

ROLE OF STATE AND PRIVATE SECTOR IN FINANCING INNOVATIVE ACTIVITY

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Annotation: This article examines various strategies for financing innovation, providing valuable insights into the diverse options available to businesses and entrepreneurs seeking to fund their groundbreaking projects. The article delves into internal funding, venture capital, angel investors, grants, and other innovative financing mechanisms, highlighting their advantages, challenges, and suitability for different types of ventures. Moreover, this article also explains financial instruments aimed at supporting subjects of innovative activity.

Keywords: Innovation, Innovation policy, private sector, public sector, financing, ICT, grants, Crowdfunding, tax benefits, budget funds, special funds.

РОЛЬ ГОСУДАРСТВА И ЧАСТНОГО СЕКТОРА В ФИНАНСИРОВАНИИ ИННОВАЦИОННОЙ ДЕЯТЕЛЬНОСТИ

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Аннотация: В этой статье рассматриваются различные стратегии финансирования инноваций, предоставляя ценную информацию о различных вариантах, доступных предприятиям и предпринимателям, стремящимся финансировать свои новаторские проекты. В статье рассматриваются внутреннее финансирование, венчурный капитал, инвесторы-ангелы, гранты и другие инновационные механизмы

финансирования, подчеркиваются их преимущества, проблемы и пригодность для различных типов предприятий. Кроме того, в данной статье также раскрыты финансовые инструменты, направленные на поддержку субъектов инновационной деятельности.

Ключевые слова: Инновации, Инновационная политика, частный сектор, государственный сектор, финансирование, ИКТ, гранты, Краудфандинг, налоговые льготы, бюджетные средства, специальные фонды.

INNOVATSION FAOLIYATNI MOLİYALASHDA DAVLAT VA XUSUSIY SEKTORNING O‘RNI

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Annotatsiya: Ushbu maqola innovatsiyalarni moliyalashtirishning turli ko‘rinishlari, shuningdek, davlat va xususiy sektorning moliyalashtirishdagi o‘rnini tushuntirib beradi. Maqolada ichki (davlat) moliyalashtirish, venchur kapitali, kraud fanding, grantlar va boshqa innovatsion moliyalashtirish mexanizmlari ko‘rib chiqilib, ularning afzalliklari, qiyinchiliklari yoritilib beriladi. Bundan tashqari, ushbu maqolada innovatsion faoliyat sub'ektlarini qo‘llab-quvvatlashga qaratilgan moliyaviy vositalar ham ko‘rsatib o‘tilgan.

Kalit so‘zlar: Innovatsiya, Innovatsion siyosati, xususiy sektor, davlat sektori, moliyalashtirish, AKT, grantlar, Kraudfanding, soliq imtiyozlari, byudjet mablag‘lari, maxsus fondlar.

Introduction.

One of the most important factors in the development of national and regional innovation systems is the presence of an effective financing system, which includes institutions, tools, and mechanisms for attracting investments, as well as a set of relations between its participants. The competitiveness and investment attractiveness of the country and its regions depend on the quality of their work and interaction.

The volume and structure of financial support for residents of innovation systems are influenced by the adopted financing model, its features, the innovative activity of the state and business sectors, the sectoral structure of the economy, and the production specialization of companies. The main sources of financing internal costs for research and development are the state and regional budgets, the own funds of organizations in the business sector, and scientific organizations, educational organizations, and non-profit organizations.

Funding is an important element that ensures the success of innovative activities. Innovation financing is divided into two - direct and indirect. The first consists of direct sources, and the second - indirect sources. Direct sources of funding include budget funds, off-budget funds, personal funds of enterprises (associations), loans, innovative investments, special funds, venture capital, crowdfunding, innovative foreign loans for venture organizations developing high-tech innovations, and grants.

Indirect sources of funding include tax benefits and discounts, tax credits, credit benefits, i.e. providing loans to enterprises - potential consumers of innovative developments, financial sanctions for non-fulfillment of contracts (specific relations) and obligations, leasing of special scientific equipment and stands, customs benefits, amortization allowances, science-based pricing of scientific and technical products.

Funding from the budget. An important source of innovation financing is the federal (state) budget. It emphasizes how governments recognize the importance of innovation in fueling economic growth, creating jobs, and addressing societal challenges. This type of financing does not provide a quick return on investment. It is often focused on assistance and development of certain priority areas of activity for the state. Because innovation is considered one of these areas, this type of financing is quite often used in the implementation of knowledge-intensive innovation projects.

Company funds. At the level of enterprises, associations, and most scientific and technical organizations, they are the main source of funding. Currently, enterprises' funds are playing an increasingly important role, and there are many reasons for this: the purpose of such funds, the lack of budget funds, the spread of some extra-budgetary funds and incorrect use, imperfection of the credit system (high cost of credit, lack of interest of banks, complexity of loan processing, etc.). A frequent source of financing innovative activities is financing from the generated profits of the enterprise, accounts payable, and temporarily available financial resources.

The positive qualities of this source of financing include its relative freeness and accessibility. Financing innovation from profits is preferable because it is less dependent on various external factors. However, this source of financing is often not always available, since it is often not feasible to ensure

profits in the required volumes and time frames needed to implement large innovation projects.

Venture Capital: Startups and innovative companies often seek funding from venture capitalists to support their R&D efforts. Venture capital provides capital in exchange for equity or ownership stakes in the company. Venture capital funding can be particularly useful for high-risk, high-reward R&D projects and technology-driven startups.

The activities of venture funds in financing innovative projects have several characteristic nuances, that distinguish them from ordinary investment funds:

- “Risk investors” are prepared for losses of their capital (they do not require collateral guarantees for the return of invested funds).

- “Risk capital” is provided for a long period (5-7 years) without the right to withdraw it.

Crowdfunding: Crowdfunding platforms enable individuals or organizations to raise funds for R&D projects by soliciting small contributions from a large number of people. Crowdfunding is typically conducted online, and it allows innovators to showcase their projects to potential supporters.

Financial instruments aimed at supporting subjects of innovative activity in the region include grants, subsidies, business lending, and preferential taxation. They are provided at the expense of the regional budget on a competitive basis in the manner prescribed by federal and regional legislation.

The trend towards the growth of the enterprises' funds reflects the acceleration of the direction of the financing system to the rapid implementation and application of innovations (product, technological, organizational management). Investing in the development of high-tech industry, enterprises (associations, firms) are more interested in getting quick results from the implementation of innovations.

In developed countries like South Korea, Japan, China, the US, and Europe countries private sector covers 60-80 % of the R&D (Table1, graph1, graph2)

If we look at the below results, the highest share of private enterprises belongs to the Republic of Korea, which is equal to 79%. Also, this indicator has not changed much between 2018-2022. As for the number of firms engaged in the high-tech industry, the number of Chinese firms increased by 240 and 32, respectively, in 4 years.

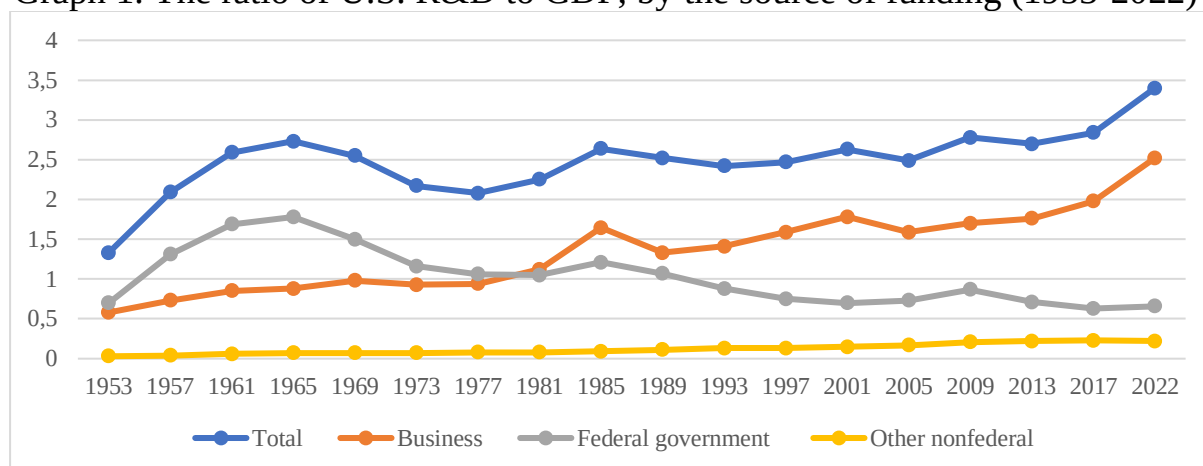
Table 1. The share of the private sector in R&D expenditures

Indicators	South Korea		Japan		China	
	2018	2022	2018	2022	2018	2022

Share of private sector spending on scientific research	80%	79%	79%	78%	77%	76%
The number of enterprises operating in the field of high technology	70	60	339	233	438	678

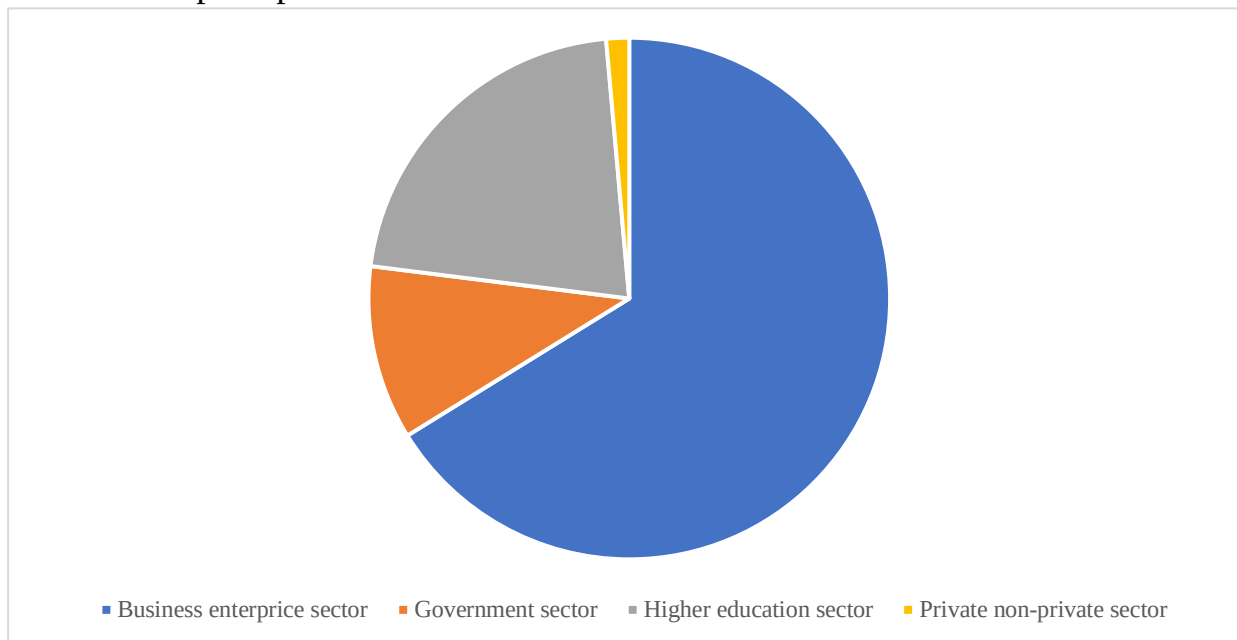
The United States research and development (R&D) to gross domestic product (GDP) ratio broke through 3% for the first time in 2019 and is expected to reach 3.40% in 2022 (Graph 1). However, between the previous peak in 1964 and recent years, there have been notable changes in the sources of funding for domestic R&D. In 1964, federal R&D expenditures accounted for 1.86% of GDP and 67% of all domestic R&D. Businesses funded 31 % of research and development at the time, but only 0.86 % of the economy overall. By 2022, this source accounted for 73% of domestic R&D expenditures for US businesses or 2.47% of the total value of domestically produced goods and services. Over that period, the federally funded shares of R&D had fallen to 21% of domestic R&D and 0.70% of U.S. GDP.

Graph 1. The ratio of U.S. R&D to GDP, by the source of funding (1953-2022)¹



¹ <https://nces.nsf.gov/pubs/nsf23339>

Graph 2. R&D expenditure by sector, 2022 (€ billions of the total)
For top corporate R&D investors shows that the U.S. is the frontrunner



with it's the top 3 companies averaging €31 billion in investments in 2022. China and Germany take the second and third positions with an average R&D investment of the top 3 of €12.8 and €11.7 billion, respectively. Each economy brings its unique strengths to the global innovation landscape, from Switzerland's prowess in pharmaceuticals (with Roche and Novartis) to the Republic of Korea's electronics focus (with Samsung Electronics and SK Hynix) and the Netherlands' expertise in ICT hardware (ASML Holding).

Table 2. Top 10 R&D spenders, 2022 ²

Country	Average R&D investment of the top 3 companies (mln €)	Top 3 companies (and industry)
US	31,350	1. Alphabet (Software & Computer Services) 2. Meta (Software & Computer Services) 3. Microsoft (Software & Computer Services)
China	12,282	1. Huawei Investment & Holding (Technology Hardware & Equipment) 2. Tencent (Software & Computer Services) 3. Alibaba Group Holding (Software & Computer Services)
Germany	11,633	1. Volkswagen (Automobiles & Parts) 2. Mercedes-Benz (Automobiles & Parts) 3. Robert Bosch (Automobiles & Parts)
Switzerland	8,241	1. Roche (Pharmaceuticals & Biotechnology) 2. Novartis (Pharmaceuticals & Biotechnology) 3. Nestle (Food Producers)

² https://www.wipo.int/global_innovation_index/en/gii-insights-blog/2024/r-and-d-spenders.html

Korea	8,168	1. Samsung Electronics (Electronic & Electrical Equipment) 2. SK Hynix (Technology Hardware & Equipment) 3. LG Electronics (Leisure Goods)
Japan	6,906	1. Toyota Motor (Automobiles & Parts) 2. Honda Motor (Automobiles & Parts) 3. NTT (Mobile Telecommunications)
United Kingdom	5,639	1. AstraZeneca (Pharmaceuticals & Biotechnology) 2. GSK (Pharmaceuticals & Biotechnology) 3. HSBC Holdings (Banks)
Netherlands	4,396	1. Stellantis (Automobiles & Parts) 2. Airbus (Aerospace & Defense) 3. ASML Holding (Technology Hardware & Equipment)
France	3,680	1. Sanofi (Pharmaceuticals & Biotechnology) 2. Renault (Automobiles & Parts) 3. FORVIA (Automobiles & Parts)
Sweden	2,784	1. Ericsson (Technology Hardware & Equipment) 2. Volvo (Automobiles & Parts) 3. Geely Sweden Holdings (Automobiles & Parts)

A thriving innovation ecosystem depends on the state and the private sector working together synergistically. By using this mutually beneficial strategy, the public and private sectors can work together to promote innovation and make sure that the results of research and development are regularly applied in the real world, resulting in long-term economic growth and societal advancement.

The implementation of innovative development, in addition to financial costs from the budget and funds from private innovation-active companies, requires targeted government policy in relation to each individual industry, as well as a very significant investment of time.

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