

«ҚАЗАҚСТАН - 2050» СТРАТЕГИЯСЫ»: ҚР ЭКОНОМИКАСЫ ЖАНҒЫРТУ МЕН ИННОВАЦИЯЛЫҚ ӨНЕРКӘСІПТЕНДІРУДІҢ БӘСЕКЕЛІК ФАКТОРЛАРЫНЫҢ ҚАЛЫПТАСУЫ МЕН ТИІМДІ ҚОЛДАНУ БОЛАШАҒЫ МЕН ТӘЖІРБИЕСЬ»

«СТРАТЕГИЯ «КАЗАХСТАН - 2050»: ПРАКТИКА И ПЕРСПЕКТИВЫ ФОРМИРОВАНИЯ И ЭФФЕКТИВНОГО ИСПОЛЬЗОВАНИЯ КОНКУРЕНТНЫХ ФАКТОРОВ МОДЕРНИЗАЦИИ И ИННОВАЦИОННОЙ ИНДУСТРИАЛИЗАЦИИ ЭКОНОМИКИ РК»

STRATEGY «KAZAKHSTAN - 2050»: PRACTICE AND PROSPECTS OF FORMATION AND EFFECTIVE USE OF COMPETITIVE FACTORS OF MODERNIZATION AND INNOVATIVE INDUSTRIALIZATION OF ECONOMY OF RK.

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Қазақстан Республикасы экономикасының индустриалды-инновациялық даму стратегиясы

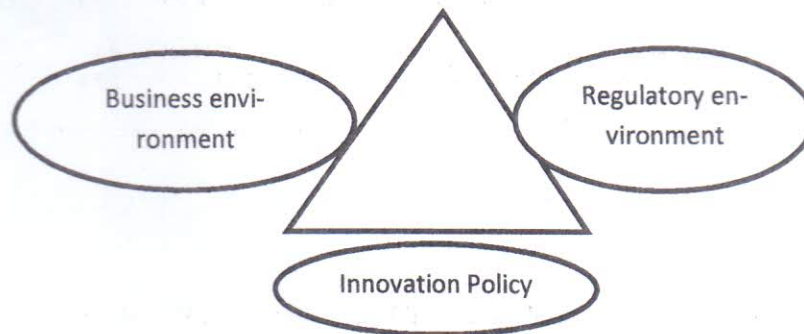
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tries' potential to benefit from innovation. These countries recognize that innovation drives growth and that losing the race for innovation advantage can result in a relatively lower standard of living. They know that success in the competition to develop globally competitive domestic companies and industries, while attracting internationally mobile, innovation-based economic activities – and, thus, to achieve high and sustainable levels of economic and employment growth – increasingly depends on the strength of their national innovation ecosystems [2]. The countries with the more sophisticated strategies also realize that innovation-based economic activity is not just about moving up the value chain to higher-value-added activities, but also about booting the productivity of sectors across the board and developing new capabilities and functionalities in their economies. All of these countries have come to understand that markets relying on price signals alone will not always be as effective as smart public-private partnerships in spurring higher productivity and greater innovation. Ultimately, countries' innovation policies aim to explicitly link science, technology, and innovation with economic and employment growth, effectively creating a game plan for how they can compete and win in innovation-based economic activity [3].

Getting innovation policy right requires that countries master three components of the innovation ecosystem – the business environment, the regulatory environment, and the innovation policy environment – which sometimes are called 'The Innovation Policy triangle', as figure 1 illustrates [4].

Figure 1. The innovation policy triangle.



The seven core innovation policy areas that form the basis of this study address all the core elements of the innovation policy triangle, whose elements are specified in greater detail below:

Business Environment: The first leg of the innovation triangle is the business environment, which includes finance, private sector institutions, and business capabilities. A strong business environment has several components:

- Ability of capital to flow to innovate and productive investments easily and efficiently;
- A widespread embrace of entrepreneurship and innovation by individuals;
- Strong ICT adoption, especially among businesses;
- Strong managerial skills; and
- A culture that embraces competition and collaboration, as well as an appropriate level of risk-taking.

Regulatory environment: The second leg is the regulatory environment, which enables the right overall framework for organizations to be innovative. This includes:

- A competitive and open trade system such that domestic firms are spurred to innovate through competition;
- Support for competitive product and labour markets such that new entrants, including new business models, can enter markets;
- A tax system that spurs innovation and enables enterprises to be competitive in global markets;
- Regulatory requirement on businesses that are, to the extent possible, based on consistent, transparent and performance-based standards;

- Limited regulations on the digital economy that do not impair widespread digital innovation and adoption;
- A legal process that is transparent and based in the rule of law;
- Government procurement based on performance standards as well as open and fair competition;
- Protection of intellectual property that enables innovators to achieve returns.

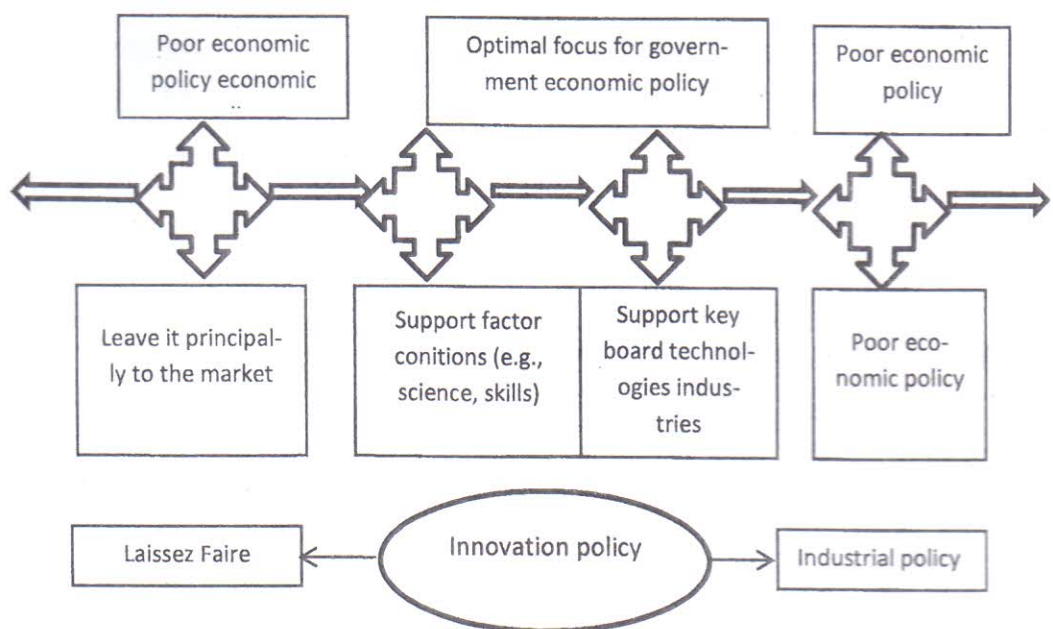
Innovation policy environment: The third leg of the triangle is a robust innovation policy environment. While markets are key to innovation, absent effective innovation policy, markets will underperform. A strong innovation policy environment supports the key building blocks of innovation. This includes:

- Support for technology research;
- Support for technology commercialization;
- Support for digital technology infrastructures (such as smart grids, broadband, health IT, intelligent transportation systems, e-government, etc.);
- Support for firms, especially small and medium-sized firms, to modernize and boost productivity;
- Fostering effective education and skills, particularly science, technology, engineering, and math skills, while welcoming high-skill immigrants.

Ultimately, innovation policy is concerned with enhancing the strength of a nation's innovation ecosystem and recognizes that technological progress depends on certain infrastructure investments and on specific innovations that are too risky, too complex or too independent on other breakthroughs for private firms to always risk alone the substantial investments that are needed. Indeed, the private sector needs the government's partnership to innovate, and the more collaborative nature of the modern innovation process is reflected by the greater role government agencies, national laboratories and research universities play in private sector innovation.

What is the appropriate role of government in innovation policy? In particular, when does a country's innovation policy cross the line into an industrial policy that seeks to intervene in markets to 'pick winners' or 'national champions' and which, in the process, distorts the efficient market-based allocation of resources? It is useful to envision a continuum of government-market engagement, increasing from left to right in four steps from a 'laissez faire, leave-it-to-the-market' approach; to 'supporting factor conditions for innovation'; to 'supporting key broad technologies/industries' to, at the most extreme, 'picking specific technologies/firms' which would be tantamount to industrial policy, as Figure 2 shows [5].

Figure 2. The Innovation Policy Continuum



To provide a specific example in the context of advanced batteries for electric vehicles, it would be industrial policy if a government picked a particular company to be its national battery champion – say, if the United States picked Duracell – or a particular technology that government planners think is the best – such as lithium ion. It is innovation policy if governments seek to support private sector efforts to solve key problems, like batteries and electric charge storage. This means supporting a wide range of firms, including start-ups and technologies, recognizing that, while government needs to support the private sector in its effort to spur battery innovation, neither it nor the private sector can adequately predict which firms and technologies ultimately will win. In short, industrial policy entails a government picking specific firms or technologies, whereas innovation policy refers to governments making strategic investments in and supporting key broad technologies or industries. Governments do play a vital and appropriate role in making investments in strategic and emerging advanced technologies and sectors helping facilitate the transfer of that technology to the marketplace with the explicit intent and purpose of driving economic growth.

However, governments should not pick specific companies or technologies to be national champions, nor should they exclude local operations of foreign enterprises from eligibility to receive government funding for research grants working on next-generation technologies or otherwise disadvantage foreign competitors competing in their markets.

To summarize, innovation comes in a multitude of forms, including products, services, production, services, production or business processes, organizational models, business models, social innovations (innovation directed toward specific societal grains) [6]. Within these dimensions, innovation can arise at different points in the process, including conception, research development, transfer (the shift of the ‘technology’ to the production organization), production and deployment, or marketplace usage. Figure 3 charts the dimensions of potential innovation opportunity in the ‘innovation value chain’.

Figure 3. The innovation value chain.

| Type of innovation | Phase of development | | | | | |
|-----------------------|----------------------|------------------------|----------|-----------|-----------------------|-------|
| | Conception | Research & development | Develop- | Trans-fer | Production/Deployment | Usage |
| Products | | | | | | |
| Services | | | | | | |
| Production processes | | | | | | |
| Organizational models | | | | | | |
| Business models | | | | | | |

To be most effective, countries’ innovation activity should be found along all matrices of the innovation value chain- in all types of innovation and along all phases of development. But one of the biggest mistakes countries make with their innovation strategies is that they define innovation too narrowly. In reality, many countries focus their innovation activity only on products and even then, only a sub-set of products tradable on international markets. As figure 4 depicts, many countries only focus on obtaining the intellectual property for an innovative product and then developing, manufacturing and exporting it.

Indeed, building their economies around high-productivity, high-value-added, export based sectors, such as high tech or capital-intensive manufacturing sectors, appears to be path that nations such as China, Indonesia, Malaysia, Russia and others are following, in the footsteps of Japan and the Asian tigers – Chinese Taipei, Hong Kong, Korea and Singapore – before them. These countries place the vast majority of their innovation focus on supporting the manufacturing and export of internationally tradable products, while generally giving short shrift to their domestic services industries [7]. This is unfortunate for countries, because export-led growth strategies leave broad swaths of opportunity to innovate in services, business models and organizational models untapped, despite the fact that, in most nations, especially large and mid-sized nations, the non-traded sector is substantially larger than

the traded sector. Moreover, the OECD has shown that technology-using industries have higher-than-average productivity and employment growth than industries that use less technology [8].

Figure 4. Focal point of innovation in Export-led growth countries.

| Type of innovation | Phase of development | | | | |
|-----------------------|----------------------|----------------------|----------|-----------------------|-------|
| | Conception | Research&Development | Transfer | Production/Deployment | Usage |
| Products | | | * | * | |
| Services | | | | | |
| Production processes | | | | | |
| Organizational models | | | | | |
| Business models | | | | | |

In summary, innovation policy recognizes that, while the private sector should lead innovation, in an era of globalized innovation and intensely competitive markets, governments can and should play an important enabling role in supporting private sector innovation efforts.

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ИНДУСТРИАЛДЫҚ-ИННОВАЦИЯЛЫҚ САЯСАТ ӨНЕРКӘСІП САЛАСЫНЫҢ ДАМУЫНЫҢ ҚОЗҒАУШЫ КҮШІ РЕТІНДЕ

Әлемдік экономиканың алдыңғы қатарлы озық тәжірибелерін игеруге және оны ұтымды пайдалана білуге талпынған мемлекеттер үшін бүгінгі уақыттағы басты мәселе индустриалды-инновациялық экономиканы қалыптастыру болып отыр. Индустриалды-инновациялық экономиканың басты ерекшелігі – ғылыми сыйымды, технологиялық өңделу деңгейі жоғары өнімдерді шығаруға икемді өндірістік және инновациялық инфрақұрылымның болуы.

Осы тұрғыдан алғанда Қазақстан Республикасында аталған бағыттарда көптеген жұмыстар атқарылып келеді. Атап көрсетер болсақ, 2003 жылы елдің инновациялық-индустриялық дамуын қалыптастыру және экономиканың нақты, түпкі өнім өндіру секторын өркендету әрі әртараптандыру мақсатында «Қазақстан Республикасының Индустриялық-инновациялық дамуының 2003-2015 жылдарға арналған стратегиясы», 2005 жылы «Қазақстан Республикасының Ұлттық инновациялық жүйесінің қалыптасуы мен дамуының 2005-2015 жылдарға арналған бағдарламасы», ел экономикасының инновациялық белсенділігін көтеру мақсатында 2006 жылы ҚР «Инновациялық қызметті мемлекеттік қолдау туралы» Заңы қабылданды.