establishment of science and technology parks, clusters and regional expert centres was accompanied by the authorities' transition from the area of the state's scientific policy to specialists employed among others at private enterprises and governmental institutions subjected to the Ministry of Finance. R. Tiitta, studying the evolution of Finnish science and technology policy, claims that

> The Ministry of Finance became the most important ministry controlling the expenditure for science and research. At the same time, science and technological policy were more and more clearly becoming a part of the general economic policy (Tiitta, 2007, p. 147).

This thesis was justified among others by the Ministry of Finance rejecting the 2002 application of the Ministry of Education for greater budgetary grant allocated for universities' basic research. Along with that, since the beginning of the 1990s, there was a systematic increase of financial expenditure from the state budget for so-called applied technical research and product development. Even in the time of economic recession, when the resources for research and development were considerably reduced, the share of these funds allocated for the institution established in 1993 to coordinate technological development – the Technology Development Center (TEKES) – was increasing. In the 1993-2000 period, the growth was from 16.8% to 30%. As a result, in 2000, the budget of TEKES was twice as big as that of the Academy of Finland. But in the period of recession, the amount of subsidy for universities was lowered as part of reducing public expenditure, although the number of students had been

systematically growing since the mid-1980s. As a result, in 1995, the ratio of subsidy per student in Finland was equal to 60% of the OECD mean. At the same time, the number of academic teachers dropped. The poorest situation occurred in technical sciences: the number of students rose by 43%, and the number of teachers fell by 26% (Patomaki, 2005).

What is interesting, in the 1990s, H. Etzkowitz and A. Webster concluded that "Capitalising on science through the transformation of scientific knowledge into an asset is a fundamental social innovation" (Etkowitz & Webster, 1995, pp. 483-485). As they see it, the process begins with regarding knowledge as private property through a system of patents and copyrights. It was assumed that privatisation would make it possible to increase the economic value of knowledge, among others through marketing and a licensing system. The instruments introduced in order to apply the "pro-market" orientation in the academic circle were e.g. the development of technology centres, establishment of science parks near universities, investment in academic start-up incubators and motivating researchers to commercialise the findings of research and establish spin-offs (Tamowicz, 2006). Within one decade, the rhetoric of the Finnish government evolved from recommending e.g. further direct investments in the scientific circle and an educational system all the way through to postulating the creation of an innovative society, not specifically defined, "…in which knowledge and know-how are the basic factor of economic, social, educational and cultural development" (Science and Technology Council of Finland, 1996, p. 9). In literature on innovation studies this approach was always justified with the success of Nokia.

According to Castells and Himanen, the history of that firm symbolised Finland's transition from an industrial society to an information society (Castells & Himanen, 2002). Indeed, in the year 2000 Nokia accounted for more than a half of the Finnish IT sector, and its share in IT export was 70%, which meant 25% of Finland's total export. However, despite the diversified cognitive perspectives adopted by scholars who do not follow the knowledge-based society trend, the results of their analyses are consistent. The dominant thesis is that of the lack of direct association between the country's innovative policy and the company's expansion. Historian M. Haikio so writes in the conclusion of his book devoted to Nokia:

> I come to the conclusion that the rapid economic development of Finland cannot be explained with innovative policy. (…) The new stage in economic development is to be explained with the liberalisation of competitiveness, among others deregulation, which occurred simultaneously with the unprecedented quantum phase transition in technology (the change into digital technology) (Haikio, 2006, p. 103).

Many economists also stress that what was decisive for the success of Nokia was simply a coincidence connected with the transition into digital technology (Ali-Hyrkko & Hermans, 2004; Palmberg & Martikainen, 2005). In the late 1980s, Nokia's managers decided to concentrate the company's operation on the manufacture of cordless phones, which later resulted in the global leading position on the mobile phones market. There are, however, no premises to suggest the influence of the state's innovative policy on that success. "There was neither a plan of systematic restructuring of Finnish economy nor a plan of building a globally competitive ICT sector. Instead, many private and political initiatives were at work at the time" (Hyytinen et al., 2006). True, TEKES transferred a lot of public resources for the projects of telecommunications market development, implemented by universities, research centres, and private enterprises. But at the beginning of the 1990s, the level of subsidies for Nokia did not exceed 5% of the total distributed funds, so this element is hardly to be considered as decisive for the corporation's success. Importantly, in other areas of so-called socially useful knowledge, i.e. in biotechnology, the expected success was not accomplished despite investing public resources in research and development. What differentiates Nokia from other Finnish companies is the organisational structure which concentrates on research and development activity. The number of people employed in R&D increased from 4,000 in 1993 up to 18,000 in 2002. Nearly 2/3 of them were Finnish (Hyrkko & Hermans, 2004). The quality of human capital represented by employees – the factor emphasised even by Freeman when he described the influence of Japanese people' education on the success of their innovative economy (Freeman, 1987) – is invaluable. According to many scholars who study the history of the company, it was the inflow of young, highly educated people to the labour market that was decisive for Nokia's success. In Finland, as a result of reforms of the educational system in the 1970s and 80s, the level of education greatly improved and Finnish students began to have the best results in OECD's tests of PISA competencies. This was a direct result of the reforms, the idea behind which can be summarised as "from the culture of control to the culture of trust." Since the 1990s, no nationwide secondary school exams have been carried out. Evaluation in primary schools is used to implement the principle that "nobody is left alone," so its results are to be the starting point for the development of systemic assistance for the students with the poorest effects. Thus, the Finnish system of education is not an institution subjected to the model of an evaluative state, in which accomplishments are controlled in accordance with a standardised model imposed by the ministry. What is more, education following the principle of culture of trust also creates the

attitude of mutual trust between citizens, so important in an innovative society. This quality of social capital is regarded as one of the conditions for economic cooperation. According to R. Miettinen:

> General trust may also enhance the formation of innovation networks and enocunter between people with different kinds of expertise and cultural background. The universal education therefore not only creates the know-how and expertise needed in economic life and in public services. It also contributes to the formation of generalized trust that function as a lubricant of horizontal innovative collaboration across boundaries (Miettinen, 2012, p. 163).

But the reform of Finnish educational system was independent from the innovative policy being implemented at the time. Changes in the system of education were introduced in the context of building a welfare state, which was Finland's goal after the war. Actually, over two decades later, this rhetoric was already absent from the political jargon of Finnish authorities. However, although this thesis is not widely supported, the scholars who study the economic success of Finland unanimously claim that this economic triumph would not have occurred without the changes in the sphere of education.

With regard to the legendary success of Finnish innovative society, we could point out twofold mistakes. The first mistake is attributing Finland's rapid economic development to the innovative policy implemented by the country. In social psychology, this phenomenon is called fundamental attribution error, while economists refer to it as the so-called halo effect. The results of the research by Ch. Sabel and A. L. Saxenian, specialising in the evolution of operation of clusters and science and technology parks, question Finland's position as the "global network model of information society and the leading innovation system in the European Union" (Sabel & Saxenian, 2008). Those American researchers claim that the innovation of Finnish enterprises was not the result of systematic exploration of new solutions desirable in the conditions of international competition, but of the optimisation of already functioning technological trajectories. Another misunderstanding involves popularising the case of Finland as a model to follow for other countries that face the problem of economic recession. The idea of innovativeness presented as a remedy for increasing competitiveness of countries ignores the unique historical circumstances that played the crucial role in Finland's success. Besides, the factors which proved to be somewhat important for the stimulation of innovative activity in the country may be completely ineffective in countries with other economic and cultural (e.g. educational) determinants.

In the late 1990s, work on the global diffusion of innovation system was going on as part of the activity of international organisations. In the OECD report of 1997, the construction of national systems was legitimised rather bluntly, by stating that

> Drawing up internationally comparable indicators will finally allow the assessment of so-called 'knowledge distribution power' of the innovation system, whose ultimate goal is to establish (underlined by the Author) the connection between the national innovation system and the economic effectiveness of the country (OECD, 1997, p. 43).

Constructing the indicators was in conformity to the benchmarking strategy adopted by the OECD and the EU, i.e. the mechanism of diffusion of good practices among member states. At the beginning of the 1990s, the European Union explained the usefulness of this tool as "... an instrument whose objective is the convergence of good practices used in public policies referring to the economic competitiveness of member states" (Arrowsmith, Sisson & Margison, 2004, p. 314).

The analyses by A. Cambrosio, C. Limoges and D. Pronovost show that a standardised set of indicators like that was a safe solution, readily copied by the governments of other countries (Cambrosio, Limoges & Pronovost, 1990). The absence of such a tool from theories of relationships between industry and science that do not support innovativeness, e.g. Mode 2 or Triple Helix, explains why those concepts did not arouse the interest of governmental administrations. We also need to remember that so-called mutual legitimisation took place with regard to the national system of innovations (Edler, 2003). A study by M. Albert and S. Laberge concerning the determinants of popularity of the innovation system in Canadian public administration shows that its virtually uncritical adoption by the officers resulted from the esteem of the OECD. One of the examined explains:

> OECD is bit like a global forum for economic thinkers. (…) I think that if we are quick to accept OECD recommendations, it is because we feel that they come from committed professionals who base their findings on studies from leading scientists (Albert & Laberge, 2007, p. 223**).**

That is why the anonymous definition of innovation adopted by the OECD at the beginning of the 1990s is still used in the discourse of international organisations and public policies of member states: "Innovative activity is any scientific, technological, organisational, financial and commercial activity... that leads to the implementation of a technologically new or improved product or process" (OECD, 1992, non-numbered text). This

formula only referred to the research methodology of technological innovations: products and processes (TPP innovations) in secondary industry. This definition was first published in 1992 in a manual concerning the methodology of innovation studies, the so-called *Oslo Manual*, coprepared by the OECD and the Nordic Industrial Fund. It must be emphasised here that the goal of *Oslo Manual* is to provide the guidelines concerning the acquisition and interpretation of internationally comparable statistical data regarding the problem of innovation. The instructions presented there, popularly referred to as "Oslo methodology," are a commonly adopted standard in statistical study of innovations in industrial enterprises (sections B, C and D in accordance with the Polish Classification of Economic Activities, 2007) and since 1996 in the sector of so-called market services. Because the topic of scientific innovations was not continued in the Oslo Manual of 1992, and the new financial and organisational solutions were only mentioned in the appendix, studies carried out in 1993, 1997 and 2001 only covered technological innovations in private enterprises. The OECD justified the marginal treatment of solutions other than commercial with the argument that enterprises have the decisive influence on economic results and thus require special policy of the state (OECD, 1997). It was also assumed that innovative enterprises were those that had manufactured at least one technologically new or considerably improved product within the past 3 years. What is important, a commodity was regarded as new if the company that manufactured it regarded it as new. "Companies generally know whether the product or process is new for them. But they often do not know whether it is also new for their industry, country and region, and whether it is new worldwide" (Hansen, 2001, p. 229). That assumption gave rise to overly optimistic results, indicating that in some countries, e.g. in Canada, more than 80% of companies participating in the study were innovative ("Innovation Analysis Bulletin Innovation Analysis Bulletin", 2001). The study technique used in the measurement was mail survey, described in *Oslo Manual* as "... a method that is recognised and relatively less expensive, but may potentially cause some problems" (OECD, 1997, p. 58), mainly connected with the ratio of received responses. In countries with the most innovative economies – the USA and Japan – the ratio of questionnaires received back has been below 50% for many years, and in Latin America is does not exceed 30%. Actually, some modifications are introduced in the successive editions of the manual, so as to more reliably measure innovations, which of course occur beyond the commercial world, too. Hence, in the version issued in 1996, the range of innovation studies was extended by the so-called market services sector. In

the 2005 edition (OECD and EUROSTAT, 2005), that area was supplemented with so-called organisational and marketing innovations. This issue also suggested that the basic data was supplemented among others with statistics concerning scientific publications, publications in industry and technological journals, and the activity in the high technology sector.

Representatives of the humanities who engage in the study of innovativeness warn that the research in this area is characterised by excessive structural deviation. We have the knowledge on institutional components of the innovation system, and individual elements are attributed certain functions, but there are no teleological studies to explain the construction of each segment which is said to have started functioning as a system because of mutual relationships. The subject of analyses is not the role of members of cooperation networks in these processes, either. So the research on the structure of innovation system does not provide much information about innovativeness itself. The analysis following the input-output model does not explore the process of creating something new. True, the matter is discussed as part of the "actor-network" paradigm, but this concept is not part of innovation studies. Despite such obvious discrimination against the humanistic cognitive perspective, research in this area is carried out with great success. It shows among others that the source of innovative solutions is an unexpected and unique combination of knowledge represented by the involved individuals and the resources they have received (Miettinen, Eela & Mask, 1999). But this specific synergy effect is something that can be neither calculated nor even predicted. For the few sociologists of knowledge who take up the issue of international innovation systems, e.g. B. Latour, it is a misunderstanding to attribute the category of system to various and often spontaneous relations between individuals participating in the process of learning. The thing that is the most important for the occurrence of innovation process, i.e. knowledge (often in the form of tacit knowledge), cannot be categorised at the very beginning of the cognitive process (Latour, 2000). What is more, innovative knowledge is often the unexpected result of interactions that are not visible at all for an external observer. As a result, if the so-called good practice is only constructed on the basis of quantitative data, the information does not provide much knowledge about the specificity of the processes that generate them. Consequently, although the governments of a few dozen countries (among others Australia, Germany, the Czech Republic, Sweden, Spain, Lithuania, Estonia and Poland) have adopted the national systems of innovation, in many of them it is an administrative instrument whose goal is to coordinate relations that have not yet occurred and we do not know if they will ever occur. Paradoxically, the

mechanism of benchmarking by assumption eliminates some determinants of success and makes it more difficult for the countries copying the model to achieve the expected result. Probably an attempt to overcome this trap would be to complete this pattern with knowledge acquired by potential followers during the observation, discussions or so-called study visits in the country where the solution was successfully implemented. Ethnographic knowledge gained this way should lower the risk of failure in implementing best practices. Such knowledge is, however, not available for an economist, who applies quantitative research methods.

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