EUROPEAN INNOVATION POLICY IN THE BULGARIAN INDUSTRIAL SECTOR

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Abstract
The industrial sector in Bulgaria has undergone a significant transformation in recent decades. Since the country’s accession to the European Union in 2007, Bulgaria has made significant efforts to modernise its industrial base and bring it in line with EU standards. While initially dominated by traditional industries such as metallurgy and textiles, Bulgaria is actively seeking to diversify and specialise in high value-added sectors, including advanced manufacturing, information and communication technologies and biotechnology. The aim of this paper is to examine the development of the industrial sector in Bulgaria in the context of European innovation policy. The main tasks to be accomplished are related to the study of the objectives, strategies and instruments implemented by Bulgaria to promote innovation and improve competitiveness in its industrial sector. The expected outcomes are: by analysing policy impact, successes and areas for improvement, to provide clarity on how Bulgaria’s industrial sector can harness the potential of emerging innovations to remain competitive in an increasingly dynamic global market.

Keywords: innovation policy; innovation system; instruments for innovation policy; industrial sector

JEL Codes: O31, O33, O36

1. Introduction
The rapidly evolving global landscape of the 21st century requires constant reinvention and modernisation of industries to maintain competitiveness. Some of the main characteristics of the external environment of enterprises are its strong volatility and high dynamism, the continuous intensification of competition in industry and/or regional markets, the extremely rapid development of information technology, leading to major changes in the conditions of competitive struggle (Dimitrova, 2014, p. 5). In the conditions of such a multifaceted and complex competitive environment, characterized by a high degree of dynamism and instability, at the present stage enterprises are faced with a number of topical problems affecting all areas of their business activities (Dimitrova, 2023; Filipova, 2004; Logodashki, 2019; Yuleva, 2019c). In this pursuit, innovation plays a key role in stimulating economic growth,
promoting sustainable development and ensuring a prosperous future. Moreover, it is innovation that helps not only to build competitive advantage and increase competitiveness, but also to advance scientific and technical progress (Kyurova, Koyundzhyska-Davidkova, 2020, p. 200; Filipova, 2005, p. 55; Kalaydzhiieva, 2014, p. 110; Prokopenko, 2011, p. 168). It is necessary to take into account that creativity contributes to stimulating innovative behavior and to using more fully the innovative potential of managers and employees in the enterprise (Kyurova, 2020, p. 363). Recognizing the importance of innovation, the European Union (EU) has formulated comprehensive policies to stimulate progress in Member States. Among these nations, Bulgaria, with its thriving industrial sector, is embarking on a path towards using European innovation policy to propel its enterprises forward.

As a member of the EU since 2007, Bulgaria is gradually aligning itself with the main objectives of the European innovation policy. This overarching framework aims to promote R&D, improve access to finance, strengthen public-private partnerships and boost the entrepreneurial spirit in Member States. With a specific focus on the industrial sector, the EU seeks to facilitate the transformation of traditional business by encouraging the adoption of advanced technologies, fostering collaboration between business and research institutions and nurturing a culture of innovation in the industrial sector in Bulgaria.

From manufacturing to engineering, Bulgaria's industrial sector plays a central role in the country's economy, contributing significantly to exports, employment and overall economic activity. However, as technological advances continue to change the state of the industrial sector, businesses must adapt to the changing demands and expectations of consumers and investors. In this context, the European innovation policy represents a comprehensive toolbox that enables Bulgarian industrial enterprises to embrace change and research and development-oriented practices, and to foster cooperation with other stakeholders to unlock their full potential.

Important in this process are government policies to promote innovation, increased R&D investment for industrial enterprises, the impact of public-private partnerships, the challenges faced by small and medium-sized enterprises (SMEs) and the role of entrepreneurial culture in stimulating innovation. On this basis, the aim of this paper is to offer a comprehensive overview of the implementation of European innovation policy and its effects on the Bulgarian industrial sector.

2. Innovation policy objectives, strategies and instruments in Bulgaria

Our country, as a member of the European Union, pursues its innovation policy in compliance with the European Directives on Innovation. It is important that we strive to follow the developed European countries in terms of the results obtained from an innovation policy in order to be competitive on the European market. Economic growth and the development of the country are priority objectives of innovation policy. Filipova and Yuleva point out that innovations are the basis for the high
competitiveness of Bulgarian enterprises, the transition to a digital economy, as well as a key factor for the realization of a green economy (Filipova & Yuleva-Chuchulayna, 2020, p. 471). They add that the green economy is a model of economic development that implies a responsible attitude of man to the Earth's resources. Innovation in practice is used to gain strategic advantage, create new market niches, reduce production costs, provide higher employment and profits. Innovation grants competitiveness and a stable and sustainable over time successful presence in the market (Kalaidjieva, 2016).

If we consider the activity of an innovative enterprise, innovation policy takes the place of a link between research policy and industrial policy. Kyurova has a more specific view of the innovation policy of the enterprise. Starting from the marketing activity of the enterprise, she considers the creation of new products or new markets for the enterprise as part of its innovation policy (Kyurova, 2013, p. 20).

The Ministry of Innovation and Growth has as its main objective the development of traditions in education and science as well as the development of modern technologies. It is the institution that supervises, organises and coordinates the implementation of state policy in the field of innovation, as well as technological and economic development (Ministry of Innovation and Growth, 2022).

The ultimate goal of our country's innovation policy is to achieve a knowledge-based economy and smart growth. This goal can be achieved through measures in the areas of education, science, innovation, technology and the interconnection between them (Ministry of Innovation and Growth, 2022). Yuleva describes that the problem of the renewal of the national economy of small countries (such as Bulgaria in the EU), which are not among the leaders in the world economy, is a major problem that has not been solved in both theoretical and practical aspects. It is important to note that through innovation and proper innovation policy companies can achieve better competitiveness among others in the industry (Yuleva-Chuchulayna, 2019a, p. 283).

The final goal of our country's innovation policy thus formulated is close to the priorities set in the evolutionary generation of open innovation, namely the sixth generation of the evolutionary model. There, the creation and development of knowledge-based innovations is a guiding principle.

Like any strategic objective, the goal of our innovation policy should be achieved through the implementation of set tasks. The website of the Ministry of Innovation and Growth of the Republic of Bulgaria (the Ministry of Innovation and Growth) structures the tasks to be carried out in relation to the realisation of the innovation policy objectives.

These tasks cover innovation in the following sectoral policies:

- Green Economy;
- Digital Economy;
- Space Policy;
- Defence;
The Green Economy aims to tackle the adverse effects of climate change, to implement the Green Transition, thereby increasing competitiveness and also the growth of the economy.

The digital economy is also key to innovation and economic growth. As our country is part of the European Union, we actively share European policies. Bulgaria is part of the European policy on the exploration and use of space for peaceful purposes.

In addition to the European Union, our country is also a member of the North Atlantic Treaty Organization (NATO), which makes us participants in the NATO Innovation Fund, founded in 2021 and to which our country was admitted on 8th June, 2022. The NATO Fund will support new businesses and other high-tech companies that are aligned with NATO's strategic objectives.

European cooperation as a task focuses on active participation and cooperation with international partners in the framework of European programmes and initiatives. The specific instruments for the implementation of the set tasks are:

- National Development Programme BULGARIA 2030;
- Innovation Strategy for Smart Specialisation 2021 - 2027;
- Legislative framework;
- National Innovation Fund;
- Financing enterprises under the National Recovery and Sustainability Plan;
- Enterprise Finance under the Enterprise Competitiveness and Innovation Programme 2021-2027.

For the purpose of the study and for the sake of clarity, in Table 1 we will present the strategic documents that serve as instruments for achieving the innovation goals of our country and explain their nature.

**Table 1. Innovation policy instruments**

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<tr>
<th>Innovation policy tool</th>
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<tr>
<td>National Development Programme BULGARIA 2030</td>
<td>The strategic framework document determines the vision and overall objectives of development policies in all sectors of government. The document's three strategic objectives and national priorities include: - accelerated economic growth; - demographic boom; - reducing inequalities (Ministry of Finance, 2020).</td>
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<td>Smart Specialisation Innovation Strategy 2021-2027</td>
<td>It is expressed in the relationship between regions and the EU. The aim is for regional policies to help create competitive advantage.</td>
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<td><strong>Legislative framework</strong></td>
<td>The focus is on the preparation of a Law on the Promotion of Research and Innovation, as well as the definition of principles and rules to regulate the financing of technology transfer (Ministry of Innovation and Growth).</td>
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<td><strong>National Innovation Fund</strong></td>
<td>The Fund aims to promote research and development to increase the competitiveness of enterprises (Ministry of Economy).</td>
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| **Financing enterprises under the National Recovery and Sustainability Plan** | Enterprise finance options include:  
- technological modernisation;  
- ICT solutions and cyber security for SMEs;  
- Investments to combine renewable sources for electricity with local storage facilities;  
- funding for innovative enterprises that have been awarded the European Innovation Council quality label (Council of Ministers of the Republic of Bulgaria, 2022). |
| **Enterprise Finance under the Enterprise Competitiveness and Innovation Programme 2021-2027** | Funding opportunities under this strategy paper include:  
- developing innovation in enterprises;  
- supporting research and development in research and knowledge dissemination enterprise (Ministry of Innovation and Growth). |

*Source*: compiled by the author from material on the website of the Ministry of Innovation and Growth, *Innovation*, https://www.mig.government.bg/politiki-i-strategii/inovacziii/

It is important to point out that the strategic objectives set out in the National Development Programme include all the most important socio-economic problems that may hinder the innovative development of the country. Innovation policy in the industrial sector, in our opinion, can have the most effective impact on the first strategic objective - accelerating economic development.

In all the strategic documents reviewed, alongside resources, financial position and the creation of competitive advantages, attention is paid to the role of human resources, which take a leading role in the innovation process. Knowledge is the most valuable resource in modern technological development.

**3. National innovation system and industrial sector**

In this paper the focus is on the industrial enterprise. In the implementation of innovation policy, one of the stages, as already mentioned, is the control of the implementation of innovation development measures. On the basis of the results of
the monitoring of the implementation, the extent and existence of positive innovation development can be reported.

In his study examining the global experience in building innovation systems in agro-industrial complexes in countries applying an alternative model of innovation policy, Tireuov (2013), subdividing innovation development into sectoral, outlines the following important trends in the development of sectoral innovation systems:

- Orientation towards a multidisciplinary approach - this includes the development of scientific fields to allow the coverage of all sectoral activities for a given industrial complex. Activities such as innovation in the sector, non-traditional production systems, intensification of production, the use of modern information technology and other key processes require the systematisation of the knowledge accumulated in different scientific fields, which in turn leads to the emergence of new scientific schools for the development of regional competence in new areas of the sector; the problems of each productive sector must be studied in relation to the impact of sectoral problems on other areas of activity. This can contribute to the consideration of the problem, from a scientific point of view, by more specialists from each of the fields involved in solving the scientific problem. This effectively means more in-depth research and higher value scientific outputs for a given sector (Tireuov, 2013).

- Integrating basic and applied research into a unified system - initially only specialisation is applied, except in highly developed countries where basic science operates autonomously outside applied science. These highly developed countries include the USA, Germany, France, etc. In the developed sectoral innovation systems of industry and agro-industry, as a rule, there is a deepening of specialization in the field of basic research by the public sector, and applied research is carried out independently or in partnership with private organizations, in subordination to their social relevance or other factors that negatively affect the attractiveness of research for the private sector (Tireuov, 2013).

- Enhancing international cooperation - The global problem of resource scarcity is giving rise to increased international cooperation processes in the field of manufacturing sector research. A significant part of research should be conducted in partnership with foreign organisations. In this way, the development and absorption of new methods and the saving of resources through joint funding are achieved (Tireuov, 2013).

It should be noted that even if all the above trends are observed and applied, there is not enough similarity of the different national innovation systems in terms of production activity. It is important to maintain the aspiration to combine the best foreign experience with the characteristics of the traditional innovation system. To identify priority areas of research, a structure is formulated which includes issues such as the competitiveness of the product as well as its impact on environmental factors.
In countries with a developed innovation system R&D funding should be jointly provided by the state and private organisations. Publicly funded research is generally of a fundamental nature.

In countries with developing innovative systems the focus is on funding applied research that aims to increase labour productivity.

Based on the above innovation trends and taking into account the distinction made by Mamatova (2017) regarding the types of national innovation systems, we can draw the following conclusions:

Firstly. Although countries belonging to the alternative model of national innovation policy cannot, in view of the experience of observation, move towards a Euro-Atlantic or Eastern model entirely, they can still develop their innovation activities jointly with countries applying the other two models. This points to the possibility of implementing partial innovation technologies that could contribute to the integration of countries applying the alternative model into common activities with countries applying the other models;

Secondly. Countries where all stages of the innovation process are missing and the innovation cycle is reduced to the most resource-intensive activities - material and human - can still achieve commensurate results through appropriate collaboration.

Georgieva (2008) analyzes the state and potential for development of the national innovation system of Bulgaria in her paper, in which she reveals the elements of the national innovation system of the country after our accession to the European Union. The importance of the national innovation system of the country for innovation policy and innovation development is expressed in the direct link between the activities of planning and implementation of innovation strategies, set in the innovation policy and following the national innovation model and its principles. According to Yuleva, “today innovation is one of the key characteristics of entrepreneurial behavior, which is significantly related to the competitiveness of enterprises and determining the innovation policy of all in the industry” (Yuleva-Chuchulayna, 2019b, p. 350)

According to Freeman (Georgieva, 2008, p. 90), national innovation systems should be seen as "... a network of public and private sector institutions whose activities and interactions initiate, introduce, change and diffuse new technologies". Georgieva (2008) argues that Bulgaria's innovation system is still at a nascent stage. In the process of increasing the effectiveness of the state's functions in innovation policy, namely: planning, regulation, coordination and control, our innovation system has the opportunity to get closer to developed European countries and to expand its innovation activities by improving the stages in innovation processes.

Our membership in the European Union and the requirements we have to fulfill on the measures set to improve our innovation policy according to the European directives gives us the opportunity to put our country on a higher level in the field of innovation.
In our recent past, before the beginning of the transition to a market economy, agro-industrial complexes, created by merging the pre-existing Workers' Cooperative Agricultural Farms and State Agricultural Farms, were the main way to achieve results from productive activity on the basis of enterprise concentration. This part of the history of the development of the agricultural sector in our country has left a lasting imprint on our national psychology and, apart from joining the countries belonging to the alternative model of national innovation policy, this innovation policy of our country in the productive aspect has made it difficult for us to subsequently move towards a Euro-Atlantic model of national innovation policy, or at least to expand our innovation process, with elements belonging to developed countries that actively apply fundamental and applied innovations.

In short, if we are able to change the essence of the national consciousness and traditions remaining from the period before 1989, we could achieve more quickly satisfactory results in innovation activity and more effective development of innovation processes. Investment in research and, more generally, our membership of the European Union can help to accelerate our transition towards modernising innovation activity in our country. Knowledge-based innovation, even in combination with open innovation, is the way to modernise and improve the quality of the innovation process for our country.

4. Conclusion

The article focuses on Bulgaria's efforts to stimulate innovation and improve the industrial sector by aligning it with European innovation policies. The development of the industrial sector is characterised by diversification, the introduction of advanced technologies and the establishment of international collaborations. The objectives, strategies and instruments implemented by Bulgaria demonstrate a commitment to enhancing competitiveness, promoting research and development and facilitating technology transfer.

On the basis of the foregoing, we can draw the following conclusions:

Firstly. Bulgaria's innovation policy in the industrial sector reflects its commitment to align with EU directives and promote competitiveness through technological progress. The country has made significant progress in diversifying its industrial base, attracting foreign investment and promoting research and development. Through the implementation of a range of strategies and instruments, Bulgaria seeks to enhance the competitiveness of its industrial sector while promoting cooperation and knowledge exchange. Continued investment in innovation and skills development will be critical to ensuring sustainable growth and long-term success in Bulgaria's industrial sector.

Secondly. By applying the principles of European innovation policy, Bulgaria's industrial sector can reap the significant benefits of technological progress, increase productivity, create competitive advantage and contribute to sustainable economic
growth in the wider European context. Through initiatives such as national innovation funds, innovation clusters and education and skills development programmes, Bulgaria is creating an ecosystem conducive to innovation and entrepreneurship. By attracting foreign direct investment and fostering collaboration between industry and academia, the country aims to harness knowledge and expertise to drive technological progress.

For Bulgaria, however, it is crucial to continue investing in innovation and skills development to sustain the progress made so far. The industrial sector must adapt to rapidly changing technological conditions and remain globally competitive. Strengthening partnerships with other European countries and active participation in EU research and innovation programmes will facilitate knowledge sharing and strengthen Bulgaria's position in the European innovation ecosystem. The country's national innovation policy can continue to follow the examples of developing and developed innovation systems in other EU countries, thus showing results that raise the level of national innovation development.

REFERENCES


