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INNOVATION DEVELOPMENT STRATEGIES OF EAST ASIA

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Abstract. *The paper studies the innovation development strategies of the key innovators in East Asia, including China, Japan, South Korea. The investigation deals with innovation development's impact on sustainable economic growth. The analysis of East Asian countries' innovation policy has been considered.*

Keywords: *innovation development, East Asia, economic growth, China, development strategy.*

Introduction. In the context of global competition, innovation is becoming a critical resource that provides leadership and long-term competitive advantage to any international economic entity. Each country seeks to increase and effectively utilize its national innovation, scientific and technological potentials for an innovative model of economic development. During more than four decades, East Asian countries, in particular, Japan, South Korea, and China have demonstrated dynamic economic development. Their total share in the global economy is more than 24 percent in 2019. Moreover, those countries have become worldwide technological and innovative leaders. According to the report "The Global Innovation Index," in 2019, South Korea ranks 11th, China – 14th, and Japan – 15th among 129 countries in the world [3]. These countries lead the world in innovation, and there are the top five from ten global science and technology clusters, including Tokyo-Yokohama, Shenzhen-Hong Kong, Seoul, Beijing, Osaka-Kobe-Kyoto. Besides, these countries in East Asia are home to most of the international clusters for patented innovation in crop biotechnology [7].

Within the Bloomberg Innovation Index 2020, three from the world's 60 most innovative economies are South Korea (2nd), Japan (12th), and China (15th) [2]. One of the essential prerequisites for East Asian countries' innovative competitiveness is the research and development spending [4]. The leading R&D spenders are China, whose research and development expenditures amount to \$519.2 billion (2.15 percent of

GDP), Japan – \$193.2 billion (3.2 percent of GDP), and South Korea –\$93.5 billion (4.55 percent of GDP) (Fig.1) [1].

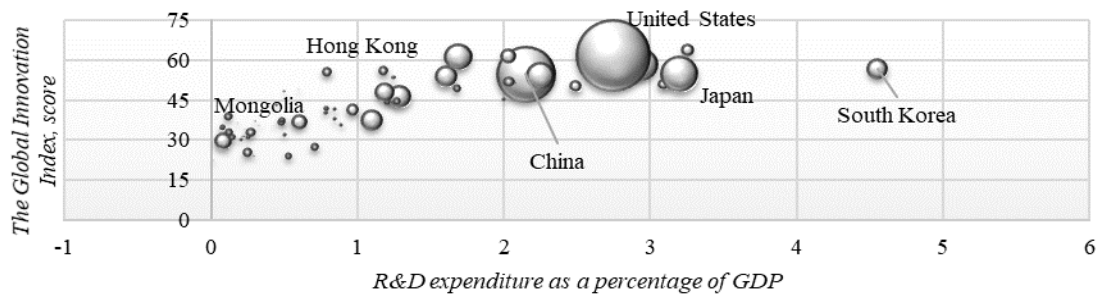


Fig.1. Distribution of East Asian countries according to the Global Innovation Index and research and development spending

Source: drafted by the author based on the statistical data of the Global Innovation Index and World Bank [1]

In addition to funding research and development, an important policy is the protection of intellectual property, which stimulates the generation of new knowledge and inventions, as well as their commercialization. According to the International IP Index, the system for the protection of intellectual property rights has enabled countries to become leaders in patenting activity, and Japan ranks 8th, South Korea 13th, and China 25th among 50 countries [5]. China and the Republic of Korea are mainly responsible for the rising share of new areas in knowledge production and innovation (between 2015 and 2017, they account for over 20 percent of patents registered compared to 3 percent between 1990 and 1999) [7].

Main text. Science, technology, and education have become one of the forward economic growth drivers. Current innovation policies of China, Japan, and South Korea are aimed at sustainable development through the combination of social, economic, and economic components in the field of science and technology. In the report UN Economic and Social Commission for Asia and the Pacific (UNESCAP) "Evolution of Science, Technology and Innovation Policies for Sustainable Development: The Experiences of China, Japan, the Republic of Korea and Singapore" were identified three phases of state policy development that are related to the level of industrialization: pre-industrialization, catch up (the level of industrialization converges with that of advanced economies), post-catch-up [6]. Each

of the countries being studied had these phases over different time frames; however, there are common features: government intervention and the support of foreign partners (Japan, South Korea – the US; China – the USSR and later the US); industrialization based on imported or borrowed technology; the liberalization of tax legislation for private business development; attraction of foreign direct investment through the ensuring of favorable investment climate (special economic zones, industrial parks); stimulation of the creation of own innovations through the development of education and science, as well as the formation of a national innovation system; considerable funding for research and development; confronting the United States of America in technological competition; solving economic, social and environmental problems through innovation, development of new technologies.

The main priority for the current development stage in East Asian countries is inclusive economic growth driven by innovation. Therefore, governments have adopted several strategic medium- and long-term plans. In particular, the current policy of the Chinese government is aimed at the transition to an economic model based on knowledge and innovation, where the essential resources are intellectual capital and the continuous exchange of knowledge and technology. Among the major Chinese innovation development strategies are the following: 13th Five-Year Plan for Economic and Social Development 2016-2020, National Plan for Science and Technology Innovation (2016 – 2020), Development Plan for Industrial Robotics (2016 – 2020), New Generation of Artificial Intelligence Development Plan (2015–2030), Automobile Mid and Long-Term Development Plan (2017-2025), National Agricultural Science Park Development Plan (2018–2025), Strategy "Made in China 2025" (2015-2025), Strategy "Internet plus" (2015-2025), Strategy "China 2030" (2012-2030), Science & Technology in China: A Roadmap to 2050.

The digitalization of all economical sectors and the creation of a smart society, as well as ensuring national security and sustainable growth, are the main points of the Japanese innovation development strategy. The major of the government policy is the stimulation of the technology development accordantly to the Fourth Industrial Revolution, in particular, artificial intelligence, robotics, smart technologies to

improve the living standards and well-being of the population. The critical plans are the following: The 5th Science and Technology Basic Plan (2016-2021), Strategy "Society 5.0" (2018), Japan Revitalization Strategy (2016), Future Vision towards the 2030s (2016-2030).

Current Korean governmental policy has focused on SME's development and digitalization. The priorities for the Korean government are the development of digital infrastructure, which will help enterprises to create own innovative technologies and take a leading position in the world market; adaptation of education to the intellectual information society; ensuring long-term investments in fundamental research of artificial intelligence technologies; improving the living standards with the help of science and technology, contributing to the growth of research and development productivity. The main governmental programs are 2nd Basic Plan of National Intellectual Property (2017-2021), Mid- to Long-term Master Plan in Preparation for the Intelligent Information Society (2017), The 5th Regional Science and Technology Promotion Comprehensive Plan (2018-2022), The 4th Science and Technology Basic Plan (2018-2022), I-Korea 4.0 (2018).

Summary and conclusions. Similarities for the studied countries are the digitalization and stimulation of business to the development and implementation of technologies through the introduction of financial and fiscal mechanisms to promote innovative small and medium enterprises, adaptation of education systems to the challenges of the Fourth Industrial Revolution, enhancing living standards and well-being of a population.

A general conclusion is made concerning that the dynamic economic and innovative development of East Asian countries, in particular, China, Japan, and South Korea, derives from the effective innovation policy of the governments, which has systemic, strategic nature and ensures the building of global competitiveness of countries.

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