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WORLD EXPERIENCE OF TECHNOLOGICAL MODERNIZATION IN FINANCIAL FIELD

***Abstract:** This article deals with the world experience in the use of tools and methods of financing high-tech economic industries and features of technological modernization in the financial sector in the most leading countries as well.*

***Keywords:** modernization, industrial modernization, innovative development, startups, robotics.*

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МИРОВОЙ ОПЫТ ТЕХНОЛОГИЧЕСКОЙ МОДЕРНИЗАЦИИ В ФИНАНСОВОЙ ОБЛАСТИ

***Аннотация:** В статье рассматривается мировой опыт использования инструментов и методов финансирования наукоемких отраслей экономики. А*

также особенности технологической модернизации в финансовой сфере в самых лидирующих стран.

***Ключевые слова:** модернизационная, индустриальная модернизация, инновационное развитие, стартапы, робототехника.*

Digital economy modifies conventional models of industry markets, increases the competitiveness of market participants. The presence of competition in the market for goods or services in which the business structure operation requires to ensure conditional competitiveness.

World experience shows that there are many countries that have long been using the course to increase the competitiveness of the nation through technological modernization. These kinds of countries not only create innovations in all key sectors, but also serve as an example for the more underdeveloped countries whose experience brings huge revenues to the state budget. These countries might include:

1. Singapore. Leading country in the world who introduced the digital technologies in key industries, the country initiated the development of the concept of "Smart Nation" (smart nation) in 2014, the basic idea is to possess the technology freely. Thanks to a strong government strategy to promote ICT in terms of skills, infrastructure, taxation, business use and individual use, Singapore has made significant progress in recent years.

According to the Global Innovation Index (GII) 2017, Singapore is the 7th largest innovation economy in the world and the 1st, second consecutive year in the Network Readiness Index according to the World Economic Forum (WEF) for 2017. Singapore is also the largest financial center in Asia in many respects and which is not inferior to Hong Kong and Tokyo.

The state covers up to 90% of the cost of training and human resources retraining in small and medium-sized enterprises. Singapore has also a tax regime with a whole reward system aimed at attracting international investors. For example, there is a corporate tax for "newcomers" (startups) in Singapore which has a scheme for full (for the first 3 years) or partial exemption from taxes. Singapore has also a large list of

tax incentives and development schemes to attract investment and provide assistance to investors in expanding their business.

Table 1 – Singapore tax incentives and schemes

| Name of incentives and schemes | Description |
|--|---|
| Regional and International Headquarters Awards | Regional and international headquarters awards encourage companies to use Singapore as a regional or global base. An individual package of tax benefits (such as incentive, for beginners, development and expansion of investments, investment benefits) and grants are provided to qualifying companies. |
| Pioneer Incentive | Encourages the introduction and development of new industries. The pioneer enterprise is granted full exemption from income tax on its qualifying profit for a period of up to 15 years. |
| Development and expansion of incentives | Investors implementing projects that will bring significant economic benefits to Singapore can apply for development incentives and expansion. The incentive provides for preferential income tax rates for all qualifying earnings above a predetermined base for a certain period. |
| Investment benefits | Companies investing in new equipment that introduces new technologies into the industry or contributes to its efficiency can be applied to investment benefits. This is a monetary allowance, which partially compensates for the costs of acquiring qualified equipment for a fixed period and in addition to ordinary tax depreciation. |
| Approved royalty incentives (rewards) | Companies are encouraged to transfer their advanced technology and know-how to Singapore by providing full or partial exemption from royalties or technical assistance fees paid to non-residents. Investors engaged in the development or introduction of new R & D opportunities may apply for a research incentive scheme. The project should lead to an increase in the hiring and training of research scientists and engineers in Singapore. This scheme provides subsidies for partial reimbursement of R & D costs associated with training, investments in equipment, management of intellectual property and professional services. |
| Financing scheme for local enterprises (LEFS) | Designed to assist and encourage companies (with at least 30% ownership at the local level) to renew and expand their activities. LEFS loans are available for plants, machines and working capital. |
| Local Enterprise Technical Assistance Scheme (LETAS) | Encourages and helps companies (with at least 30% local ownership) seek external expertise to improve their operations. As a rule, the assistance provided amounts to up to 50% of the cost of attracting an external expert to implement |

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| quality management systems and IT systems (for example, ISO certification, upgrading computer systems). |
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Government plays a leading role in Singapore's credit and banking system and unites about 700 financial organizations by virtue of its status and the nature, including 122 commercial banks (116 of them are foreign), 7 financial and 146 insurance companies. And in this Singapore has no public external debt.

Due to this kind of tax incentives, the number of Singaporean startups are increasing year after year. For example, if there were about 22 thousand startups in 2003, then in 2015 their number reached to 48 thousand.

Singapore has been able to achieve a stable budget surplus for many years against the background of such a reasonable fiscal policy which contributes to a high savings rate, allowing it to achieve one of the highest levels of investment in the world without the need for attracting external debt. In turn, high domestic savings provide Singapore with a high level of foreign reserves, helping to increase investors' confidence and provide a reserve against adverse economic shocks.

2. Japan. Japan is the second largest economy in the world after South Korea, dealing with robotics. It is also one of the leaders in several new ICT technologies who is going through a period of accelerated development. There were 33% of patents in such areas as 3D object manipulation and image analysis were registered in Japan for the period 2012-2013.

Tax incentives R & D is the biggest incentive in terms of tax incentives in the Japanese corporate tax system.

Since April 1, 2017, amendments have been introduced to the taxation system, which expanded the capabilities of economic agents in conducting research and development.

Japan's spending on research and development is high - 3.3% of GDP in 2016 (for comparison, Germany - 2.9%, the United States - 2.8%), but mostly they are concentrated in large enterprises. The Japanese government intends to increase spending on science and technology by 900 billion yen (\$ 8.1 billion) over the next

three years. In Japan, unlike other countries such as the United States or the United Kingdom, the innovation system relies less on universities and government research institutes (GNII), and more on innovations created in large and medium-sized firms organized in corporate groups, known as "Keiretsu".

3. United States of America (USA). According to the OECD, the United States falls into 10 world countries, in the ranking of R & D expenditures (2.8% of the country's GDP for 2016). In general, the USA takes the lead on the number of high-tech companies of C Corporation, such as Apple, Google, Facebook, Netflix, IBM, Microsoft, etc. The presence of such companies makes the United States 2nd in the world (after Switzerland) in the ranking of the countries of Global Competitiveness 2017-2018. and 4th in the GII 2017 ranking. The new "Tax and Employment Reduction Act" which entered into force in the United States introduced changes in three key provisions that directly affect the taxation of American business. The recognized repatriation of these previously non-taxable foreign profits now allows capital to be used anywhere in the world and eliminates the motivation of companies to leave foreign profits abroad in order to avoid gradual US taxation.

The German government is actively promoting the development of technologies in the field of private business in the most priority areas - aerospace industry, electrical engineering, computer technology and pharmaceuticals. The German government has adopted a strategic action in planning for high technology - High-Tech Strategy 2020 Action Plan. The Bundestag annually allocates 10 billion euros to implement the strategy. Funding for the main program comes from: government agencies such as the European Union; Federal Ministry of Education and Research (BMBWF); Federal Ministry of Economics and Energy (BMWi); German Federal States and the German Research Foundation (DFG); from industrial partners. A third of the expenses of the Ministry of Economy and Energy - 2.5 billion euros in 2015 accounted for "Innovation, technology and new mobility." Among the expenses of the Ministry of Education and Science (MES), one third (5.4 billion euros) falls on the article "Innovation Research, High-Tech Strategy", relevant for the implementation of Industry 4.0. Since the development of a new structure is supported both through the grant and budget

financing of institutions, the order of expenses can be judged on the basis of their thematic distribution of the Ministry of Education Science. Thus, in 2014, 400 million euros were invested in ICT, which were approximately equally distributed between the grant format and the budget financing of organizations.

The progress in the development of the digital economy of the above countries and the high level of integration of the global network makes them leaders in the Digital Evolution Index 2017 (DEI 2017) rating created by the Institute of Business in the Global Context (IBGC).

Such countries have a highly developed digital economy and strong development dynamics. They also stimulate the introduction of innovations, using their advantageous position effectively not to lose their positions.

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