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GLOBALIZATION OF INNOVATIONS AND DEVELOPMENT CHALLENGES

ABSTRACT. The given article discusses the development challenges under conditions of globalization of innovations. On the basis of international organisations reports analysed and synthesized new approaches of innovative development policy. Innovations became more global and spread more widely across sectors, thus broadening the basis for economic growth, but countries face new development policy challenges. Innovation and technology development are the result of a complex set of relationships among actors in the system, which includes enterprises, universities and government research institutes. Scientific, Technological and Industrial policy as the channel of innovation development became more complex. Overcoming of coordination failure among elements of system is the crucial for successful innovation policy. Innovation is fundamentally the task of the private sector and entrepreneurs, but history has shown that in moments of transformations and crises, the role of governments has always been crucial.

KEY WORDS: globalization of innovations, challenges of development policy.

Actuality:

The experience of the last two decades shows that obtaining and maintaining sustainable economic performance is based on technological leadership. Focusing on technological development of the

country is the best precondition for innovation-driven economic growth. Economic growth, in turn, can serve the different purpose of development and requires systematic approach of policies and strategies.

The rapid development of international trade and international capital flows raises global value chains and leads fragmentation of business activities worldwide, including R&D activities. Under conditions of an open economies there are many possibilities for success development. It gives the country opportunity to involve in the global value chains, but in turn it causes the growing worldwide competition in the field of availability of knowledge-based assets.

A new study shows the wealth gap among countries in the developed world has widened to the highest level in 30 years (John W. Schoen, 2015). Globalization, technological change and regulatory reforms are often accused in the deepening of wealth gap.

Despite the processes of globalization technological achievements are not equally available to all countries, however, as is mentioned in the report of Global Innovation Index 2015 «Innovation-driven growth is no longer the prerogative of high-income countries alone. Developing countries increasingly design policies intended to increase their innovation capacity. Innovation policies have taken different forms, depending on countries' perceived needs; their impact has also varied across countries at similar levels of development. Certain developing countries have managed to continually improve their innovation inputs and outputs. Others still struggle. The difference in the impact of innovation policies raises a number of questions, including: Which developing countries outperform in innovation relative to their level of development and their peers? How do the innovation actors of these countries meaningfully design and implement effective innovation policies and practices?» (Cornell University, *The Global Innovation Index 2015*, v).

Innovative development challenges are in the spotlight of many international organizations and forums. Now we are witnessing the fourth industrial revolution and thus developed countries as well as developing countries are faced new development policy challenges. By the worlds of Klaus Schwab, founder and Executive Chairmam of Global Economic Forum, «We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is

clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society» (Klaus Schwab, 2016).

Purpose: The main objective of the paper is to identify new approaches of economic development policy, which is linked to the innovative development under conditions of globalization.

Methodology: On the background of desk research recent approaches to the innovative development policy are collected, analysed and synthesized; The bases of research are reports of international organizations, which summarize real achievements in this field.

Findings:

Innovations have particular importance for economic growth. Analysis of reports OECD, World Bank, UNCTAD and etc. show that innovation have a pivotal role in economic developmeny. It is the key element of economic growth. It is highlighted, that for both — Governments and the private sector around the world are crucial «enhancing the investment climate, improving competitiveness, boosting the volume and value of trade, and fostering innovation and entrepreneurship—all elements of successful growth strategies» (World Bank, 2015, p.20).

Innovations became more global and spread more widely across sectors, thus broadening the basis for economic growth.

Rapid multifactor productivity on the basis of smarter and more innovative ways of producing goods and service revealed in developed and emerging economies.

Information and communications technology became as a key factor for rising productivity, particularly when accompanied by organisational change and better worker skills. It has also helped to improve performance in previously stagnant services sectors, facilitated communication, reduced the costs of transaction and enabled more extensive networking and cooperation among firms. The growing role of innovation and technological change can be linked to changes in the innovation process. Innovation has become more market-driven, and innovation surveys for 12 European countries suggest that over 30 % of manufacturing turnover is based on new or improved products. Scientific output continues to rise across the OECD area and patent data show a surge of innovation in all OECD countries and across many technology fields, in particular in ICT and biotechnology. More of the financing of innovation is now directed towards new firms and risky projects. Innovation also relies much more on networking and co-operation, including between

science and industry. A recent analysis of US patent citations found that more than 70 % of biotechnology citations were to papers originating solely at public science institutions (See more details: OECD, 2008).

It is important to mention, that recent development theories in contrast of earlier theories emphasis on technological factors. Scientists Sachs and McArthur point, that «central finding of economics over the past fifty years has been that technological advancement is critical to long-term economic growth. More recent research distinguishes between the crucial roles for technological diffusion in the catch-up phase of economic development and innovation once economies reach a fairly high level of development» (Jeffrey D. Sachs and John W. McArthur, p. 183).

Globalization and “Knowledge Triangle” at the junction of local and global. The competitiveness of local “Knowledge Triangle” (science base, the business sector and state actors) is determined by global competition conditions, due to globally interconnected innovation networks. Scientific, Technological and Industrial policy (STI policy) of any country became more complex. STI policy makers seeking to implement cross-border STI governance and to create favorable framework conditions for innovation and cooperation. Education and scientific systems face new challenges.

With greater globalisation and inter-dependence in the fields of science, technology and innovation, national innovation policies increasingly seek to improve domestic advantages in global value chains (GVCs) to attract the innovation-related segments (R&D, design, etc.) that contribute most to value and job creation. Because talent and other knowledge-based assets are particularly valuable and mobile, countries compete to attract and retain them, through national research «ecosystems» that encourage foreign direct investment, or by integrating new firms and SMEs into GVCs. Particular attention is paid to the attractiveness of national research systems, by strengthening universities’ capacity, research infrastructure and international openness, including job opportunities for foreign researchers, branding activities, mobility schemes, educational products and improved learning environments. There is also evidence that tax incentives lead to competition between countries to attract foreign R&D centres. Recent technology developments have focused on global issues (climate change, ageing societies, food security) and on productivity growth (e.g. new manufacturing processes), and environmental and social concerns raise specific challenges and opportunities for STI policies (OECD (2014)).

Coordination failure and necessity of complex approach.

Scientists Dung and Pheng on the bases of critical analysis of new growth theories believe that economic development is a complex process, and the jointly action of state and market is necessary. «As recently realized by the contemporary development economists, especially by the theorists of coordination failures, the solution to obtain sustainable development underway is to make sure that several things work well simultaneously. Economic development is a complex process which involves causal relationships» (G. Dang and L. Sui Pheng, 2015, p. 23).

The study of mentioned reports has revealed the necessity of same approach in the implementation of development policy. The issues of coordination was highlighted at the end of the twentieth century and this question is still on the agenda. The national innovation systems approach stresses that the flows of technology and information among people, enterprises and institutions are key to the innovative process. Innovation and technology development are the result of a complex set of relationships among actors in the system, which includes enterprises, universities and government research institutes. For policy-makers, an understanding of the national innovation system can help identify leverage points for enhancing innovative performance and overall competitiveness. It can assist in pinpointing mismatches within the system, both among institutions and in relation to government policies, which can thwart technology development and innovation. Policies which seek to improve networking among the actors and institutions in the system and which aim at enhancing the innovative capacity of firms, particularly their ability to identify and absorb technologies, are most valuable in this context (OECD 1997, p. 8). Nowadays a more systemic approach to innovation policy has been developed, in light of the variety of stakeholders and trade-offs and potential synergies between policy areas (regulation, tax, education, etc.).... Meeting these challenges will require technological breakthroughs, rapid deployment of existing or new technological solutions and system-level changes (in policies, regulation, behaviours, etc.) (OECD (2014)).

Innovation Policy Priorities.

For developing countries recommended «radical gradualism» in implementing of innovation policy. Depending on countries' technological competence and the quality of the business environment, governments will need to choose their goals. After focusing on prime movers and creating innovation endowments (well-defined technology centers, science parks, or export zones), they need

to build critical masses of innovative and entrepreneurial initiatives by promoting industrial clusters, actively attracting foreign direct investment (FDI), and possibly even creating new cities. The multiplication of entry points in the economic system will facilitate broader reforms. In all cases, local communities and governments must be mobilized. This effort requires adequate incentives such as matching funds and administrative frameworks that include the delegation of power. To materialize and advance this strategic process of change, policy initiatives targeted to specific industries, sites, or communities are best conceived through a collective vision and implemented in a holistic manner...Industries benefit from the necessary technological infrastructures, skill provision schemes, export networks, trade and intermediary professional structures, funding mechanisms, and the like. Technology sites, such as export zones or science parks, should combine the needed services and be well integrated in urban settings and well connected to the transportation infrastructure, including international airports. Local communities, even the poorest, have unique knowledge and entrepreneurial potential that can be exploited with appropriate support from surrounding actors such as research and education establishments, the business sector, and nongovernmental organizations. Acting in concert, with efficient local and global networks, is essential. Innovation is fundamentally the task of the private sector and entrepreneurs. But history has shown that in moments of major transformations and crises, the role of governments has always been crucial. They alone can assume 4 Innovation Policy: A Guide for Developing Countries the launching of large-scale programs that help renew infrastructure while facilitating nationwide learning processes for innovative initiatives. Only they can legitimately impose and fund the adaptation of the educational, research, and other knowledge sources that are required to cope with deep and rapid technical change. This publication provides governments with ideas and tools to facilitate their tasks. A host of examples of policy actions from throughout the world are presented as a source of inspiration (*Innovation Policy, 2010, The World Bank, p. 28*).

Public R&D plays an important role in functioning of innovation systems. As «open science» progresses, new policy approaches will be needed to determine how public research is funded, research is undertaken, research output is exploited, research results are accessed and protected, and to shape how science and society interact (OECD (2014)). For the effective implementation of national innovation systems necessary faster and smarter communication solutions to

ensure knowledge diffusion (Cornell University, INSEAD, and WIPO (2015). The crisis revealed that the role and responsibility of state in the development of innovative systems is high, but the situation could change radically in the nearest future. The opinion about generally new state policies peculiarities were highlighted at the World Economic Forum-16, «As the physical, digital, and biological worlds continue to converge, new technologies and platforms will increasingly enable citizens to engage with governments, voice their opinions, coordinate their efforts, and even circumvent the supervision of public authorities. Simultaneously, governments will gain new technological powers to increase their control over populations, based on pervasive surveillance systems and the ability to control digital infrastructure. On the whole, however, governments will increasingly face pressure to change their current approach to public engagement and policymaking, as their central role of conducting policy diminishes owing to new sources of competition and the redistribution and decentralization of power that new technologies make possible» (*Klaus Schwab, 2016*).

Developing and transition economies continue to face several common constraints, many of them due to historical path dependencies following the manner in which institutional frameworks have evolved, as well as the alignment of industrial policies with innovation policies. Again it should be noted that the main task of the policy in this case will be ensuring the coordination. The objectives of innovation policies are often defined broadly and not clearly articulated within one policy document, but within an umbrella framework of numerous policies on, among others, education, R&D and S&T... Systemic failures may deal with a wide range of aspects, including interactions, collaborations and the role of non-economic actors in promoting innovation, and aligning industry technology needs with national development priorities. Broadly speaking, innovation policies seek to address shortcomings by: fostering the technology absorption capacity of firms and other actors in the innovation system to increase their ability to benefit from knowledge flows and creating an overall innovation system by eliminating many of the systemic failures and promoting interactive learning (*TECHNOLOGY, UNCTAD/TIR/2015, p. 94, p. 21*).

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ОРГАНІЗАЦІЙНА КУЛЬТУРА ПІДПРИЄМСТВА ЯК СЕРЕДОВИЩЕ ТА ОБ'ЄКТ УПРОВАДЖЕННЯ УПРАВЛІНСЬКИХ ІННОВАЦІЙ

АНОТАЦІЯ. Розглянуто діалектичний взаємозв'язок управлінських інновацій та організаційної культури підприємства. Проаналізовано організаційну культуру підприємства як середовище та як