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Development Of The Economy Of Knowledge In Different Countries

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ABSTRACT

Creating conditions for R&D in a post-industrial type of development is an extremely urgent task. Thanks to its scientific potential, the economy will be in a much more advanced position. The article examines the current state of research and development, knowledge economy and innovation. The factors of accelerated development of R&D in the knowledge economy are identified. The requirements for creating systemic prerequisites for the formation of the knowledge economy and innovation environment are discussed separately.

KEYWORDS

Research, R&D, innovation, science, human capital, knowledge economy, innovation production, R&D spending, innovative goods

INTRODUCTION

In many countries around the world, many types of economic and social activities are based on mental ability, which is one of the universal economic laws. Two aspects of this law are becoming increasingly apparent. On

the one hand, the role and importance of the education system in social production is constantly growing, on the other hand, within each branch of production, special knowledge is widely used in the activities of enterprises

and firms, ie modern technological processes using computers and automation¹.

In 1990, a report on human development was first delivered at the United Nations under the chairmanship of Mahbub al-Haq. The report analyzes the economic behavior of man in society through several indices. So far, a lot of research is being done on the basis of this report. The main result of this research is that a high level of education in human development leads to a high level of supply of goods and services and well-being².

The advanced countries we know in the world are the United States, Germany, the United Kingdom, South Korea, and Japan, which are currently making extensive use of the knowledge economy. In these countries, the focus is on human capital, investment, science and high technology, production and services.

MAIN PART

N.I.Khasankhonova and S.N.Abdulkhalilova sayd that R&D expenditures (Research and Development and Development Works) are an important indicator of the innovative activity of a state, company or enterprise. However, R&D expenditures are recognized whether or not they are positive³.

As Shurupova noted that the role of intellectual and information resources in the

development of the knowledge economy is known from world experience⁴. According to him, the development of the knowledge economy in the United States is due to the high level of spending on research and development (R&D). In recent years, many countries have paid special attention to areas that require active knowledge intervention, such as science, information technology, nanotechnology, biotechnology. Energy technology remains a priority in Japan, agriculture in Canada, space research in France, and industrial technology in Canada, Germany, Italy, and South Korea. In the second half of the 90s of the twentieth century, many countries became more interested in improving the procedures for scientific and technical forecasting, selection and evaluation of priorities of scientific and technological development.

ANALYSIS AND RESULTS

In fact, if we consider the costs of R&D, we obtain the following data (Figure 1).

¹ Alimova G.A. Problems of socio-cultural infrastructure and employment in the transition to a market economy. Abstract of the dissertation for the degree of Candidate of Economic Sciences. - T.: 2002. - B.30.

² Human Development Report 2011. Sustainable Development and Equality of Opportunity. The best future for everyone. - Moscow: Ves Mir Publishing House, 2012. - P.13.

³ Khasankhonova N.I., Abdulkhalilova S.N. R&D Expenditure As A Factor In The Development Of The Economy Of Knowledge. The American Journal of Interdisciplinary Innovations and Research (ISSN–2642-7478) December 08, 2020 | Pages: 9-16

⁴ Shurupova A.S. Foreign experience in the formation of a knowledge-based economy and its adaptation to Russian conditions. Bulletin of TSU, issue 7 (75), 2009. C.14-15



Figure 1. Cyclical R&D investments, 2001–2020⁵

⁵ The Global Innovation Index 2020: Who Will Finance Innovation? is the result of a collaboration between Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO) as co-publishers, and their Knowledge Partners.

Governments at the head of the largest economies worldwide are setting up emergency relief packages to cushion the impact of the lockdown and face the looming recession. These packages aim to prevent short- to medium-term harm to economies. This is sensible. The immediate focus is on supporting businesses via loan guarantees, for example.

Yet, these emergency relief measures are not explicitly directed to financing innovation and start-ups. Start-ups are facing hurdles as they try to access the above emergency measures.

What will happen to innovation finance in the near and longer term? The likely answer is that VC will take longer to recover than R&D spending. The impact of this shortage in innovation finance will be uneven, with the negative effects felt more heavily by early-stage VCs, by R&D-intensive start-ups with longer-term research interests in fields such as life sciences, and by ventures outside of the top VC hotspots. Indeed, current VC investments are concentrated in a few VC hot spots in the world, and only a few of those hot spots are in emerging economies—notably in China and India.

First, the Global Innovation Index 2020 assesses which economies consistently hold the top global spots on particular Global Innovation Index innovation facets, such as VC, R&D, entrepreneurship, or high-tech production. Hong Kong (China) and the U.S. lead on this count; Israel, Luxembourg, and China tie for 3rd place; Cyprus ranks 4th; and Singapore, Denmark, Japan, and Switzerland tie for 5th place (Figure E). Some top spots on selected innovation indicators are not held by high-income economies. In South East Asia, for example, Thailand is 1st in business R&D globally, and Malaysia is top in High-tech net exports globally. In Sub-Saharan Africa, Botswana ranks 1st in Education spending globally and Mozambique leads in Investment

globally. In Latin America, Mexico is the largest creative goods exporter worldwide.

The impacts of the crisis on innovation are uncertain and highly dependent on recovery scenarios and the business and innovation practices and policies in place.

In any scenario, financial resources—both private and public will be strained. Countries and corporations alike might find it harder to pursue investments and innovation. Historically, pandemics have been followed by sustained periods of depressed investment. Investment rates are already low to date, including foreign direct investment, which is now expected to drop sharply in 2020 and 2021.

We know that the country that spends the most on GDP is Israel. If we analyze this country, then research in universities is second only to the United States (with scientists also known as Nobel Prize winners), human capital occupies a special place, and the level of industrial integration with scientific research is high.

The following figure illustrates the development of the knowledge economy in Israel (Figure 2).

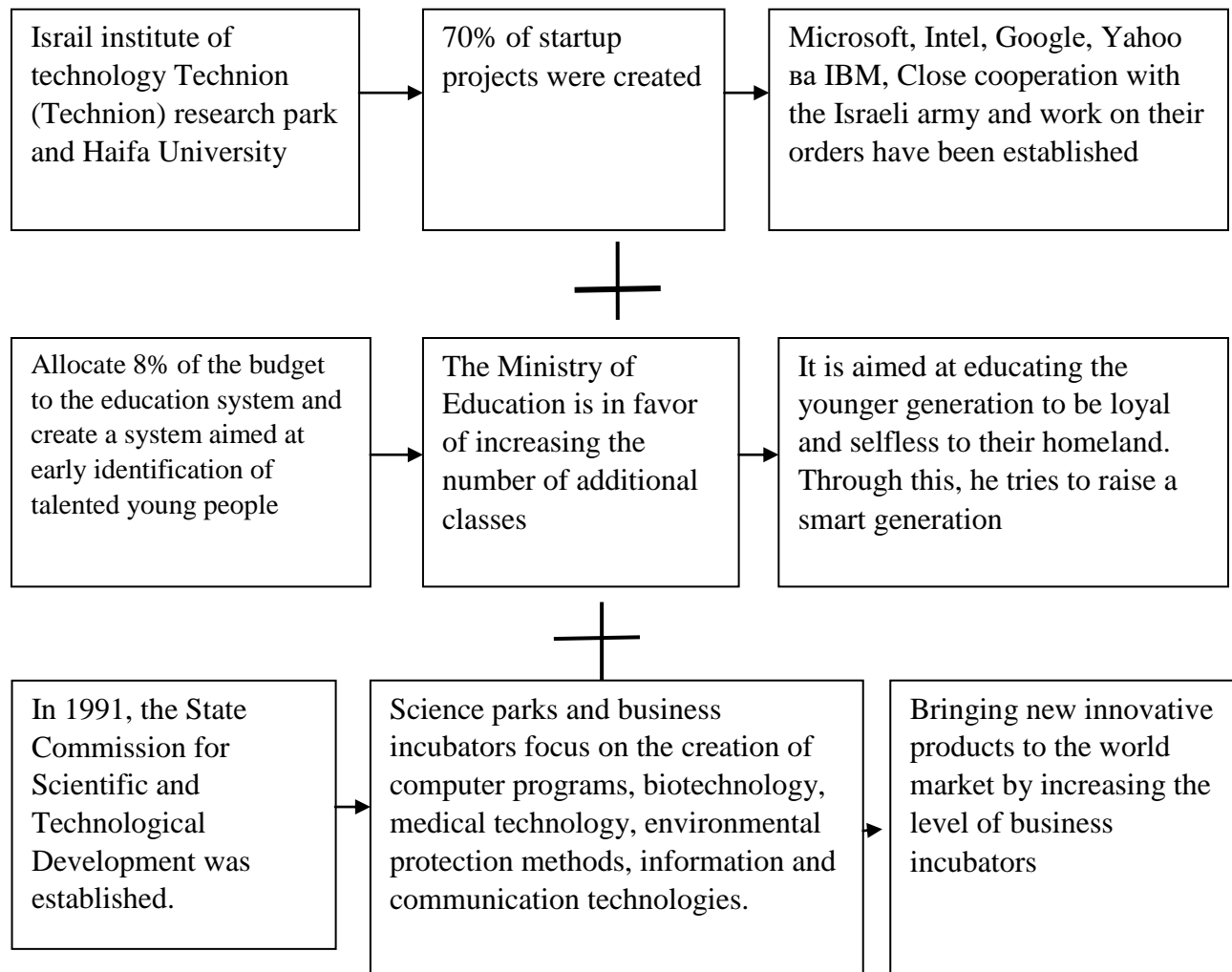


Figure 2. The stage of development of the knowledge economy in Israel⁶

⁶ Efimushkin S.N., Sazhaeva G.A. An innovative way of developing the Israeli economy (world experience). Innovative economy issues. Volume 6. Number 4. October-December 2016. - C.387-396.

In South Korea, which ranks second, the level of investment in education is high, and the cost of information and communication is also significant. It should be noted that in this country, in particular, there is a strong focus on information and communication technologies (ICT). We show the formation of the knowledge economy in the state of South Korea with the following features:

- High level of human capital expenditures;
- The population, especially young people, try to take a creative approach to everything;
- High level of innovative goods;
- Samsung, LG and Hyundai to act as a locomotive and spend on R&D;
- High level of research of Korean universities;
- Creation of startups in the field of innovations on the basis of public-private partnership (60% state capital, 40% private capital);
- The influx of companies that are successful in the field of innovation in the world in South Korea, to conduct innovative activities.

In the third largest country, Sweden, expenditures on R&D account for 3.3% of GDP. We highlight the following specific aspects of the development of the knowledge economy in this country:

- High level of commercialization of developments;
- A lot of money is spent on research, both public and private;

- Strong state support for innovative activities of small and medium-sized businesses to create a favorable investment climate;
- Low use of tax instruments and a strong focus on venture financing to regulate the investment economy;
- The key role of the information sector in the country's economy is recognized;
- RISE group - a special structure responsible for the development of research and development, which unites research universities;
- The presence of many companies producing innovative products and services (they are higher than the EU average);
- In Sweden, all forms of education at all levels are heavily funded by the public and private sectors.

Thus, through a well-established innovation policy, a well-established national innovation system, Sweden has a worthy place in the EU in terms of the level of development of the innovative economy⁷.

In the U.S. state, known for its Silicon Valley, the knowledge economy is also exceptionally well developed. We know that companies like Adobe, AMD, Agilent, Apple, eBay, Facebook, Google, Intel, Oracle, Xerox are currently located in this valley. They also have a high level of spending on R&D. It is these companies that have contributed to the full development of the knowledge economy. There are also 4 universities in the valley: the University of San Jose, the University of Santa Clara, the University of Stanford, and the

⁷ Zakharova N.V., Labudin A.V. Formation of an innovative economy in Sweden: features and prospects. Management consulting. No. 10. 2019. - P.41-42

University of California at Santa Cruz. They are aimed at training leading specialists in scientific developments, ICT programs, research.

In addition to Silicon Valley, the U.S. has a high rate of scientific research in other areas, including New York and Washington. In the United States, the National Science and Technology Council and the Office of Science and Technology Policy act as executors of public administration in building the knowledge economy. In this way we can say that the state carries out the basic management in the creation of scientific research. The state will carry out high-tech work in the following areas:

- The use of R&D in the fight against antiterrorist activity;
- Nanotechnologies;
- Network and information technologies;
- Analysis of social processes at the molecular level;
- Solving problems in the field of environment and energy⁸.

The following actions of the US state for the full development of the knowledge economy should also be highlighted:

- High interest of the state in research, the fact that the state budget expenditures are directed in this direction;
- Active participation of corporations in research work on an equal footing with the state;
- Ability to unite large enterprises in the Silicon Valley;
- Flexibility of production (adaptability to any situation);
- Ability to put education, scientific infrastructure in the right direction.

⁸ Chentsova M.V. Features of the formation of the knowledge economy in modern conditions. Abstract of the dissertation for the degree of candidate of economic sciences. M.: 2008. - P.17

Thus, in the example of Israel, Sweden, the United States, we see that the state has played a key role in the transition to a knowledge economy, created the conditions, has become the main author of the national strategy. The key reformer in the formation of innovative development, regulatory mechanisms and effective institutions of the innovative economy is the state. The state innovation policy of industrialized countries is mainly aimed at ensuring the activities of R&D, strengthening their weak link, expanding the research work of firms, increasing the attractiveness of the national economy for investment and overcoming shortcomings that hinder the integration of different links.

In general, most of the countries in the world that spend on R&D have realized that the knowledge economy is developing in the right direction, and scientific research is the driving force of the economy. In particular, the favorable investment climate in the country has contributed to the active development of small businesses in Singapore. At the same time, the fact that the range of services in the field of investment is up to date, 70-80% of the country's population is employed in this field and the legal framework for the development of the sector has been established is a solid foundation for the knowledge economy. Therefore, today, Singapore ranks 5th in terms of business development, and so on. World experience shows that for every dollar spent on innovation, ideas or research, small businesses create 4 times more innovations than large enterprises, and small innovative enterprises create 2.5 times more products than large enterprises.

CONCLUSIONS AND RECOMMENDATIONS

In general, the knowledge economy, the formation of a knowledge society over the past decade in the top 10 countries in the table is characterized by the production of scientific knowledge, technological innovation, integration of business and higher

education, high spending on innovative goods and services.

When we study foreign experience in the development of the concept of knowledge economy and its effective use, we draw the following conclusions:

- The integration of science and education is reflected in innovative activities;
- The main driving force in the formation of the knowledge economy should be the state. It creates a favorable environment for the knowledge economy by strengthening the conditions, the legal framework;
- It is necessary to understand that the key role in the country's economy is also in ICT, information technology;
- It is necessary to strengthen education, science and innovation;
- Public-private partnership leads to the emergence of business incubators, intellectual artificial intelligence, necessary for the knowledge economy.

And at the same time it is necessary to create institutional systems aimed at the formation of a knowledge economy.

Knowledge. The American Journal of Interdisciplinary Innovations and Research (ISSN–2642-7478) December 08, 2020 | Pages: 9-16

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