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Promoting Constructive Capital in Bulgaria

Unlocking Bulgarian Regions' Potential for
Private Sector Innovation and Development

PROMOTING CONSTRUCTIVE CAPITAL IN BULGARIA

**UNLOCKING BULGARIAN REGIONS' POTENTIAL
FOR PRIVATE SECTOR INNOVATION
AND DEVELOPMENT**



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Bulgaria, the country with the lowest GDP per capita in the European Union (EU), faces a number of protracted socio-economic challenges. The EU's Recovery and Resilience Facility (RRF) provides the country with the largest ever public funding instrument to address these challenges up to 2027. However, to achieve lasting change the Bulgarian government needs to leverage the EU funding resources to attract constructive capital from the private sector, i.e. investments that are transparent, accountable, and market-oriented.

This report provides an *Action Agenda* for reform and how to attract constructive capital based on an analysis of the EU and national long-term strategic documents and consultations with business stakeholders across Bulgaria's six regions. Bulgaria needs to tackle first and foremost rule of law gaps to unlock constructive capital investments for economic growth and technological transformation. The *Action Agenda* pays special attention to recommendations in the fields of digitalization, green technologies, innovation and entrepreneurship, the priority areas of European public investments. It outlines further opportunities as to how Bulgaria can benefit from international cooperation, such as the Three Seas Initiative.



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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
ARC Fund	Applied Research and Communications Fund
BAS	Bulgarian Academy of Sciences
BASSCOM	Bulgarian Association of Software Companies
BRAIT	Bulgarian Employers' Association of Innovative Technologies
BEAM	Bulgarian Enterprise Accelerator Market
BSE	Bulgarian Stock Exchange
BSMEPA	Bulgarian SME Promotion Agency
CEE	Central and Eastern Europe
CoC	Center of Competence
CoE	Center of Excellence
CIPE	Center for International Private Enterprise
CSD	Center for the Study of Democracy
DESI	European Digital Economy and Society Index
DG REGIO	European Commission's Directorate-General for Regional and Settlement Policy
DIGITAL	Digital Europe Program
EEN	Enterprise Europe Network
EIBIS	European Investment Bank Investment Survey
EICP	Enterprise Innovation and Competitiveness Program 2021-2027
EBSI	European Blockchain Infrastructure for Services
EDIH	European Digital Innovation Hubs
EDP	Entrepreneurial Discovery Process
EIC	European Innovation Council
ERDF	European Regional Development Fund
ESIF	European Structural and Investment Funds
EIB	European Investment Bank
EU	European Union
FDI	Foreign Direct Investments
GDP	Gross Domestic Product
GEM	Global Entrepreneurial Monitoring
HEI	Higher Education Institution
I4.0	Industry 4.0
ICT	Information and Communication Technologies
ITSD	Integrated Territorial Strategies for the Development of NUTS II Regions
ITI	Integrated Territorial Investments
IPO	Initial Public Offering
IPR	Intellectual Property Rights
IS3	Innovation Strategy for Smart Specialization
IT	Information Technologies
JEREMIE	Joint European Resources for Micro to Medium Enterprises
MACPI	Monitoring Anti-Corruption Policy Implementation
MFF	Multiannual Financial Framework
NCR	North Central Region
NCSD	National Concept for Spatial Development
NER	North-East Region

NIF	National Innovation Fund
NGEU	Next Generation EU
NGO	Non-Governmental Organization
NWR	North-West Region
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organization for Economic Co-operation and Development
OPIC	Operational Program for Innovation and Competitiveness
OP SESG	Operational Program Science and Education for Smart Growth
R&D	Research and Development
R&I	Research and Innovation
SBA	Small Business Act
SCAD	State Capture Assessment Diagnostics
SCAD-ESL	State Capture Assessment Diagnostics on Economic Sector Level
SCR	South Central Region
SER	South-East Region
SMEs	Small and medium-sized Enterprises
STP	Sofia Tech Park
SWR	South-West Region
TEA	Total early-stage Entrepreneurial Activity
TTO	Technology Transfer Offices
US	United States
VET	Vocational Education and Training

INTRODUCTION

The *Action Agenda* is designed to support structural policy reforms and facilitate Bulgarian SMEs access to local, US and EU constructive capital for technological upscaling and growth. The *Action Agenda* explores and suggests ideas to improve the country's business environment, and thus reduce its pull for corrosive capital, including dependence on networks and technologies from authoritarian states.

The country faces some of the most adverse developmental challenges in Europe. On the one hand, its regions are amongst the least developed in the EU, and lagging behind the average level of their Central and East European counterparts. On the other hand, the country is the most resource, energy, and greenhouse gas emission-intensive economy in the EU suffering from low digitalization.

Constructive capital often remains at bay as investors are concerned about rule of law breaches and unpredictability of the business environment due to frequent regulatory and legislative changes, in addition to a haphazard judicial system and administrative procedures. Despite the availability of considerable EU funding, national and local public authorities have limited capacity to develop and deploy efficient public investment programs to leverage constructive private investments. These structural barriers stifle private investment and hold back the country's potential for growth and high value-added job creation.

In the next seven years the country could receive from the EU a total of EUR 29.8 billion. Bulgaria needs to leverage this largest ever public investment program in its history through closing governance gaps and solidifying good corporate governance and open market competition principles. These efforts should increase Bulgaria's attractiveness to constructive capital linked to the EU's development priorities for the next seven years – green growth (decarbonization) and digitalization. The current *Action Agenda* proposes such a way forward.

The *Action Agenda* builds upon the four key elements that help attract constructive capital¹:

- fostering freedom of association;
- building an accountable business culture that nurtures inclusive growth;
- advancing corporate governance;
- integrating compliance into business models.

¹ The four constructive capital elements have been identified by the [Center for International Private Enterprise \(CIPE\)](#), Washington D.C. For decades, the CIPE has been working to strengthen democracy around the globe through private enterprise and market-oriented reforms. The CIPE has developed the concept of [constructive and corrosive capital](#).

The *Action Agenda* is supplemented by constructive capital profiles of the six Bulgarian regions². The six regional-level profiles provide private sector insights from leading regional associations, clusters and innovation hubs, as well as representatives of SMEs and start-ups in the priority areas for regional and sectoral smart specialization³. The profiles review the advantages and shortcomings of each region, describe the key development priorities in decarbonization and digitalization as per the country’s technological and innovation specialization, and assess the potential of local stakeholders (business, authorities, and research and innovation intermediaries) for achieving them.

The *Action Agenda* uncovers the main barriers to constructive capital inflows and offers integrated policies and measures for leveraging public investments into private sector development, technological upgrades and the local innovation ecosystem.

The focus is on a small number of critical areas such as green growth (decarbonization), digitalization and innovation. They are recognized as enabling factors for unleashing the constructive potential of entrepreneurs, start-ups, SMEs and large business and enabling Bulgarian regions to catch up with European levels of productivity, energy efficiency and quality of life.

Box 1. Constructive vs. Corrosive capital	
Constructive capital	Corrosive capital
<p>Definition: Constructive capital refers to financial flows that are well-governed at both the funding source and destination and respond to market gaps.</p> <p>Indicators: Transparent terms and entry into the market, accountable to a wide array of local stakeholders and institutions, improving democracy in the recipient country; justification is based on market principles.</p>	<p>Definition: Corrosive capital is financing, whether state or private, that lacks transparency, accountability, and market orientation.</p> <p>Indicators: Originating mainly from authoritarian regimes, it exploits and exaggerates governance gaps to influence economic, political, and social developments in recipient countries. It feeds corruption and weakens democracy.</p>

Source: The Center for International Private Enterprise.

² According to the European Nomenclature of Territorial Units for Statistics (NUTS), Bulgaria is divided into six planning regions, three in the north and three to the south: North-West Region, North Central Region, North-East Region, South-East Region, South Central Region and South-West Region.

³ As mandated by European Union rules Bulgaria has adopted an [Innovation Strategy for Smart Specialization 2014–2020 \(IS3 2014-2020\)](#) for guiding European funds’ investments towards the most promising sectors and activities A new IS3 is developed for the period 2021-2027.

BECOMING A CONSTRUCTIVE CAPITAL DESTINATION

Bulgaria is a capital-poor country, both in terms of financial and human resources.⁴ The country has some of the lowest labor costs in the EU and low and flat corporate and income taxes. Yet, after fourteen years of EU membership and over 30 years of transition to democracy and a market economy, the country is still vulnerable to corrosive capital. Constructive capital investments remain constrained. The country lags behind the EU average and the performance of its Central and East European peers in terms of innovation potential, digitalization and green transformation. A number of governance gaps in the business environment, such as systemic corruption, remain unresolved⁵. The COVID-19 crisis has further dampened demand for reforms and has increased the risks of corrosive capital, as governments have introduced emergency spending measures and temporarily suspended competition and oversight mechanisms.

Despite these challenges, over the next 5-7 years the Bulgarian government, civic and business leaders will be presented with a unique set of opportunities to further reform the economy and set the country on a stable growth path. To realize these opportunities, Bulgaria needs to work closely with its US and EU partners within strategic regional cooperation initiatives, such as the Three Seas Initiative and within European governance coordination mechanisms, such as the Rule of Law Mechanism⁶, the Democracy Action Plan⁷ and the European Semester⁸. The EU will provide Bulgaria up to 2027 with the largest ever public sector investment package in the history of the country, with priorities focusing on green transformation and digitalization. Bulgaria needs to adopt a bold and coherent set of reforms to ensure these public investments leverage private sector constructive capital to ensure sustained modernization and growth of the Bulgarian economy over the coming decades.

⁴ Stefanov, R., Boekholt, P., Pontikakis, D., *POINT Review of Industrial Transition of Bulgaria*, EUR 30643 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-32322-8, doi:10.2760/241737, JRC 123901.

⁵ U.S. Department of State, *2021 Investment Climate Statements: Bulgaria*, Bureau of Economic and Business Affairs, 2021.

⁶ [The European rule of law mechanism](#) is a preventive tool, aiming to promote the rule of law and prevent challenges to it from emerging or existing conditions deteriorating.

⁷ [The European Democracy Action Plan](#) is designed to empower citizens and build more resilient democracies across the EU by promoting free and fair elections, strengthening media freedom and countering disinformation.

⁸ The [European Semester](#) provides a framework for the coordination of economic policies across the EU. It allows EU countries to discuss their economic and budget plans and monitor progress at specific times throughout the year.

Table 1. Public resources for attracting constructive capital for recovery and smart transition

Initiatives and instruments	Expected budget	Time period	Source
Recovery and Resilience Mechanism, part of the „Next Generation EU“ (2021-2024) of the European Recovery Plan	EUR 6.217 billion in grants and EUR 4.549 billion in loans	2021-2026	National Recovery and Resilience Plan
Cohesion and Common Agricultural Policy	EUR 9 billion in total for all programs	2021-2027	Research, Innovation and Digitalization for Smart Transformation Program Competitiveness and Innovation in Enterprises Program Other programs
REACT-EU	EUR 656 million (MFF 2021-2027, NGEU 2021-2024)	2021-2022	Decision № 573 of 2020 approving the indicative financial allocation under operational programs 2014-2020 of EU funds in support of overcoming the effects of the crisis caused by the COVID-19 pandemic
Just Transition Fund, first pillar of the Just Transition Mechanism	EUR 1.178 billion (MFF 2021-2027, NGEU 2021-2024)	2021-2027	Territorial Just Transition Plans (deadline for preparation September 2021)
Three Seas Initiative	> EUR 1 billion total budget for all countries (as of July 2021)		Three Seas Initiative Investment Fund
Bulgaria's accession to the Eurozone	----	After 2024	National plan for introduction of the euro in the Republic of Bulgaria
Bulgaria's membership in the Organization for Economic Co-operation and Development (OECD) ⁹	----	2021-2023	Roadmap for deepening cooperation with OECD

Source: ARC Fund based on review of public data and documents.

⁹ The government has approved a new three-year Roadmap (2021-2023) for deepening co-operation with the OECD. The Roadmap aims to fulfil the commitments already made in cooperation with the OECD on the basis of amendments in [Decision No. 789 of the Council of Ministers of December 2017](#). The Decision also streamlined the Interdepartmental Coordination Mechanism for Bulgaria's accession to the OECD and adopted a proposal for financing the pre-accession period 2018-2020.

In the aftermath of COVID-19, Bulgaria is set to receive from the EU EUR 6.2 billion in grants from the Recovery and Resilience Facility and can access loans worth EUR 4.5 billion over a six-year period (2021-2026). The Facility is the centerpiece of the Next Generation EU (NGEU), a temporary recovery instrument that will provide significant support to promote the sustainable and inclusive growth of Bulgaria, as well as the digitalization of priority sectors. To access these funds, Bulgaria has developed the National Recovery and Resilience Plan. The plan is built on four main pillars of reform and financial support:

- Innovation;
- Climate Transition and Nature Protection;
- Connectivity;
- Social Justice.

The plan addresses specific recommendations from the European Semester, containing reforms for economic growth and regional cohesion of the EU member states. According to the EU rules, member states, including Bulgaria, should endow the plan with a strong thematic concentration towards environmental and digital transition of at least 37% for green investment and 18% for digitalization.

At the same time, member states of the EU need to apply the smart specialization approach as a tool for balanced regional development. This approach mandates countries and regions to identify and select a limited number of priority areas for knowledge-based investment, focusing on their strengths and comparative advantages through consultations with local private sector stakeholders, a process known as entrepreneurial discovery.

The Innovation Strategy for Smart Specialization (IS3) is a strategic document of Bulgaria's vision for policy change and overcoming the socio-economic challenges and regional disparities in the country. The main industrial thematic areas of specialization outlined in the IS3 for 2021-2027 are:

- Informatics and ICT;
- Mechatronics;
- Industry for Healthy Living and Biotechnology;
- New Technologies in Creative and Recreational Industries.

The thematic area Clean Technologies and Circular and Low-Carbon Economy is a horizontal priority and is applied across all regions and districts of the country.

Table 2. Priorities for smart specialization of Bulgaria's 28 districts and 6 regions

Regions	Districts	Thematic priorities				
		Informatics and ICT	Mechatronics	Industry for Healthy Living and Biotechnology	New Technologies in Creative and Recreational Industries	Clean Technologies, Circular and Low-carbon Economy
North-West Region	Vidin			✓	✓	✓
	Vratsa		✓	✓		✓
	Lovech			✓	✓	✓
	Montana		✓	✓		✓
	Pleven		✓	✓		✓
South-West Region	Sofia City	✓	✓			✓
	Sofia	✓		✓		✓
	Pernik			✓	✓	✓
	Kyustendil			✓	✓	✓
	Blagoevgrad	✓			✓	✓
North Central Region	Gabrovo	✓	✓			✓
	Veliko Tarnovo			✓	✓	✓
	Razgrad		✓	✓		✓
	Ruse	✓	✓			✓
	Silistra	✓	✓			✓
South Central Region	Plovdiv	✓		✓		✓
	Pazardzhik		✓	✓		✓
	Kardzali		✓	✓		✓
	Smolyan		✓	✓		✓
	Haskovo	✓	✓			✓
North-East Region	Varna	✓	✓			✓
	Dobrich		✓	✓		✓
	Targovishte		✓	✓		✓
	Shumen			✓	✓	✓
South-East Region	Burgas		✓	✓		✓
	Sliven		✓	✓		✓
	Stara Zagora	✓	✓			✓
	Yambol		✓			✓
Total for the country		10	19	20	7	28

Source: IS3 2021-2027.

THE ACTION AGENDA: REFORMS FOR CONSTRUCTIVE CAPITAL

Concrete measures to promote economic growth cannot on their own achieve the desired results and impact unless issues of state capture are dealt with.¹⁰ Specific reforms related to European and national priorities, including digitalization and the green transition, innovation and entrepreneurship, can only be effective if this is confronted. The *Action Agenda* outlined below shows which general, sectoral and thematic reforms the country needs in order to attract constructive capital and close the governance gaps that has thus far enabled the rise of corrosive capital.

General reforms

Rule of law

Corruption and non-compliance with the law are major barriers to leveraging domestic and attracting foreign investors and revealing the full potential of Bulgarian business.¹¹ State capture and corruption continue to be critical impediments to Bulgaria's growth and development. They continue to entice corrosive capital as a deterrent in the eyes of investors (outflow of foreign investment, investment in low-tech activities) and when deciding on qualifications and career development (brain drain in various forms and channels).

In this regard, the EU's Annual Sustainable Growth Strategy¹², the main instrument for aligning the annual economic coordination cycle¹³ with the different funding priorities of the EU¹⁴, focuses on preconditions for the business environment, the provision of which at the national level can enable the achievement of the needed rule of law reforms:

- independent and efficient judicial systems;
- solid anti-corruption regulations;
- efficient functioning of public procurement;
- effective insolvency regulations;
- efficient tax systems.

¹⁰ Center for the Study of Democracy, *State Capture Unplugged: Countering Administrative and Political Corruption in Bulgaria*, Sofia: CSD, 2016.

¹¹ U.S. Department of State, *2021 Investment Climate Statements: Bulgaria*, Bureau of Economic and Business Affairs, 2021.

¹² Communication from the Commission to the European Parliament, the European Council, the Council, the European Central Bank, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank *Annual Sustainable Growth Strategy 2021*, Brussels, 17.9.2020, COM (2020)575 final.

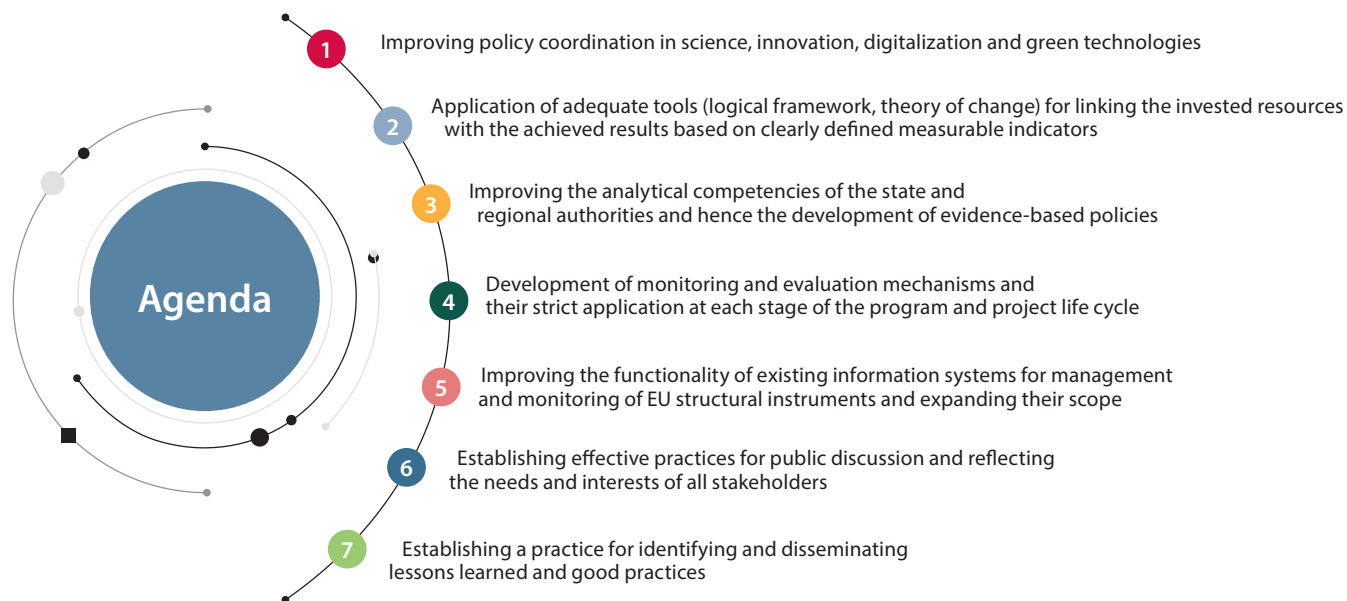
¹³ European Commission, *The European Semester Initiative*, 2021.

¹⁴ The two main sources of EU funding: the regular *Multiannual Financial Framework*, which the member states agree every seven years, and the emergency funding for recovery, resilience and transformation called *GenerationNextEU*.

These reforms coincide with those outlined in the EU's Annual Rule of Law Report, as well as the findings for Bulgaria of the State Capture Assessment Diagnostics (SCAD).¹⁵ The government, business, and civil society leaders should adopt a similar annual cycle approach to designing, implementing and evaluating effective policy instruments at national, regional, institutional and company level for monitoring and mitigating state capture, and hence corrosive capital risks. The SCAD family of diagnostic instruments (National level assessment (SCAD), Sectoral level assessment (SCAD-ESL), Institutional level anti-corruption assessment (MACPI) and red-flagging in public procurement) is an appropriate starting step for achieving that. Rule of law reform steps need to include:

- design and implementation of general policies in the field of rule of law, media freedom and the justice system;
- design and implementation of specific policies concerning the most vulnerable economic sectors and public institutional practices;
- exhaustive investigations by law enforcement authorities, regulatory and oversight institutions and independent media and NGOs into specific cases of corrosive capital.¹⁶

Figure 1. Action Agenda for attracting constructive capital: the rule of law



Source: CSD and ARC Fund.

¹⁵ Stoyanov, A., Gerganov, A., and Yalamov, T., *State Capture Assessment Diagnostics*, Sofia: Center for the Study of Democracy, 2019.

¹⁶ Galev, T., Gerganov, A., and Todorov, B., *State Capture Deconstructed: Risk Measurement in Vulnerable Economic Sectors in Europe*, Sofia: Center for the Study of Democracy, 2021.

Effective policy making

In order for Bulgaria to take full advantage of the benefits of European funding over the next seven years, the country must build and update the professional, analytical and technical capacity of national institutions. Good governance, effective institutions and quality public administrations are part of the priorities of the EU's Annual Sustainable Growth Strategy.

Improving the preparation and implementation of policies and programs supported through EU funding can be sought – at the least – in the following areas:¹⁷

- Design of policies and tools

The decision-making and policy-making process need to be rendered more transparent and objective. Support mechanisms for the private sector need to be evidence-based and rely to a higher extent on in-depth needs analyses and evaluations. There should be a better match between program objectives (what the instruments are trying to achieve) and program activities (what the instruments actually do). There should also be clearly defined measurable indicators to assess progress in the short and long term.

- Administering the implementation of policies and tools

Bulgarian public administration lacks sufficient capacity for implementing support measures, in particular in the country's regions. There is a need to allocate more human and financial resources for implementation, significantly reduce unnecessary bureaucratization of procedures and interactions with beneficiaries, as well as unjustified delays in decision-making and payments. One underused option for overcoming capacity constraints is for the government to step up the use of international partners and the private sector.

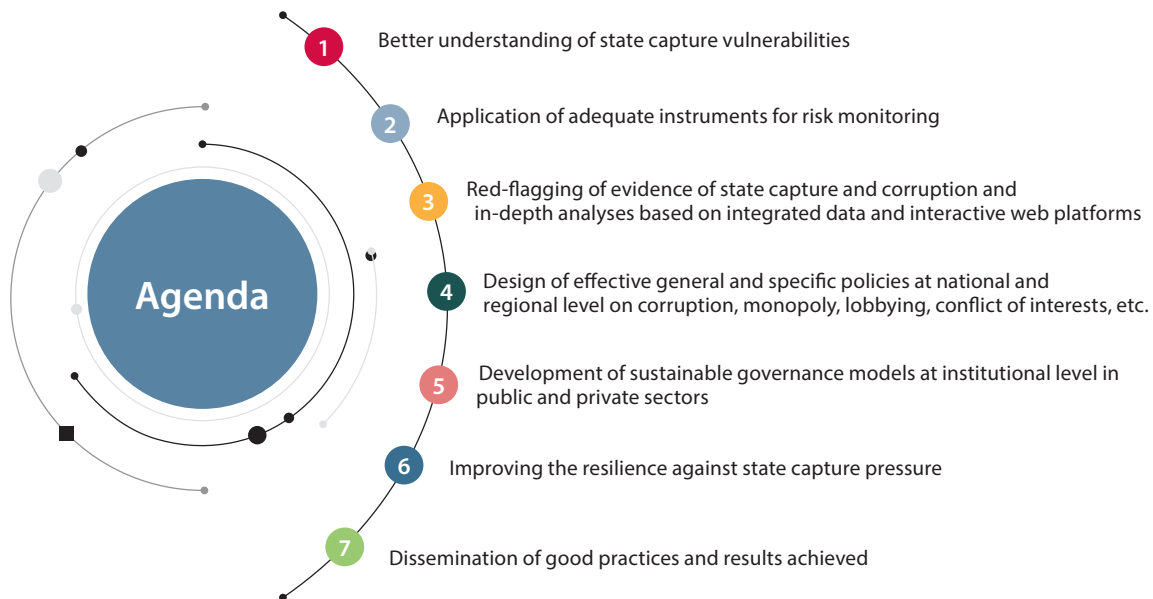
- Management and coordination

Management of policies and instruments requires a much higher degree of interaction and coordination between different ministries and agencies. Interdepartmental consultative units with the participation of the private sector have been set up, but need to be de facto empowered to make and implement decisions concerning policy integration. They need to develop monitoring and evaluation mechanisms and integrate them in management procedures. Bulgaria needs to upgrade availability of and access to public and private sector data for policy-making and implementation.

¹⁷ Masic, J. et al., *An Analysis of the Possibilities to Implement Territorial Instruments: Program for Development of the Regions 2021-2027*, Washington, D.C.: World Bank Group, 2021; Andonova, E. et al., *Strategic evaluation of the Bulgarian Centres of Competence and Centres of Excellence and recommendations for their further development*, Kert, K., Mosca, J. (ed.), European Commission, Brussels, 2021, JRC123084.

Two recent attempts by the Bulgarian government to introduce better management and coordination in the critical domain of research and innovation could provide a pilot for improving management and coordination via the involvement of the private sector and international partners. In 2021, Bulgaria launched the State Agency for Research and Innovation at the Council of Ministers¹⁸ and the Innovation Hub at the Ministry of Economy.¹⁹ The agency also already launched cooperation with its peers in Central and Eastern Europe under the Three Seas Initiative.

Figure 2. Action Agenda for attracting constructive capital: effective policy making



Source: CSD and ARC Fund.

¹⁸ The agency is a newly established state body which aims to implement an integrated the policy on research, innovation and technology transfer in Bulgaria and its regions.

¹⁹ The establishment of the Innovation Hub is an idea of the interim Bulgarian government from July 2021, which aims to unite and synchronize the efforts of the Ministry of Economy, the State Agency for Research and Innovation, the Bulgarian Investments Agency, the National Innovation Fund, the Bulgarian Development Bank, the Bulgarian Export Insurance Agency, and the Bulgarian Small and Medium Enterprise Promotion Agency for attracting and supporting innovative companies with high value-added and export potential. The Hub is intended also to convene a board of internationally renowned experts to ensure Bulgaria gets the best practice from global experience.

Sectoral and thematic reforms

Digitalization

Digitalization is one of the key priorities of the EU aimed at closing the productivity gap with the US and meeting the challenge from China. CEE and Bulgaria in particular lag considerably behind the EU average in digitalization, with investment stocks per worker several-fold less than in the most advanced economies²⁰.

The Bulgarian information and communication technology (ICT) sector is growing stronger every year by all indicators. In 2020, of the top 100 companies by employment, 21 were in ICT and provided 21% of the employment in the largest companies. Bulgarian ICT companies have twice the innovation intensity of companies that do not operate in the priority areas of smart specialization, and 40% of ICT companies operate in at least one other sector of smart specialization.²¹ In 2020, the ICT sector recorded the largest absolute growth in revenues among all sectors in Bulgaria. The growth of the software industry in 2020 was 10%, against the backdrop of a 5.5% decline in the country's GDP. Even in times of crisis, employment continued growing by 3,500 (a year). The average wage continues to rise (by 4% annually in 2020) and is more than three times higher than the national average.²²

However, the ICT sector is weakly integrated into the rest of the Bulgarian economy. The competences and business capabilities of the ICT sector are mostly geared towards export markets. Other Bulgarian sectors that need ICT as an enabling technology have hardly benefited at all. Regardless of the examples of successful niche high-tech companies in sectors such as biotech, robotics, green technology, agribusiness, it seems that good examples remain isolated and cannot harness their potential for scaling up. The business growth potential has been additionally hampered by the shortage of skilled ICT staff, which is an issue experienced not only nationally but globally.

Apart from the fast-growing ICT sector, Bulgaria lags behind in the use of digital technologies. In 2020, it ranked last in the EU in the [Index for the Entry of Digital Technologies into the Economy and Society \(DESI\)](#). Bulgaria ranks 18th in the EIB Investment Survey 2020²³ on indicators for digital intensity, digital infrastructure, investment in software and data, investments in organizational and business process improvements, and strategic monitoring systems. The EIBIS Digitalization Index reveals that digital adoption rates in Bulgaria are above the EU average and on par with the US in the services and infrastructure sectors. They are below both the EU and US average in the manufacturing and construction sectors.²⁴

²⁰ Novak, J. et al., *The Rise of Digital Challengers: How digitalization can become the next growth engine for Central and Eastern Europe*, McKinsey & Company, 2018.

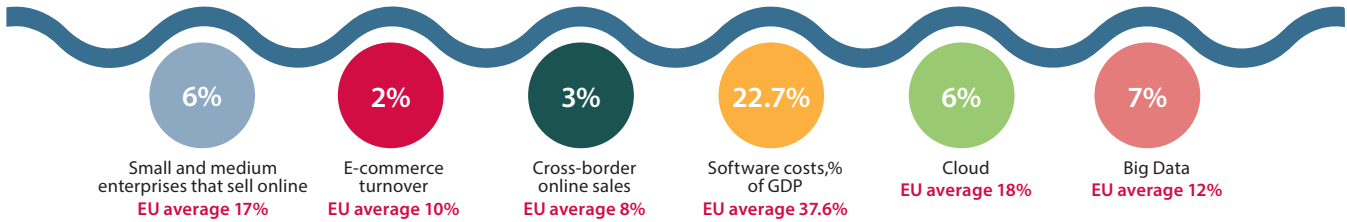
²¹ Georgieva, T., and Yalamov, T., *Innovation.bg 2020: Economic Resilience through Innovation*, Sofia: ARC Fund, 2020.

²² According to the annual survey of the Bulgarian Association of Software Companies (BASSCOM).

²³ European Investment Bank, *Who is prepared for the new digital age? Evidence from the EIB Investment Survey*, 2020.

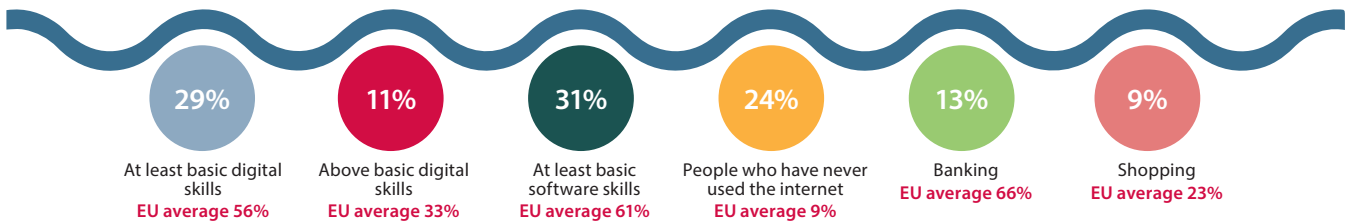
²⁴ European Commission, [Digital Economy and Society Index \(DESI\)](#); Cornell University, INSEAD, and WIPO, [Global Innovation Index](#).

Figure 3. Integration of digital technology



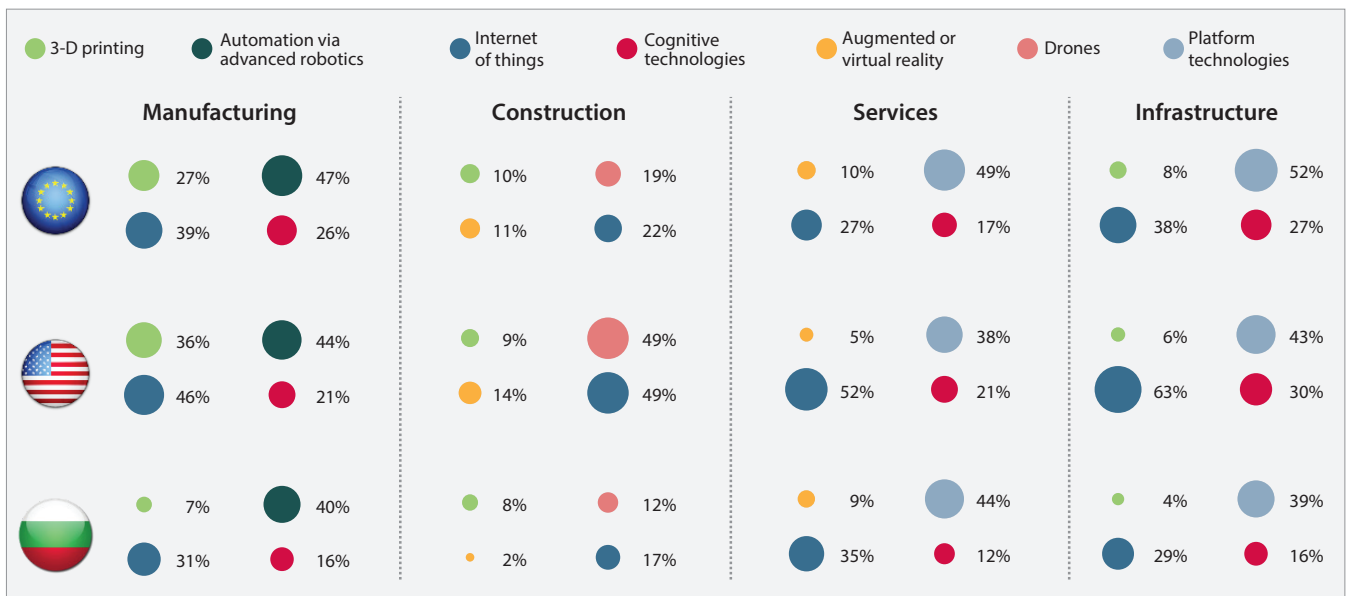
Source: DESI, 2021; Global Innovation Index, 2021.

Figure 4. Human capital



Source: DESI, 2021.

Figure 5. Adoption of digital technologies by sector



Source: European Investment Bank, EIB Group survey on investment and investment finance 2020. Country overview: Bulgaria, 2020.

Over the last 20 years, a number of countries (Estonia is a great example), have driven the innovative development of their economies through large-scale e-government projects, among other things. However, these, although significant, are not the sole driver of their innovation growth. In this respect, Bulgaria remains a laggard. The launch of a new funding instrument with EU support – the Program for Research, Innovation and Digitalization for Smart Transformation 2021-2027 – creates opportunities for linking digitalization with investments in research and innovation, and for overcoming territorial and interregional disparities. This instrument will focus on the implementa-

tion of policies that combine efforts for further development of the national R&D and innovation ecosystem with efforts to accelerate the processes and effectiveness of digital governance for the benefit of citizens and the business environment. Additionally, digital transformation is one of the aspects of the National Recovery and Resilience Plan. Both instruments will have to leapfrog the missed opportunities in previous EU programs. The overall package of strategic documents for Bulgaria to oversee its EU funding support²⁵ includes priorities in the field of digitalization. Measures to promote digital transformation should cover a system of three interrelated elements, which will allow the provision of favorable conditions for attracting constructive capital in the Bulgarian regions:

- industry;
- e-government;
- human resources.

Table 3. Action Agenda for attracting constructive capital: digitalization

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Industry				
Attracting strategic investors in the priority areas of Bulgaria's IS3, including ICT and mechatronics, focusing on the drive to boost digitalization and value added in the Bulgarian industry	<ul style="list-style-type: none"> • The case with the expected Next.e.GO electric car plant investment in North Central Region in Bulgaria confirms that boosting the development of key sectors of the economy related to the green transition can serve as a driving force for the related industries. This will help Bulgarian companies to get more integrated to the global value-chains. 	✓	✓	✓
Fulfillment of Bulgaria's commitments to the initiative Startup Nation Standard ²⁶	<p>The EU member states commit to take actions including:</p> <ul style="list-style-type: none"> • Defining the key features of a Startup across the EU to make it easier to design common policies in their support. • Establish an entrepreneurship friendly environment in favor of new business birth and growth. • Share best practices from Europe and other countries, and take action at national level to support startups and scale-ups at all stages of their development. • Establish a Startup Nations' Hub to promote and enable exchange of best practices among signatory countries and the creation of a common data platform. 	✓		
Fulfillment of Bulgaria's commitments to the Scale-up Europe initiative	The Scale-Up Europe initiative focuses on four key drivers: talent, investment, startup-corporate collaboration and deep tech. Based on these, an actionable strategy and roadmap will be developed at European level.	✓		

²⁵ Ministry of Transport, Information Technology and Communications, [Digital transformation 2020-2030](#); Ministry of Economy, [Industry 4.0](#); Innovation Strategy for Smart Specialization 2021-2027 (the last version sent to the EC by the Ministry of Economy is not publicly accessible); European Structural and Investment Funds, [Research, Innovation and Digitalization for Intelligent Transformation Program 2021-2027](#), [Competitiveness and Innovation in Enterprises Program 2021-2027](#); Ministry of Finance, [National Development Program BULGARIA 2030](#); Ministry of Finance, [National Reform Program](#); Ministry of Economy, [National Strategy for SMEs in Bulgaria 2021-2027](#).

²⁶ In July 2021 Bulgaria joined the EU Startup Nations Standard of Excellence to take action at the national level to implement measures that support start-ups and growing enterprises at every stage of their development.

Table 3. Action Agenda for attracting constructive capital: digitalization (Continued)

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Promoting interaction between enterprises from the ICT and mechatronics sectors with enterprises from other sectors of the economy (such as agribusiness and tourism)	The agribusiness and tourism remain the dominant sectors for employment in a number of regions of the country. Digitalization of their business processes will allow them to increase efficiency and added value. This requires legislative changes, improved access to public services, sharing and implementing of good practices.	✓	✓	✓
Expanding the access of enterprises from traditional sectors to financing aimed at digitalization of business processes	The voucher scheme applied so far by the Bulgarian Small and Medium Enterprises Promotion Agency (BSMEPA) is accompanied by a number of bureaucratic obstacles and delays. The procedures have to be reconsidered, or more flexible instruments have to be put in practice.	✓	✓	✓
Strengthening the domestic consumer and public demand, particularly for digital products and services	Overall, the low levels of digitalization in society as well as in the business sector are currently a barrier for digitalization of the domestic markets as an accelerator to commercialize higher value products and services from domestic suppliers. Public procurement for these products is also modest, although the ambitions to expand eGovernment and digitalization in general could provide opportunities in this respect.		✓	
Improving the requirements for partnership between business and research organizations under the Operational Program “Innovations and Competitiveness” (OPIC) and National Innovation Fund (NIF)	The OPIC and NIF are the most important instruments for achieving the IS3 priorities in Bulgaria through support for private enterprises. Intensifying the cooperation between science and business is one of their objectives. However, enhancing technology transfer to a higher level requires a serious reconsidering of the currently bulky funding procedures.	✓		
E-government				
Development of e-government and digital public services	E-services’ supply and use is insufficient at national and regional level. The administration’s interface is outdated both in terms of functionality and design.	✓		
Development and use of electronic identity services	The national electronic identification scheme envisaged in the Electronic Identification Act is an essential building block for electronic identification and authentication services in electronic transactions in the EU internal market, which seeks to enable citizens and businesses to use their own electronic identification (eID) to access public services in other EU countries where electronic identifiers are available. The national scheme is suffering significant delays and will be not available before 2023. The level of the eID technologies in Bulgaria, although catching up, is outdated and competition for their supply is limited. The Act should allow more private competitive constructive capital to upgrade the sector.	✓		
Registry reform	Public sector registers that hold information about citizens and businesses (e.g., occupational licensing, healthcare information, etc.) are not interconnected and don’t offer ways for integration. A registry reform has been formulated to digitize registers and to upgrade existing ones to meet the demands of real-time communication with the goal of removing paperwork from various processes. Progress so far has been limited to a few major registers, but the vast majority of registers are not yet e-government-ready.	✓		

Table 3. Action Agenda for attracting constructive capital: digitalization (Continued)

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Amendments to the Labor Code to regulate remote work	More employees of high-tech companies are looking for opportunities for remote work. Bulgaria is becoming a popular destination among the so-called “digital nomads”, and better regulation of remote working schemes will contribute to attracting such business and human capital.	✓		
Transition to a „data economy“	According to the European Data Strategy 2030, the availability of more digital data and the improvement of the way it is used is essential to address the challenges in the demographic and socio-economic spheres, climate and environment, contributing to healthier, prosperous and more sustainable societies. This will contribute to the development of evidence-based policies and their efficient implementation.	✓	✓	✓
Optimization of labor legislation and compliance with the specifics of the ICT sector	Business representatives share the opinion that the current labor legislation does not reflect the dynamics of the modern labor market and the mobility of human resources. A number of restrictions apply to the recruitment and dismissal of staff, overtime work and the lack of opportunity for contracting based on an hourly payment in the project-based companies.	✓		
Human resources				
Focus on continuously developing skills and talents (including through vocational training and life-long learning) for the digital green future both in terms of quantity and quality	The country lags behind the EU average in terms of life-long-learning, especially in acquiring digital skills. Enhancing the digital skills of workers in a public-private partnership is an important requirement for attracting more constructive capital to the country’s regions.	✓	✓	✓
Partnerships between public and private sector, as well as between Higher Education Institutions (HEI) and business, in areas such as training and education	Strengthening the interaction with businesses in designing the curricula will increase the quality of the education and close the gap between the qualification of young people and business needs.	✓	✓	✓
Further development of the system of dual and vocational education	According to business representatives, education reforms must prioritize to raise the image of vocational education and the motivation of teachers. This in turn will increase the motivation and interest of students in vocational high schools. Vocational orientation currently starts late and often fails to attract the best students to technical specialties.	✓		
Facilitating the procedures for opening private business academies for training and certification of teachers in the field of robotics and high technologies	At present, only accredited universities and institutes of Bulgarian Academy of Sciences have the right to conduct training and certification in the field of robotics. More private competition should be allowed in the sector to improve the quality of training.	✓		

Source: CSD and ARC Fund.

Box 2. Digital Innovation Hubs

One of the EU instruments focused on bringing together digital technologies, business, citizens and public administrations is the Digital Europe Program (DIGITAL). An important part of the program is the development of European Digital Innovation Hubs (EDIH).

The DIGITAL Program provides support in the following key capacity building areas: supercomputing, artificial intelligence (AI), cybersecurity, advanced digital skills, while ensuring an extensive spread of digital technologies across the economy and society. It has a planned overall budget of EUR 7.5 billion for the period 2021-2027.

The Program complements the funding available through other EU instruments, such as the Horizon Europe for research and innovation and the Connecting Europe Facility for digital infrastructure, the Recovery and Resilience Facility and the Structural funds. Investments under the Digital Europe program support EU objectives for green transition and digital transformation.

Currently, 17 projects from all six regions of Bulgaria have been approved by the Ministry of Economy under the DIGITAL program. One of them is the AgroHub.BG.

AgroHub.BG is the Bulgarian Digital Innovation Hub for agriculture. It brings together knowledge and resources to generate solutions for the agricultural industry to resolve its problems and meet its needs. AgroHub.BG plays a strategic role in building skills and finding innovative solutions to Bulgarian farmers and other representatives of the agrifood sector – private companies, government, research institutions and other organizations and experts. The purpose of the hub is to unite and connect all elements of the production cycle in agricultural production, including research, zoning, production and control, marketing and sales, digitalization processes and implementation of innovative technologies.

Source: ARC Fund.

Green transformation

The adoption of green technologies is important for Bulgaria, both for the protection of the environment, but also for increasing the competitiveness of SMEs in the national and international context. In addition, the geographical features of the Bulgarian regions are favorable for utilization of renewable energy resources. There are opportunities for green projects, organic farming, rural tourism, etc. The coastal regions are particularly suitable for this purpose.

However, Bulgaria remains last in the EU in terms of eco-innovation activities. The country is among the Member States with the lowest results in the Eco-Innovation Index²⁷. The main challenges for Bulgaria include:

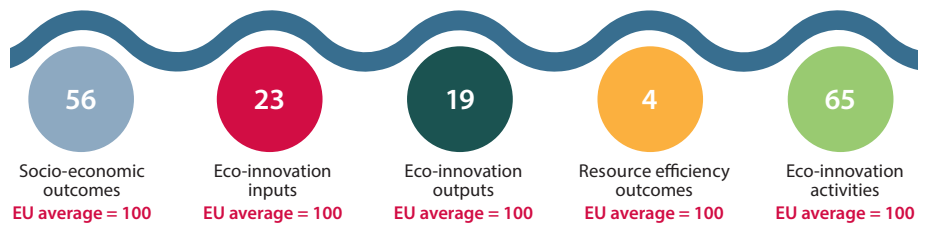
- promoting opportunities for local and foreign investment in the field of eco-innovation and the circular economy;
- promoting resource efficiency by increasing energy efficiency;
- further developing renewable energy sources;
- improving sustainability practices in the transport sector.

High resource intensity is one of the most significant obstacles to the competitiveness of the Bulgarian economy, while hindering sustainable development. Despite the measures taken to support the technological renewal of the economy since the country's EU accession, there is a need for more progress. In particular, the Bulgarian government needs to step up the

²⁷ Commission Staff Working Document Country Report Bulgaria 2020 Accompanying the Document Communication from the Commission to the European Parliament, the European Council, the Council, the European Central Bank and the Eurogroup 2020 European Semester: Assessment of Progress on Structural Reforms, Prevention and Correction of Macroeconomic Imbalances, and Results of In-Depth Reviews under Regulation (EU) No 1176/2011, Brussels, 26.2.2020, SWD (2020) 501 final; The Eco-Innovation Index shows how well individual Member States perform in different dimensions of eco-innovation compared to the EU average and presents their strengths and weaknesses. For more information, please visit [EU Eco-Innovation Scoreboard Interactive Tool](#).

efficiency and effectiveness of activities thus far implemented in attracting private constructive capital.

Figure 6. The Eco-innovation index for Bulgaria in 2019

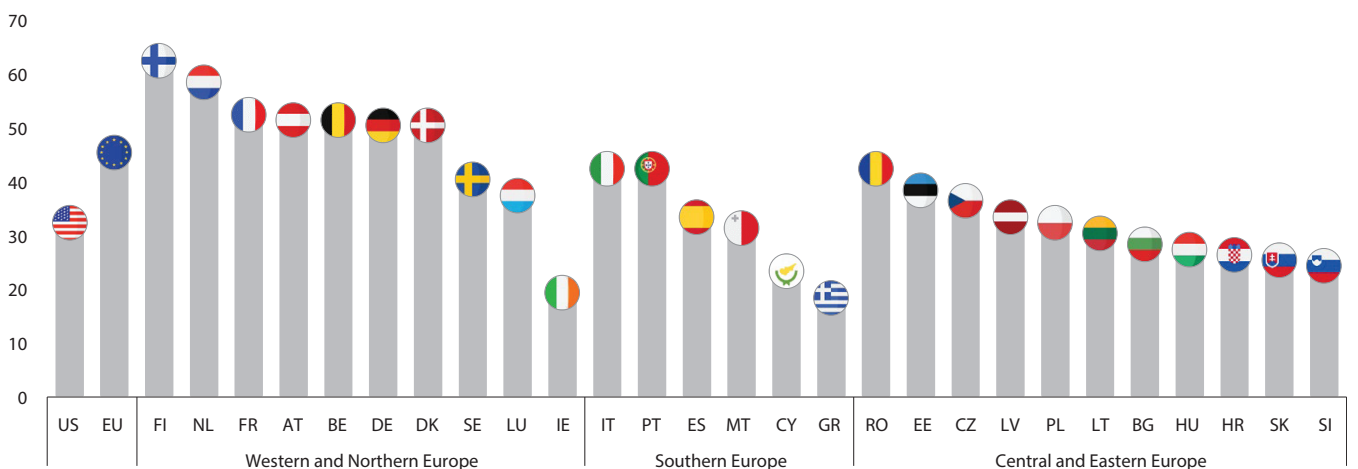


Source: Eco-Innovation in Bulgaria. EIO Country Profile 2018-2019.

Over the last ten years, the resource intensity of the national economy decreased by 20.2% to 3.1 kg/euro, though the rate of decline lags behind the EU average (22.4%) in 2017. Bulgaria continues to be the most resource-intensive economy in the EU, spending 6.5 times more raw materials per unit of GDP than the average raw material consumption in the EU. The production technologies used in the country generate 420 kg waste for the production of 1,000 euros compared to only 66 kg EU average. At the same time, the registered improvement in the last ten years in this respect of only 4.5% is almost at the level in the EU (4.3%), which does not allow for significant catching up²⁸.

Investment needs in the field of energy efficiency and climate remain significant. The country is still the most energy-intensive economy in the EU. And the inefficient use of energy hinders the competitiveness of Bulgarian SMEs. Only 33.4% of SMEs have an energy efficiency policy. Bulgaria remains the economy with the highest greenhouse gas emissions per unit of output in the EU. The intensity of greenhouse gases in the national economy was 4.3 times higher than the EU average in 2016-2017. In addition, 6.5% of enterprises use green energy in their production processes.²⁹

Figure 7. Share of firms investing in climate-related measures to tackle climate change risks

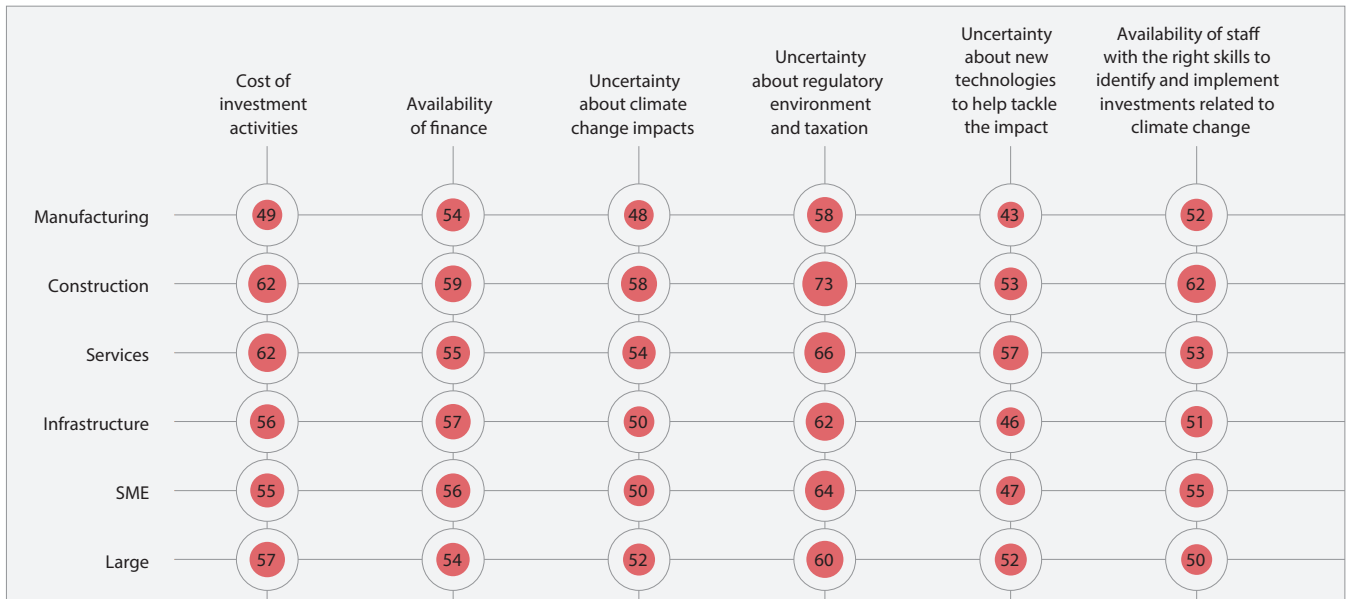


Source: European Investment Bank, European firms and climate change 2020/2021: Evidence from the EIB Investment Survey, 2021.

²⁸ Ministry of Finance, "Part 1. Analysis of the Socio-Economic Development of the Country after Accession to the EU," in National Development Program Bulgaria 2030, 2020.

²⁹ Zhechkov, R., Eco-Innovation in Bulgaria. EIO Country Profile 2018-2019, European Commission, 2019.

Figure 8. Barriers to investing in activities to tackle climate change by sector and size*



* The number in the circle represents the number of respondents who pointed out that they had experienced the particular barrier. The total number of respondents by sector and size is as follows: manufacturing (136), construction (112), services (112), infrastructure (108), SMEs (388), large companies (82).

Source: European Investment Bank, EIB Group survey on investment and investment finance 2020. Country overview: Bulgaria, 2020.

Box 3. Investment destination for electric vehicles

Bulgaria ranks fifth in the EU in the production of bicycles (Eurostat 2020). The country produced 484,000 bicycles in 2020, down from 666,000 in the pre-pandemic 2019. According to this indicator, Bulgaria ranks third in Europe after Germany and Poland.

The country has managed to attract key investments in the production of electric bicycles. The joint investment agreement signed in 2021 between Maxcom, located in Plovdiv, and the Austrian motorcycle manufacturer Pierer Group, has contributed to this. The Bulgarian company has a capacity for the production of 400,000 conventional bicycles per year. About 95% of production is exported to the countries of the EU. The new plant for electric bicycles and other two-wheeled electric vehicles will be located in the Trakia Economic Zone and is expected to provide 1,000 new jobs in Plovdiv and the region.

Another major Bulgarian bicycle manufacturer, Leader-96, also focuses on the production of electric bicycles. The company is expanding its plant in the Plovdiv village of Rogosh with an investment of EUR 2 million.

The German start-up company Next.e.GO, producing small electric cars, has also announced its investment intentions for Bulgaria. The total amount of investment may reach EUR 140 million. The German company Bosch, which is present in Bulgaria, is expected to provide a significant share of the components for the new car.

Source: ARC Fund.

Seizing the investment opportunities of the transition towards a sustainable economy requires a comprehensive strategy with a robust regulatory framework, good climate awareness among businesses and proactive public and private investments.

At the EU level, the implementation of a classification system that establishes a list of environmentally sustainable economic activities (known as the EU taxonomy) and the specification of reporting requirements for large companies have set the benchmark for the future, increasing awareness of the required transformation and associated risks.

Table 4. Action Agenda for attracting constructive capital: green technologies

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Introduce government stimulus for the production of electricity from renewable sources	The government should stimulate the production of electricity from renewable sources by: (i) tenders for the connection of new capacities; (ii) introducing a legislative framework for decentralized electricity generation; and (iii) encouraging the establishment of energy communities by households and SMEs.	✓	✓	✓
Develop a regulatory framework to facilitate the integration of state-of-the-art technologies in the economy	Procure the piloting of new technologies on the Bulgarian market, for example through investments in offshore wind energy in the Black Sea, industrial production of green hydrogen, and the development of available geothermal energy at regional/local level.	✓		
Accommodating the sharing/ collaborative economy	The sharing economy directly contributes to the priorities for the development of smart cities and a resource-efficient economy. Bulgaria needs to admit and regulate the shared economy services with regard to housing, car-sharing/ride-sharing, coworking, reselling and trading and knowledge and talent-sharing.	✓	✓	
Financial support for the creation and promotion of repair and reuse centers	There is no public funding to support private investments and NGOs' activities regarding the creation and management of private repair and reuse centers. Municipal enterprises carrying out similar activities engage in an unfair competition and crowd out private investments and participation in the EU funding programs.	✓	✓	✓
Promotion of private landfills	At the moment there are almost no private landfills operating in Bulgaria, unlike other European countries. This is partly because some national and local authorities preclude fair competition.	✓	✓	
Further regulation in terms of the „Extended producer responsibility“ principle in the life-cycle of universal waste	The National Waste Management Plan 2021-2028 should include clearly defined roles and responsibilities of waste management organizations, in particular with regard to the „Extended producer responsibility“ principle related to universal waste treatment. At the moment, there is an intersection of roles and responsibilities of municipalities and private waste management companies, which have obligations for post universal waste treatment, while the sources of funding for stakeholders are not clearly defined.	✓		
Simplified regulations for establishing own electrical network	Complex, long, expensive and cumbersome procedures for building private electrical networks (substation for industrial currents) could be a precondition for corruption practices. There is a need for a clear delineation of responsibilities between investors and electricity distribution companies in the building of electrical or photovoltaic networks.	✓		
Ease the regulation for establishing installations for the production of electricity from renewable energy sources	Easing of the regime for construction of small renewable energy sources is extremely urgent for creating investment opportunities in remote areas and for ensuring community investments.	✓		

Source: CSD and ARC Fund.

Innovation

One of the defining features of constructive capital is its high level of innovativeness and technological intensity. Hence, it often requires a well-developed and sophisticated environment for innovation. The development of Bulgaria's strategic framework for science and innovation needs to address the shortcomings of national and regional innovation eco-systems and take into account the key recommendations the European Commission made in the process of the European Semester:³⁰

- underdeveloped linkages within the innovation system; low intensity of innovation dissemination between enterprises; limited knowledge of and reluctance to participate in technology transfer;
- low technological level of enterprises compared to the average levels by economic sectors – a problem that is reproduced and deepened through publicly funded investment efforts, which are far below the existing technological thresholds;
- widening of the technological gap between a small number of enterprises representing niche high-tech sectors, on the one hand, and the majority of enterprises employed in medium- and low-tech industries, on the other;
- low share of public investment in research and innovation; limited access to finance by SMEs; lack of diversification and complementarity of financial sources;
- serious challenges related to the development, attraction and retention of talent;
- fragmented innovation system and significant regional imbalances.

Bulgaria remains in the group of emerging (or modest) innovators with an improvement of 6% compared to the base year 2014, thus ranking among the ten member states with an innovation index growth below 10%. By comparison, the innovative performance of the European economy improved by an average of 12.5%³¹.

R&D expenditures in Bulgaria amount to EUR 512 million annually, or 0.84% of GDP. The business sector has the largest contribution to the development of research and development in the country with a total budget of EUR 344 million, or 0.56% of GDP.³² However, the total volume of R&D investment in Bulgaria remains significantly smaller than the R&D budget of an average global company. The number of patent applications also remains low.

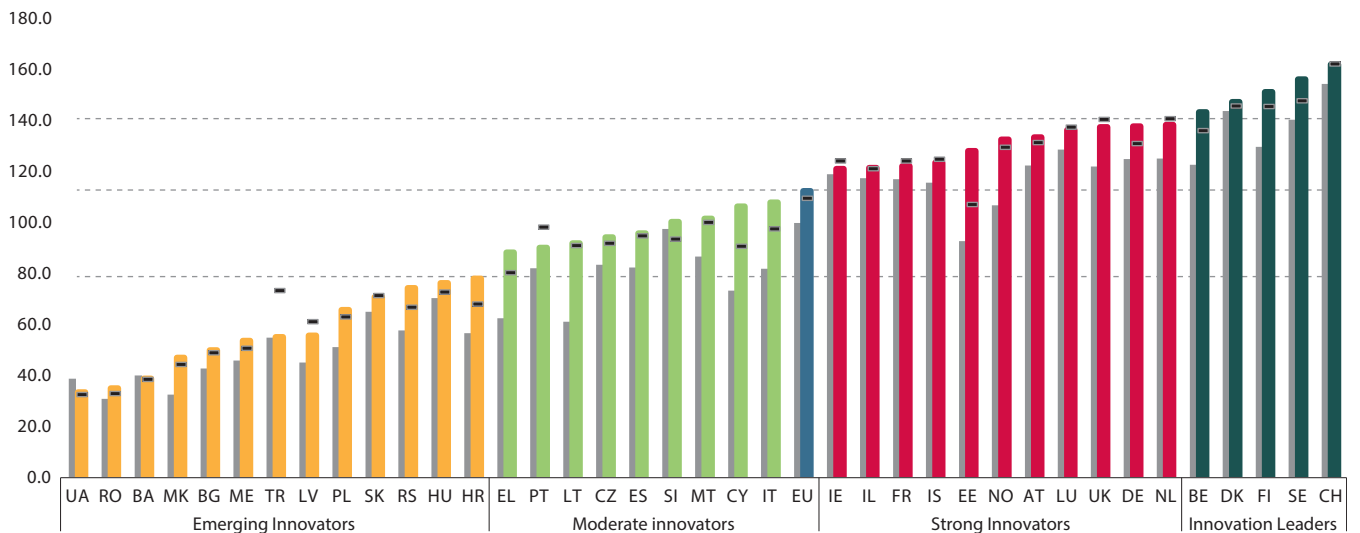
³⁰ European Semester 2020: Assessing progress in structural reforms, preventing and correcting macroeconomic imbalances and the results of in-depth reviews in accordance with Regulation (EU) № 1176/2011, Brussels, 26.2.2020, SWD (2020) 501 final; European Semester 2020: country-specific recommendations, Brussels, 20.5.2020, COM (2020) 500 final; Council Recommendation on the 2020 National Reform Programme of Bulgaria and delivering a Council opinion on the 2020 Convergence Programme of Bulgaria, Brussels, 20.5.2020, COM (2020) 502 final. The European Semester provides a framework for the coordination of economic policies across the European Union. It allows EU countries to discuss their economic and budget plans and monitor progress at specific times throughout the year.

³¹ European Commission, [European innovation scoreboard 2021](#), 2021.

³² According to 2019 data, which was the latest available at the date of release of the current analysis.

The slow pace of reforms and the high fragmentation of the R&D and innovation system do not allow R&D investment to contribute to productivity and growth. A large number of universities and research institutes still perform poorly in the field of high-quality research. Cooperation between science and business remains very limited and the lack of human capital in the R&D system is a matter of concern.

Figure 9. Performance of European and neighboring countries' systems of innovation*



* The figure shows countries' performance in 2021, using the most recent data for 32 indicators, relative to that of the EU in 2014. The horizontal hyphens show performance in 2020, using the next most recent data, relative to that of the EU in 2014. Grey columns show countries' performance in 2014 relative to that of the EU 2014. The dashed lines show the threshold values between the performance groups, where the threshold values of 70%, 100%, and 125% have been adjusted upward to reflect the performance increase of the EU between 2014 and 2021. European and neighboring countries include Bosnia and Herzegovina (BA), Iceland (IS), Israel (IL), Norway (NO), North Macedonia (MK), Montenegro (ME), Serbia (RS), Switzerland (CH), Turkey (TR), Ukraine (UA), and United Kingdom (UK). Results for IL and UA are less reliable due to limited data availability.

Source: European innovation scoreboard 2021.

Box 4. Enterprise Europe Network 2021-2027

The 600 centers of the Enterprise Europe Network (EEN) for technology transfer provide tailored services to SMEs in more than 60 countries around the world. The Applied Research and Communications Fund and its consulting unit, ARC Consulting EOOD, have been coordinating a consortium of 12 EEN centers in the 6 planning regions of Bulgaria since 2008. In the programming period 2021-2027, the main focus of the network will be to help SMEs make the transition to sustainable development and digital transformation. The network will provide advice on investing in areas with resource-efficient and circular processes and infrastructure, digitalization and business sustainability by finding relevant business and financial partners and promoting cooperation. The consultations on innovation management of SMEs, which were awarded the seal of excellence by the European Innovation Council, will also be strongly represented.

In order to ensure the smooth provision of services and advice, exchange of experience and good practices throughout Europe, the EEN is envisaged to work closely with:

- digital innovation hubs – nearly 240 throughout Europe;
- Startup Europe – a European Commission (EC) initiative to connect high-tech start-ups with accelerators, corporate networks, universities and the media;
- the European Institute of Innovation and Technology and its knowledge and innovation communities; and
- other structures, including national, regional and local authorities.

Source: ARC Fund.

Table 5. Action Agenda for attracting constructive capital: innovation

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Increasing national public investment in research and innovation				
Increase the national public funding for science, innovation and technology transfer in absolute terms and as a share of the GDP	After Bulgaria's accession to the European Union in 2007, the European Structural and Investment Funds provided the largest share of public funding for innovation in the country. The lack of sufficient national public financing signifies lack of national innovation priorities, which distorts market signals for investors.	✓	✓	✓
Ensuring a better balance between different mechanisms for financial support (grants, equity and debt financing, etc.)	Mobilizing the overall portfolio of financial instruments to support research organizations, universities and businesses through a coordinated approach between institutions. The currently prevailing grant forms of financing under the EU funding instruments distort private sector competition and crowd out private investments.	✓	✓	
Launch a medium- and long-term national budgetary financial framework for innovation	This will ensure the predictability of the business environment, limit the political risks for the business, and thus support constructive capital research and innovation activity.	✓		
Improve the procedures for monitoring and evaluation	Introduction of an efficient system for monitoring and evaluation over the spending of public financial resources on the basis of clear indicators for measuring the short-term and long-term effects on the market and the economy.	✓		
Overcome the regulatory barriers to innovation and technology transfer				
Finalize and adopt the draft Innovation Promotion Act	Since 2011, two initiatives for developing specific legislation for innovation and technology transfer have been initiated but never completed. The development of such legislation can serve as an important message for the political will to promote innovation as a factor for competitiveness and industrial transformation of Bulgarian economy, and to encompass all necessary tax incentives and relief for innovative companies. This will improve predictability and attract more constructive capital in the country.	✓		
Develop a specific legislative basis for supporting and easing different forms of technology transfer between research organizations, HEIs and business	Preparation of a centralized system of administrative procedures for the protection of intellectual property and the implementation of technology transfer by public and private research units and universities in order to promote the „science-business“ interaction and increase the added value for society from the application of scientific results.	✓	✓	
Activate the role of the Bulgarian Patent Office and promote the mechanisms for IPR protection	Regulation and protection of intellectual property is not sufficiently well-guaranteed and practicable. In particular, universities experience difficulties with managing their intellectual property rights and patenting innovations for business development.	✓		
Promote the use of the Public Procurement Act in its part related to research and innovation	At present, public procurement legislation, which stimulates the procurement of innovative and R&D intensive new products and services is not used adequately to attract additional private constructive capital. Digitalization and green technologies can be considered as possible areas for piloting pre-commercial public procurement. This will increase business innovation, and address social challenges in an innovative and sustainable way.	✓		

Table 5. Action Agenda for attracting constructive capital: innovation (Continued)

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Stimulate business reporting of research and innovation through the Annual Financial Statements	A favorable administrative environment must be created to facilitate the businesses for reporting reliable and completed data on R&D and innovation. Further neglecting this problem would lead to underestimation of the innovative performance of the economy and to the preparation of inadequate policies and measures.	✓		
Development of innovation and business infrastructure				
Enhance technology transfer and interaction between science and business at the regional level	The institutionalization of existing technology transfer practices should be supported in order to unlock their full potential and to serve as good practices.	✓	✓	✓
Establish Regional Innovation Centers	The Regional Innovation Centers should be piloted with EU funding support to enhance innovation collaboration between business and research organizations at the regional level. The Centers should be seen as long-term promotion hubs for innovation and private sector investments in Bulgaria's regions.	✓		
Unlocking the potential of human capital				
Support mobility of researchers, PhD students and students between research organizations, universities and business	Presently, there is a lack of opportunities for mobility between science and business. Developing support instruments in this direction will help to intensify the technology transfer and unify the priorities and agenda of research organizations and business.	✓	✓	✓
Develop entrepreneurial attitudes and spirit among the young people	Specialized tools to encourage entrepreneurial creativity at every stage of the education system have to be introduced. These should be linked to increasing the understanding about constructive capital and its drivers.	✓	✓	✓
Development of the regional innovation systems				
Build administrative capacity at regional level so that the local administrations become an active promoter and understand innovative businesses	This will raise the attractiveness of local economies and develop regional competitive advantages. At the moment, there is a tendency of deepening regional imbalances in terms of innovation potential, which hinders an increase of the competitiveness of the Bulgarian economy.	✓	✓	✓
Develop regional intermediaries	Support for innovation infrastructure and European networks providing business services in the field of research and innovation in Bulgarian regions will encourage the inflow of more constructive capital.		✓	
Encourage One-Stop-Shop solutions with national/regional dimension	One-Stop-Shop services for national/regional investment opportunities should be further developed in order to cover the issuing of all necessary licenses and permits for opening and operating a business.		✓	

Source: CSD and ARC Fund.

Box 5. BRAIT – a promising new representative of the Bulgarian high-tech industry

In 2020, high-tech and innovative companies in Bulgaria formed the Bulgarian Employers' Association of Innovative Technologies (BRAIT). BRAIT's mission is to improve the conditions for business and entrepreneurship in the country in accordance with the best European and world practices.

Among BRAIT's founders are organizations from the most dynamic industries in Bulgaria, some with the highest share of constructive capital in the country: automotive, IT, education, furniture, maritime, health and life sciences. The association represents companies that make up 8.7% of the Bulgarian economy, with a network of activities in 114 municipalities, which at the same time are responsible for 80% of economic growth in 2019. In 2021, BRAIT members plan to make capital investments of over USD 30 billion worldwide, most of which may be in innovation and innovative production in Bulgaria.

The association has national representation with over 70,000 employees in 24 economic sectors and unites a significant part of the innovative companies in Bulgaria.

Many of the members of the association are an integral part of global supplies to industries such as automotive, ICT and energy, which positions them as players with the capacity to expand their own production, generate demand from local producers, help increase incomes and improve the social climate in the country.

Source: CSD and ARC Fund.

Entrepreneurship

Bulgaria's progress in implementing the EC's Small Business Act (SBA) is weak, especially in the areas of skills and innovation, responsiveness of the administration, the environment and, above all, in the field of entrepreneurship, where Bulgaria ranks last in the EU³³. The country performs well with a view to setting up start-ups, but they rarely engage in the development of new products or services. The country ranks first after Germany in terms of new business saturation and in terms of the number of start-ups per capita. However, few new enterprises offer new or innovative products and services compared to start-ups in other countries.

The share of start-ups at an early stage in science-intensive industrial sectors in the country is lower than observed in innovation-oriented economies. The distribution of Bulgarian start-ups by industrial sector is rather similar to that in factor-oriented economies.³⁴

A more advanced and modern entrepreneurial eco-system is found only in the capital, Sofia, where the largest number of newly started enterprises is concentrated. There are more active representatives of the entrepreneurial eco-system (business, local authorities, start-ups) in some other regions of the country – Plovdiv, Stara Zagora, Gabrovo, Haskovo.

³³ European Commission, *2019 Small Business Act Fact Sheet Bulgaria*, 2018/2019.

³⁴ Bosma, N. et al., *GEM Global Report 2019/2020*, Global Entrepreneurship Research Association, London Business School, 2020.

Box 6. BEAM – the stock exchange in the service of innovative small and medium enterprises

Bulgarian Enterprise Accelerator Market (BEAM) is a special market organized by the Bulgarian Stock Exchange (BSE), which provides alternative financing for the activities of small and medium enterprises in Bulgaria with fewer requirements, which significantly reduces the administrative burden.

BEAM market is the first step for a company to get listed on the regulated market. The market is attractive for ambitious and innovative companies with a working business model that seek additional funding to further scale-up their activities, increase the visibility of their products and services, and expand their shareholding base at lower administrative costs.

BIODIT is the first company to take advantage of the BEAM market. BIODIT is a high-tech company that specializes in the development and production of security systems based on biometric identification. Its innovative systems combine state-of-the-art technologies for fingerprint identification and authentication. The company is among the world's first developers of a wireless biometric locking system – WBLS® (Wireless Biometric Locking System), which does not require wiring, pre-installation, construction or repair work. Launched as a technology startup in 2014 – 2015, 3 years later BIODIT goes public for the BEAM market.

For the last one year, there have been three successful IPOs in the BEAM market.

Source: ARC Fund based on review of public data and the Bulgarian Stock Exchange.

Table 6. Action Agenda for attracting constructive capital: entrepreneurship

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Introduce Startup Visas	A startup Visa is an instrument for promotion startup businesses that almost every member state of the European Union offers. Generally, it is a fast track for entrepreneurs from third countries to start their innovative business abroad. It is in force from February 2021 in Bulgaria, but it is still not operational.	✓		
Legally establish a new type of entity – Contractual Joint Stock Company (CJsc).	This type of legal entity is a mix between a limited liability company and a conventional joint stock company, that will resolve the dilemma with stock options and contribute to companies' governance flexibility. It will also enable the regulation process with regard to convertible loans.	✓		
Convertible loans regulation is undeveloped	Convertible loan opportunities are an appropriate mechanism to finance early-stage companies. It has not yet been applied effectively in Bulgaria.	✓		
Eased access to bank loans	Eased access to loans for startups during their early development and R&D stage, if needed complemented by government or European funds' guarantees.	✓	✓	✓
Facilitate the participation of startup companies in public procurement	Ease the requirements for smaller public procurements so that startups can respond to the requirements to participate. This will indirectly support and develop startups' innovative projects in interaction with the state and larger businesses.	✓	✓	
Introduce a Venture Building Model – a model for entrepreneurship and innovation	Venture Builder, also known as startup studio, startup factory, or venture studio is an organization that builds startups using their own ideas and resources (typically by providing the initial team, strategic direction and capital for the startup to reach product-market fitness stage). Development of this type of model would significantly support the innovative startup system in the country. First steps toward the model have been made with regard to Health & Life Sciences Cluster's activities. ³⁵	✓	✓	

³⁵ For more information: [Health & Life Science Cluster's website](#).

Table 6. Action Agenda for attracting constructive capital: entrepreneurship (Continued)

Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Ensure industrial premises tailored to the needs of small companies and startups	There is a lack of small industrial premises for the needs of small companies and startups. Industrial zones provide plenty of opportunities for larger investors but often cannot meet the demands of startups. Trakia Economic Zone (Plovdiv) is already taking steps as a response.	✓	✓	
Enhance the Bulgarian Cooperative Act	Amendments to the Bulgarian Cooperative Act to respond to the requirements of new decentralized business models (e.g. blockchain). Legal entities in Bulgaria cannot participate in cooperatives. There is an easy, practical solution to address this issue as the European Cooperative Act is very well designed and could be applied with insignificant adjustments in Bulgaria.	✓		
Develop and promote stock options and vesting opportunities	Stock options and vesting opportunities (including option pools, tag along, drag along) are a modern and flexible way to distribute and regulate companies' ownership, while involving owners, investors and employees in the process. The existing Commercial Act does not allow flexible operating opportunities with regard to vesting contracts, convertible loans and many other tools that are needed by highly innovative companies.	✓		
Update the Blue card regulations	Redevelop and optimize the current bill with regard to Blue cards. Bulgaria has a Blue card for foreigners engaged in highly skilled labor activities. Yet, with a shortage of between 50,000 and 70,000 people in the IT industry alone, the country issues about 200 Blue cards a year. The procedure is too long (it often takes over 5 months), cumbersome and non-electronic. Introduction of a single electronic system (portal) for employers, for instance, could be developed to be used by all agencies. The card should be authorized and received in a month or less (for comparisons in most EU member states the procedure is between 2 weeks and a month).	✓		
Streamline the liquidation of companies	The liquidation of companies in Bulgaria is a slow, cumbersome and expensive process. It is cheaper to keep a company frozen than to liquidate it. During the liquidation process it is necessary to handle multiple communications with several institutions without sufficient digital connectivity. As a consequence, there are hundreds of thousands of "phantom" companies in Bulgaria. While over 60,000 new companies are registered annually in the country, only just about 1,000 are liquidated. In order to attract constructive capital to the country, entrepreneurs need to know that if they fail, they can easily close their business.	✓		
Adopt a Personal Bankruptcy Act and rehabilitation proceedings	Bulgaria is the only country in the EU that does not provide legal regulation of personal bankruptcy yet. High-tech companies in the early stages of development do not have liquid assets. Commercial banks in Bulgaria give loans to businesses against assets with a preference for real estate. Hence, young entrepreneurs are forced to mortgage their homes in order to be eligible for loans from the banks. The risk of failure for highly innovative companies is very high. So, the act should provide the long-awaited incentive for enhancing the entrepreneurship spirit in the country.	✓		

Table 6. Action Agenda for attracting constructive capital: entrepreneurship (Continued)

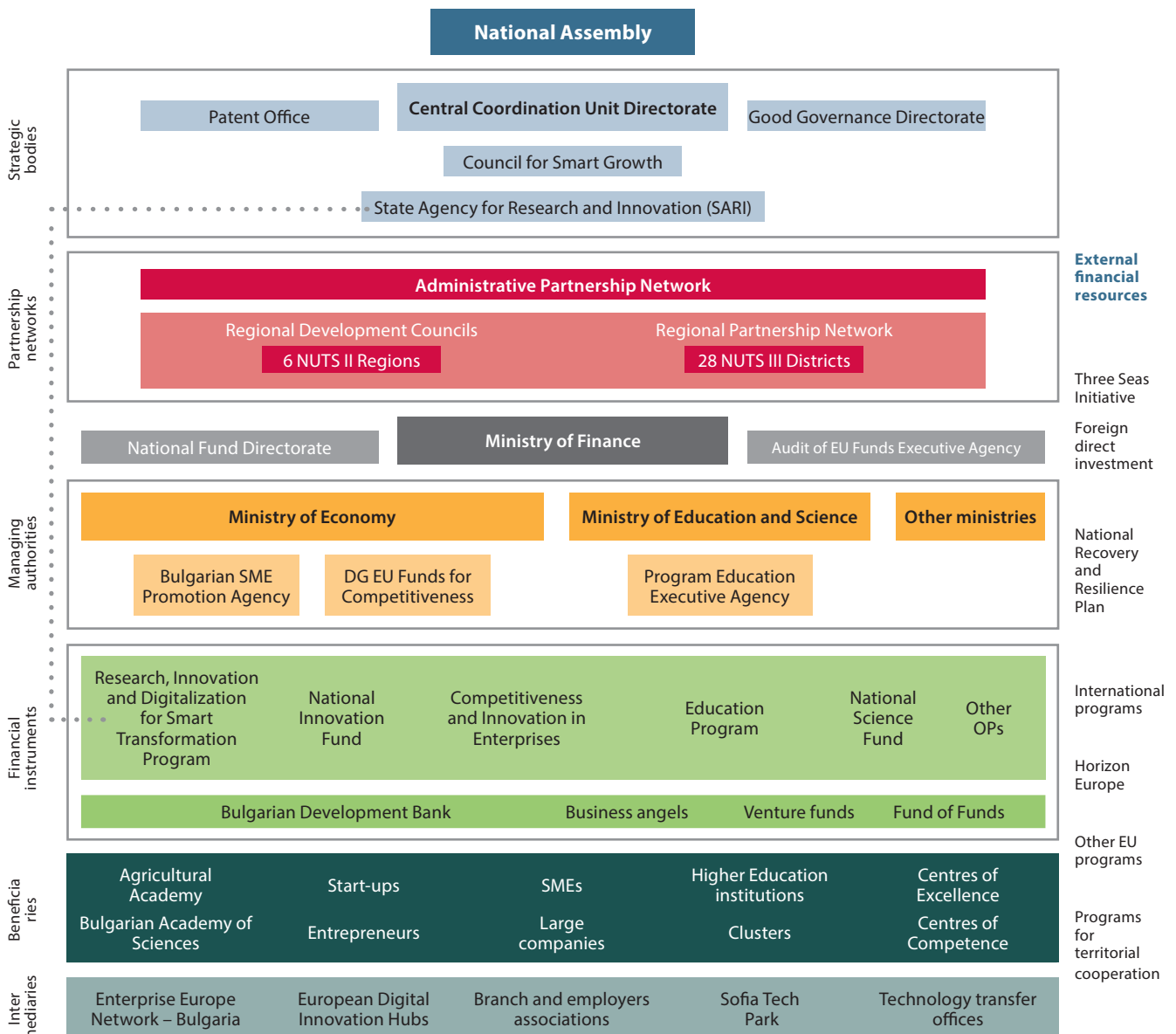
Reforms/ Recommendations	Rationale	< 1 year	2 – 3 years	4 – 7 years
Streamline the bankruptcy of companies, and in particular SMEs	The Bulgarian insolvency procedure is part of the country's Commercial Act. Reforms are required, especially with regard to distinguishing startups and SMEs from large enterprises in case of insolvency. The government should promote a culture that encourages the chance to fail and programs for a „second chance“.	✓		
Regulate lobbying	Regulating lobbying activities is crucial for business-government relations and is expected to contribute to reducing high levels of corruption across the country.	✓		
Update the Labor code regarding employment contracts for projects.	Hiring and paying employees at the project level is not well regulated, while more and more high-tech sectors hire people for a specific project activity. This limits flexibility and business investment.	✓		
Develop ethical frameworks for specific aspects of high-tech sectors, such as artificial intelligence, biotechnology, health and life	There is a need for development of ethical frameworks with regard to high-tech industries, in particular to: artificial intelligence; biotechnology, health and life sciences. It is a structural issue that has direct negative impact on companies' opportunities to apply for and attract public/private funding as often respecting a strict ethical framework is a requirement for the candidates. This is a major pre-requisite for attractive high-tech constructive capital to the country.	✓		
Sanction cartels more assertively	Imposing sanctions on cartels and firms abusing monopoly or market dominant positions will contribute to transparent market competition and the attracting of more constructive capital investments.	✓		
Accelerate the implementation of decentralized technologies (blockchain) at national level	A new digital infrastructure for cross-border public services and data exchange, the European Blockchain Infrastructure for Services (EBSI), is currently being developed in Europe. This creates opportunities for Bulgaria to use new digital infrastructure and blockchain tools for more efficient and more secure electronic services and data exchange.	✓		
Establish a national office/representatives for innovation at the European institutions	The bulk of innovation funding for Bulgaria comes from EU sources. Yet, unlike most European countries, Bulgaria is not represented in the European institutions for lobbying for the Bulgarian innovative ecosystem. This leaves Bulgarian SMEs at a disadvantage.	✓		

Source: CSD and ARC Fund.

IMPLEMENTING THE ACTION AGENDA: INSTITUTIONAL FRAMEWORK

A suitable framework for implementing the *Action Agenda* in a sustainable and effective manner is the organizational structure of the The Innovation Strategy for Smart Specialization (IS3). It includes both national government and regional nodes, and offers opportunities for the inclusion of the private sector and the research community in policy making and implementation. However, its regional aspects need to be better developed and rooted in the regions' economies, as well as include more business representatives.

Figure 10. The IS3 organizational structure



Source: CSD and ARC Fund.

The three key institutions that could coordinate the implementation of the *Action Agenda* may be the same as those responsible for the IS3 – the Ministry of Economy and the Bulgarian SME Promotion Agency with its regional nodes and the State Agency for Research and Innovation at the Council of Ministers. These are the key institutions responsible for the development of a business environment conducive to constructive capital. They are also in charge of the public funding instruments for national and EU funds – the Research, Innovation and Digitalization for the Smart Transformation Program; the Competitiveness and Innovation in Enterprises Program; and the National Innovation Fund.

Specific efforts have been made to activate regional and local authorities and turn them into equal players in the Entrepreneurial Discovery Process (EDP)³⁶. In this respect, a Regional Partnership Network was created with representatives of all 28 districts of Bulgaria, and 6 Regional Development Councils in the Bulgarian regions as consultative bodies at the State Agency for Research and Innovation. This bottom-up approach designed for the implementation of the IS3 would guarantee mobilization of the regional advantages for the delivery of the *Action Agenda*. Other players that could ensure better anchoring in national and European business environment efforts include the Enterprise Europe Network, the Sofia Tech Park, Technology Transfer Offices and Clusters, and the newly created European Digital Innovation Hubs.

* * *

The *Action Agenda* guidelines and institutional framework is a starting point for public policy to attract private constructive capital for economic change and growth. It will require bold political leadership and active business participation to be carried through. The focus should always be on ensuring transparent, accountable and market-oriented investments at national and regional levels. The accomplishment of the country's technological, digital and green transformation is a dynamic process that requires the coordination and commitment of a wide range of participants. This report has identified and presented some key regional stakeholders that have the ability to become the required drivers for change. Bulgarian local and regional political leaders will have to cooperate with such business stakeholders to come up with competitive ideas to propel their municipalities and regions to the European heights of economic innovation and social resilience.

³⁶ The entrepreneurial discovery is an interactive and inclusive process in which the relevant actors identify new and potential activities and inform the government. The government assesses this information and empowers those actors most capable of realizing the potential. The Entrepreneurial Discovery Process is about prioritizing investments based on an inclusive and evidence-based process driven by stakeholders' engagement and attention to market dynamics. For more information, please visit: [Smart Specialization Platform](#).

ANNEXES: Regional Constructive Capital Profiles

Bulgaria is divided into six regions, three in the north and three in the south: North-West Region (NWR), North Central Region (NCR), North-East Region (NER), South-East Region (SER), South Central Region (SCR) and South-West Region (SWR).³⁷ All six Bulgarian regions have similar potential strengths and challenges, although the intensity of each differs depending on some regional specificities.

In the coming years, Bulgarian regional economic policy will continue to be supported primarily by European funds. In preparation of the 2021-2027 EU programming period, the government is working on regional development funding opportunities focused on the implementation of integrated territorial investments (ITIs). ITIs allow packages of projects based on regional needs to be funded from different programs under the European Structural and Investment Funds (ESIF). Preparation of territorial and local development strategies is a prerequisite for accessing EU funds devoted to territorial instruments.³⁸

As a result, the country has prepared Integrated Territorial Strategies for Development (ITSDs) for all six regions, identifying the major gaps and needs in the regional business ecosystems. The regional constructive capital profiles have borrowed heavily on these documents, which also outline in greater detail the regional priorities and areas for investments. ITSDs have been prepared in collaboration between national, regional and local level stakeholders.

Bulgaria has strong intra-regional disparities. Five out of the six regions are considered to be lagging due to their low-income status. Five of the six Bulgarian regions are among the 20 poorest in the EU. As a percentage of GDP, investment is below the EU average with significant regional disparities.

Conversely, Sofia's urban area generates almost half of the country's GDP, although the region accounts for only 18.8% of the population. Sofia attracts more than half of non-financial foreign direct investment.³⁹ The South-West Region, is the most advanced as it hosts the capital city of Sofia. The North-West Region is the least developed. There are persistent national and regional structural barriers affecting productivity, competitiveness and technical progress that slow-down the regions' convergence.

³⁷ The division into six regions is according to the European Nomenclature of Territorial Units for Statistics (NUTS). The six regions are NUTS II level.

³⁸ For more information: Masic, J. et al., *An Analysis of the Possibilities to Implement Territorial Instruments: Program for Development of the Regions 2021-2027*, Washington, D.C.: World Bank Group, 2021.

³⁹ European Semester 2020: *Assessing progress in structural reforms, preventing and correcting macroeconomic imbalances and the results of in-depth reviews in accordance with Regulation (EU) No 1176/2011*, Brussels, 26.2.2020, SWD (2020) 501 final; *Decentralization and Regionalization in Bulgaria*, OECD, 2021.

The concentration of demographic and financial resources in the larger cities like Sofia, Plovdiv, Varna and Burgas reflects interregional and intraregional imbalances. However, positive spillovers into smaller urban areas are beginning to appear.

ANNEX 1. North-West Region

Regional Innovation Index, 2021 (RIS 2021)⁴⁰ | **26.0**
(rank: 236/240)⁴²
Emerging Innovator

EU Regional Competitiveness Index 2019 (0-100)⁴¹ | **7.6**
(rank: 260/268)⁴³



GDP (EUR million, 2019)⁴⁴ | **3 939**

EU Quality of Government Index⁴⁵ 2017 (0-100) | **0**
(rank: 200/202)⁴⁶

⁴⁰ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

⁴¹ European Commission, [European Regional Competitiveness Index](#), 2019.

⁴² The RIS 2021 provides a comparative assessment of the performance of innovation systems across 240 regions of 22 EU countries, while Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are presented at country level. For more information, please refer to the Hollanders, H., and Es-Sadki, N., *RIS 2021 – Methodology Report*, European Commission, 2021.

⁴³ The RCI 2019 has been measuring the competitiveness over the past ten years for all the NUTS II level regions across the (then) 28 EU member States. It is based on the NUTS II level but those which are part of the same metropolitan area are combined. For more information, please refer to the [RCI Methodological Paper](#): Annoni, P., and Dijkstra, L., *The EU Regional Competitiveness Index 2019*, European Commission, 2019.

⁴⁴ National Statistical Institute (NSI), [GDP by Regions](#), January 28, 2021 (the latest available data is for 2019).

⁴⁵ Charron, N., Lapuente, V., and Annoni, P., “[Measuring Quality of Government in EU Regions Across Space and Time](#),” *Papers in Regional Science*, vol. 98 (1) February 2019, DOI: 10.1111/pirs.12437. For more information, please visit the [QoG EU Regional Database](#) (the latest available data is for 2019).

⁴⁶ The sub-national regions are at the NUTS 1 or NUTS 2 level, depending on the country. For more information, please refer to the [Regions’ Scorecards and Benchmark Tool](#).

The North-West Region is located along the Danube river, bordering Romania in the north and Serbia in the west. It is the least socio-economically developed region in Bulgaria and in the whole European Union. It is also the least populated in Bulgaria.⁴⁷ The NWR has been the region most affected by the demographic crisis, with its population shrinking by 22,132 people over the last two years. The region consists of five districts: Vidin, Montana, Vratsa, Pleven, and Lovech. The capital of the region is Pleven.

The NWR's GDP is times lower than that of other regions and its GDP per capita is the lowest in Bulgaria.⁴⁸

The EU's Regional Innovation Scoreboard defines the region as an emerging innovator, which are the least innovative regions in EU.⁴⁹ There is no concentration of leading high-tech industries and innovative companies in the region. The FDI stock of the non-financial sector amounts to only EUR 623 million, which is less than 2.5% of the total for the country and is eight times lower than the average for the other regions.⁵⁰

There are 28,622 enterprises (7% of the total for the country) from the non-financial sector operating in NWR that generated revenues of EUR 8.396 billion.⁵¹

The number of successfully awarded contracts from tenders published on Tenders Electronic Daily (TED)⁵² above the EUR 130,000 threshold is 413, which is lower than the average for the country of 494.

Municipal authorities have gained experience managing European public investment projects, but governance gaps, including corruption and lack of strategic vision, keeps private constructive capital investments low.

Along with the demographic crisis, the region experiences issues in education. In general, there is a lack of strong, modern and integrated educational network to supply business with the necessary medium and high-skill set personnel.



Territory
19 047 km²



Population
720 172 people



GDP per capita
EUR 5 357



**Smart Specialization
Strategy 2021-2027
focus areas:**

- CleanTech, circular and low-carbon economy
- Mechatronics
- Industry for Healthy Lifestyle and BioTech
- New Technologies in the Creative and Recreative Industries

⁴⁷ National Statistical Institute, [Population by statistical regions, age, place of residence and sex](#), April 12, 2021 (data for 2020).

⁴⁸ National Statistical Institute, [GDP by Regions](#), January 28, 2021.

⁴⁹ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

⁵⁰ National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020 (the latest available data is for 2019).

⁵¹ National Statistical Institute, [Revenues](#), August 31, 2021 (the latest available data is for 2020).

⁵² Tenders Electronic Daily (TED) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement.

Advantages	Disadvantages
<p>Ongoing stable economic activity of the 15+ population in the past two years; though additional efforts are required to increase it and prevent population decline.</p> <p>Recent increase in the amount of foreign direct investment in non-financial enterprises.</p> <p>Increase in the number of SMEs with their own innovation activity through prioritizing EU funding for the region.</p> <p>Most enterprises have introduced product innovations, developed by themselves, although realized primarily on the domestic Bulgarian market.</p> <p>Development of niche specialization in some promising industries such as automotive.</p>	<p>Population decline and an increase in the average age of the labor force.</p> <p>Rising unemployment.</p> <p>The region has the lowest average annual salary for the country.</p> <p>Low GDP growth.</p> <p>Low-tech innovation activity in terms of product innovation.</p> <p>A small number of enterprises in the region have their own R&D units.</p> <p>Small number of research and university units and low knowledge and technology transfer.</p> <p>Declining R&D funding and employment.</p>

Paths to attract constructive capital: key takeaways from interviews and focus groups with stakeholders

- The region has little potential for the development of high-tech technologies in the ICT sector. However, there are companies in town-centers – Vratsa and Plevna - that could build promising local communities.
- In recent years, the Municipality of Vratsa has been implementing measures to turn the city into a smart city.
- The city of Vidin is under preparation of a long-term strategy for energy transition. Thus, in 2023, Vidin will be the only municipality in Bulgaria that will have such a long-term strategy.
- The lack of a technical university is felt in the region, in particular in terms of a shortage of engineering staff.
- Automation in production is inevitable, but it requires people to bring more and more value along the chain, so regional innovation and digital centers are being built to support of the process. This should be accompanied by educational reforms at all levels and for all ages.
- Poor infrastructure connectivity of the region’s centers with the other northern regional centers hinders the mobility of employees and students.
- Private ICT organizations have been developing the ICT potential of Vratsa for several years now – offering trainings in programming, digital marketing, design, software testing as well as providing co-working spaces.

Table 7. EU funds financing 2014-2020 by region*

	EUR Total	Beneficiaries (total)
Bulgaria	12 163 295 942	33 158
South-West	3 534 564 750	12 717
South Central	1 264 479 709	5 838
South-East	1 557 013 392	4 329
North-East	717 897 344	3 866
North Central	688 168 424	3 165
North-West	927 827 732	2 799

* Sum of contracted projects as of June 2021.

Source: CSD/ARC Fund based on data from the Information System for Management and Monitoring EU Funds.

Table 8. GDP and GVA by economic sector and region, 2019 – NWR (EUR, million)

Statistical region (NUTS II)	Gross Value Added by economic sector (GVA)			GDP	GDP per capita (EUR)
	Agriculture	Industry	Services		
North-West	328	1 095	1 987	3 939	5 357
Vidin	46	48	229	374	4 466
Vratsa	74	456	413	1 093	6 789
Lovech	51	176	334	650	5 258
Montana	75	149	316	625	4 869
Pleven	82	266	684	1 196	5 017
North Central	319	1 265	2 350	4 557	5 852
North-East	335	1 419	3 691	6 308	6 805
South-East	302	2 194	3 389	6 819	6 632
South-West	287	4 599	21 830	30 951	14 751
South Central	411	2 667	4 401	8 666	6 153

Source: NSI, CSD, and ARC Fund, 2021.

Regional business environment and investment landscape

Many NWR municipalities are distinguished by the large number of attracted publicly funded projects under various EU programs, especially those related to innovation and regional development. This is a direct consequence of the government's prioritization of EU funding investments in NWR. In practice though, European programs often stimulate investment in the region without taking into account real business needs, opportunities and local market dynamics. This creates preconditions for attracting capital for fictitious projects, which are then discontinued once the funding is over. Such business projects often lack vision and have no real effect on the development of the local economy, resulting effectively in the corrosion of the business environment.

Some municipalities in NWR are thus leading in attracting European funds per capita. Nevertheless, the expected impact of the investments often remains unsatisfactory. In general, such public investments fail to leverage private constructive capital. At this stage, there is no solid evidence that one of EU funds' main goals of regional convergence has been achieved – both within the country and toward the European average.

In the 2021-2027 period, even more resources from both European and national funds will be directed to the Northern regions in Bulgaria in an attempt to close the development gap to the rest of the country.

The cities of Vidin and Pleven will also receive a separate cluster support budget for urban development. The municipalities of Vratsa, Lom, Montana, Lovech and Troyan from NWR will receive priority funding under the Program for Development of Regions 2021-2027⁵³. The clustering approach is envisaged to revamp and foster the image of the region as a reliable destination for investments, which is especially important in the case of foreign investors.

In addition, the infrastructural connectivity between the northern regions in Bulgaria is poor.

⁵³ The Program for the Development of Regions 2021-2027 is co-financed by the European Regional Development Fund and the 'Just Transition' Fund. The program is still under final preparation and draft version is available on: bgregio.eu.

FDI, R&D and innovation

The total foreign direct investment (FDI) stock in NWR is EUR 623 million, with significant intra-regional imbalances⁵⁴. For example, the Vratsa district has recently booked an outflow of FDI, as it remains among the least developed Bulgarian districts with the smallest number of registered enterprises.

The region is among the weakest innovators in the EU and is classified as an emerging innovator.⁵⁵ It lacks leading innovation suppliers. Many of the innovation-oriented businesses and individuals and recently graduated entrepreneurs emigrate from the region. However, there are still some promising examples of both traditional and high-tech growing businesses that can become the core of regional and sectoral smart specialization.

For the whole period after 2011, the region has been leading in the country in one of the most important indicators of innovation activity – product and process innovations, share of innovative SMEs and sales of new products. This has been the direct result of the introduction of bonus points and preferences provided for the companies from this region in the calls for grant proposals under EU funding programs, and in particular of the Operational Program Innovation and Competitiveness 2014-2020.⁵⁶

The number of innovative enterprises from the NWR is 1,147, or 3.94% of the number of all enterprises registered in the region.⁵⁷

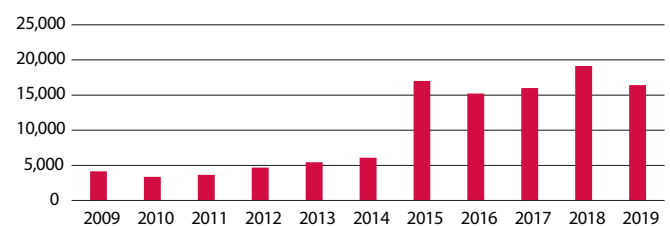
The total R&D expenditures in the NWR amount to EUR 16.415 million annually, 3/4 of which come from business. Only a small share of enterprises in the region though has their own research units. NWR is the only region in the country, which registered a reduction in the R&D expenditures even before the COVID-19 pandemic. This is most probably the result of the scaling back of EU public funding support.

The staff engaged in R&D in NWR is 1,639 people. Due to the small number of research and university units in the region, its share of the total number in the country is only 4.68%. Similar to the funding situation, the number of R&D employees in enterprises has also recently declined.⁵⁸

Despite the presence of publicly funded research organizations in Pleven (including a university hospital) and in some smaller settlements in the region, such as Troyan and Knezha, the main two centers remain Vratsa and Lovech.

Unlike in the other region the number of students in universities and colleges is substantially increasing.⁵⁹ Dual education also gains popularity and more business and school institutions embrace its principles.

Figure 11. R&D expenditures in North-West Region (EUR, thousand)



Source: NSI.

The NWR specializes in optics, communication equipment, pharmaceuticals, non-plastics, clothing, textile and wood processing. The largest power plant in the Balkans, the Kozloduy Nuclear Power Plant operates in the region, which attracts specialized engineering companies for its maintenance.

The region has potential to specialize in biotechnology, mechatronics, automotive and the agro-industry, including organic and smart agriculture. There is also untapped potential for development of rural tourism.

⁵⁴ According to the latest available data for 2019 on National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020.

⁵⁵ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

⁵⁶ For more information, visit: Operational Programme “Innovation and Competitiveness” 2014-2020 (OPIC) [website](#).

⁵⁷ According to the latest available data from NSI (2016-2018).

⁵⁸ National Statistical Institute, [Total R&D personnel by sectors, regions and sex](#), February 26, 2021 (the latest available data is for 2019).

⁵⁹ An increase by 110% from 2011/2012 to 2018/2019 academic year. Ministry of Regional Development and Public Works, [Integrated territorial development strategy of North-West Region 2021-2027](#), 2020.

The region has developed a focus into electric vehicles (bicycles and cars). A German manufacturer of electric cars, recently announced its investment intentions for electric vehicles' assembly near the town of Lovech. Among the promising medium-high and medium-low tech economic activities in this region are the production of metal products, rubber/plastics products and machinery/equipment. There are also high-tech industries in the region, such as pharmaceuticals in Vratsa and Lovech and production of computer, electronic and optical products in Vidin.

The main challenge for advanced manufacturing is the shortage of technical and engineering experts. Public-private partnerships are limited because of the low trust of businesses in regional authorities.

In terms of smart specialization in 2014-2020 the NWR focused on mechatronics and clean technologies; ICT and informatics; industry for a healthy life and biotechnology; and new technologies in the creative and re-creative industries.

Digitalization

Stakeholders from the NWR have developed and submitted for funding to the European Commission two proposals for European Digital Innovation Hubs (out of 17 for the country):⁶⁰ Digital Future and Digital Innovation Hub North-West at the Automotive Cluster, Bulgaria. NWR is the worst performing Bulgarian region in terms of digital skills. In 2020 there were only 3,000 people employed ICT specialists, which marks a decline from previous years.

The employment in high-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) was 1.7% out of total employment in the region in 2020 (4,400 people and falling). This indicator for the country as a whole stood at 4.2% in 2020 (131,000 people).⁶¹

⁶⁰ National selection of European Digital Innovation Hubs in Bulgaria under the Digital Europe Programme 2021-2027.

⁶¹ EUROSTAT, [Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex \(from 2008 onwards, NACE Rev. 2\)](#), last update: September 11, 2021.

Only 17% of the population use the Internet for accessing public services, which is times lower than the European⁶² average.

Green technologies and decarbonization

The development of automotive sector (electric mobiles) in the NWR could become the key driving force for green transformation in the region. The region has untapped potential for production of hydro, wind, solar and geothermal energy, as well as energy from biomass and waste. The North-West Region has serious potential for adopting and deploying green high-tech projects related to smart agriculture (including bio farming).

The NWR leads in solar energy production, with installed capacities representing 15.5% of the total for this energy source in the country. Pleven, Veliko Tarnovo, Vratsa and Dolna Mitropolia are some of the municipal centers with solar energy production.⁶³ The Municipality of Pleven, for example, has developed a short-term program for the promotion of renewable energy sources and biofuels in the period 2020-2023.

Key regional constructive capital stakeholders and innovative companies

- Agency for regional and economic development – Vratsa
- Agency for Regional Development and Business Center – Vidin
- Association of Danube River Municipalities (Ruse)
- Vratsa Chamber of Commerce and Industry (Vratsa)
- Cluster of Mechatronics and Automation (Vratsa)
- Romtech-3S Ltd (Vratsa)
- Techceramic-M (Mezdra)
- Leoni Bulgaria (Pleven)

⁶² According to data from EUROSTAT, [Individuals who used the internet for interaction with public authorities](#), last update: May 25, 2021. The interaction with public authorities includes the following activities: obtaining information from websites or apps, downloading official forms and/or submitting completed online forms.

⁶³ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of North-West Region 2021-2027](#), 2020.

ANNEX 2. North Central Region

Regional
Innovation
Index, 2021
(RIS 2021)⁶⁴

34.9

(rank: 230/240)⁶⁶

Emerging
Innovator

EU Regional
Competitiveness
Index 2019
(0-100)⁶⁵

19.1

(rank: 241/268)⁶⁷



GDP
(EUR million,
2019)⁶⁸ | **4 557**

EU Quality of
Government
Index⁶⁹ 2017
(0-100)

27.6

(rank: 161/202)⁷⁰

⁶⁴ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

⁶⁵ European Commission, [European Regional Competitiveness Index](#), 2019.

⁶⁶ The RIS 2021 provides a comparative assessment of the performance of innovation systems across 240 regions of 22 EU countries, while Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are presented at country level. For more information, please refer to the Hollanders, H., and Es-Sadki, N., *RIS 2021 – Methodology Report*, European Commission, 2021.

⁶⁷ The RCI 2019 has been measuring the competitiveness over the past ten years for all the NUTS II level regions across the (then) 28 EU member States. It is based on the NUTS II level but those which are part of the same metropolitan area are combined. For more information, please refer to the [RCI Methodological Paper](#): Annoni, P., and Dijkstra, L., *The EU Regional Competitiveness Index 2019*, European Commission, 2019.

⁶⁸ National Statistical Institute (NSI), [GDP by Regions](#), January 28, 2021 (the latest available data is for 2019).

⁶⁹ Charron, N., Lapuente, V., and Annoni, P., "Measuring Quality of Government in EU Regions Across Space and Time," *Papers in Regional Science*, vol. 98 (1) February 2019, DOI: 10.1111/pirs.12437. For more information, please visit the [QoG EU Regional Database](#) (the latest available data is for 2019).

⁷⁰ The sub-national regions are at the NUTS 1 or NUTS 2 level, depending on the country. For more information, please refer to the [Regions' Scorecards and Benchmark Tool](#).

The North Central Region is located in North Bulgaria along the Danube river. It is one of the smallest planning regions in Bulgaria with an area of 14,668 km² and a population of 764,897 people.⁷¹ The major administrative districts in the NCR are Ruse, Veliko Tarnovo, Gabrovo, Silistra, and Razgrad. Its regional capital is Ruse, which is also Bulgaria's largest river port.

At EUR 4.557 billion, NCR's GDP is nearly seven times smaller than the EUR 30.951 billion of the most prosperous SWR. The NCR's GDP per capita is the second lowest in Bulgaria after that of the North-West Region, amounting to EUR 5,852 (the country's average is EUR 7,592).⁷² There is a significant internal economic imbalance between the districts of the region. The district of Silistra, lags significantly behind the rest.

The relatively weak infrastructure connections of the North with the South of Bulgaria, as well as the lack of good internal connections in the North still hamper the investment activity. The stock of attracted FDI in the NCR is EUR 1.121 billion.⁷³ The region is classified as an emerging innovator and is among the lowest performing in European Union⁷⁴.

There are 36,225 enterprises from the non-financial sector operating in the region (8.8% of the country's total number) that generated revenues of EUR 12.813 billion, with the largest share in the revenues from the activity of SMEs.⁷⁵

The number of successfully awarded contracts within tenders published on Tenders Electronic Daily (TED)⁷⁶ above the EUR 130,000 threshold is 296, almost twice lower than the average for the country of 494. EU funds' investments in the NCR have also been below the national average.

University education is relatively well developed in the region, but retaining qualified staff remains a critical challenge for companies and other stakeholders.



Territory
14 668 km²



Population
764 897 people



GDP per capita
EUR 5 852



**Smart Specialization
Strategy 2021-2027
focus areas:**

- CleanTech, circular and low-carbon economy
- Mechatronics
- Industry for Healthy lifestyle and BioTech
- New Technologies in the Creative and Recreative Industries
- Informatics and ICT

⁷¹ National Statistical Institute, [Population by statistical regions, age, place of residence and sex](#), April 12, 2021 (data for 2020).

⁷² National Statistical Institute, [GDP by Regions](#), January 28, 2021.

⁷³ National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020 (the latest available data is for 2019).

⁷⁴ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

⁷⁵ National Statistical Institute, [Revenues](#), August 31, 2021 (the latest available data is for 2020).

⁷⁶ Tenders Electronic Daily (TED) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement.

Advantages

Part of the Danube area, including four ports Ruse, Svish-tov, Tutrakan and Silistra.

Increase in the amount of attracted foreign direct investment in the region in recent years.

Increased share of R&D funding from enterprises.

Promising scientific network of R&D organizations.

The region is a leader in the field of patent activity.

Local government focused on entrepreneurship and innovation.

Relatively well-developed supply chain in: mechatronics, ICT, pharmaceuticals, biotechnology and automotive.

Businesses are willing to participate in public-private partnerships, including with regard to the development of infrastructure; management of industrial and business zones; and the provision of joint training and educational opportunities.

Disadvantages

Decrease in the population and increase in the average age of population.

Negative natural growth.

Rising unemployment rate and labor shortages continue to be among the most significant obstacles to business.

Very low labor costs, which do not motivate qualified and skilled people to stay in the region.

NCR ranks penultimate in the country in terms of the number of employees engaged with R&D.

Low share of enterprises in the region with introduced organizational and marketing innovations.

Paths to attract constructive capital: key takeaways from interviews and focus groups with stakeholders

- Public green growth projects are being developed in the region, primarily aimed at energy and resource efficiency measures (e.g. smart waste containers and electric public transport in Gabrovo).
- Information technologies and services are the most dynamic sectors in Gabrovo and Ruse in the past few years (for instance, the company Scientia is currently investing over EUR 3 million to develop a software engineering and IT consulting services office in Gabrovo).
- Automation and robotics clubs have been established at schools and universities in Ruse, Gabrovo and Veliko Tarnovo promoting entrepreneurship among the young.
- Gabrovo is a good example for promotion of entrepreneurship (e.g., through hackathons for young people and starting companies).
- There is a need for infrastructural/roads development along the axis Gabrovo, Veliko Tarnovo and Ruse. This will increase students and employee mobility in the region.
- Gabrovo is a regional center with a strong industrial profile, with good cooperation between the Technical University, the business community and the local government. This partnership creates conditions for deployment of digital, engineering and innovation solutions across the region. Municipality of Gabrovo has been among the champions in absorbing European funds for years.
- The NCR has good prerequisites for the development of rural and mountain tourism.

Table 9. EU funds financing 2014-2020 by region*

	EUR Total	Beneficiaries (total)
Bulgaria	12 163 295 942	33 158
South-West	3 534 564 750	12 717
South Central	1 264 479 709	5 838
South-East	1 557 013 392	4 329
North-East	717 897 344	3 866
North Central	688 168 424	3 165
North-West	927 827 732	2 799

* Sum of contracted projects as of June 2021.

Source: CSD/ARC Fund based on data from the Information System for Management and Monitoring EU Funds.

Table 10. GDP and GVA by economic sector and region, 2019 – NCR (EUR, million)

Statistical region (NUTS II)	Gross Value Added by economic sector (GVA)			GDP	GDP per capita (EUR)
	Agriculture	Industry	Services		
North Central	319	1 265	2 350	4 557	5 852
Veliko Tarnovo	75	315	754	1 325	5 661
Gabrovo	29	305	351	794	7 385
Razgrad	71	151	291	594	5 326
Ruse	72	427	724	1 417	6 530
Silistra	71	66	231	427	3 930
North-West	328	1 095	1 987	3 939	5 357
North-East	335	1 419	3 691	6 308	6 805
South-East	302	2 194	3 389	6 819	6 632
South-West	287	4 599	21 830	30 951	14 751
South Central	411	2 667	4 401	8 666	6 153

Source: NSI, CSD, and ARC Fund, 2021.

Regional business environment and investment landscape

The region is a home to some large international companies, which attract new SMEs and startups around them (especially in the ICT sector). In the NCR the business investment environment is at a more advanced stage of development and enjoys greater trust between institutions and business stakeholders than in NWR.

Moreover, local governments in NCR are striving to create regional events to promote and support start-up and high-tech projects. The Municipality of Gabrovo, for instance, has been hosting a hackathons and innovation camps for several years now, thus supporting the entrepreneurial spirit. In addition,

it provides business accelerators opportunities and mentoring programs.

The municipalities of Ruse, Vratsa and Gabrovo and the Chamber of Commerce and Industry in Gabrovo are particularly active and devoted toward regional development goals.

During the programming period 2021-2027, more resources from both European and national funds will be focused on intraregional development and cooperation. Such support for integrated urban development will also be provided through EU territorial instrument implemented under policy objective 5 „Europe closer to its citizens“ (Common Provisions Regulation) and the Program for Development of Regions 2021–27. As a result, 10 urban municipalities will be additionally funded to develop 4 urban clusters covering the regions of NUTS II level. For the North Central and North-East regions, which fall into a single cluster group – the municipalities of Ruse, Veliko Tarnovo, and Varna are selected as beneficiaries.⁷⁷

FDI, R&D and innovation

Foreign direct investment (FDI) stock in the NCR edged up to EUR 1.121 billion.⁷⁸ There are large intra-regional imbalances in the distribution of the FDI stock, with Gabrovo, Ruse and Veliko Tarnovo, taking the lion's share.

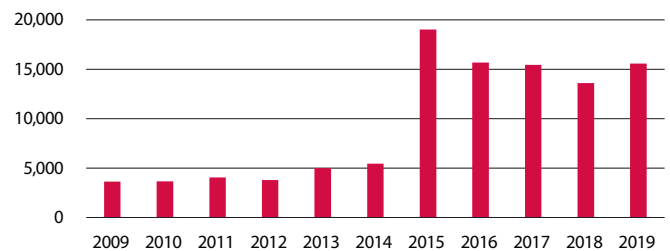
The NCR falls into the group of emerging innovators and ranks 230th in innovation system performance among 240 EU regions. The NCR's innovation performance has increased marginally over the last decade (2.1% change between 2014 and 2021).⁷⁹ Yet it remains far below the EU average.

The number of innovative enterprises in NCR is 1,625, or 4.4% of the number of all enterprises registered in the region.⁸⁰

The region's total annual R&D expenditures amount to EUR 15.575 million, of which more than 90% come from business.⁸¹ The limited public financing impacts negatively the implementation of integrated, coordinated and multidisciplinary research programs to foster innovation and regional economic development.

The NCR ranks penultimate in the country according to the number of employees engaged in R&D – 2,350 people.⁸²

Figure 12. R&D expenditures in the North Central Region (EUR, thousand)



Source: NSI.

The number of students in universities in NCR has shrunk by more than 20% in the past decade, at a higher pace than the country's average.⁸³ It is important to distinguish the importance of the technical universities in Ruse and Gabrovo. R&D centers, laboratories and students' clubs are being set up on their premises (e.g robotics club in Ruse) in close cooperation with businesses. Both universities actively participate in national and international partnerships and develop high-tech projects with business.

Industry sectors like food and beverage production, machine building, chemicals, pharmaceuticals, plastics and textiles are dominant in the region. High share of fertile and preserved agricultural territories; livestock breeding; and tourism completes the list of leading economic opportunities.

⁷⁷ The Program for the Development of Regions 2021-2027 is co-financed by the European Regional Development Fund and the 'Just Transition' Fund. The program is still under final preparation and draft version is available on: bgregio.eu.

⁷⁸ National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020.

⁷⁹ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

⁸⁰ According to the latest available data from NSI (2016-2018).

⁸¹ National Statistical Institute, [Total intramural R&D expenditure \(GERD\) by regions and sectors](#), February 26, 2021 (the latest available data is for 2019).

⁸² National Statistical Institute, [Total R&D personnel by sectors, regions and sex](#), February 26, 2021 (the latest available data is for 2019).

⁸³ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of North Central Region 2021-2027](#), 2020.

The region has a prominent potential to add value and further specialize in ICT, mechatronics, automotive, agro-industry and energy (including digitalization and green growth of both public authorities and private enterprises). Currently, the leading high-tech sector is mechatronics, where added value is highest, followed by ICT.

In terms of smart specialization in 2014-2020, NCR focused on mechatronics and clean technologies, healthy life and biotechnology, and informatics and ICT. The NCR was the only one to develop its own Strategy for Smart Specialization of North Central Region 2015-2020. In addition, the municipality of Ruse has prepared an Innovative strategy for smart specialization for the period 2016-2025.

Digitalization

NCR has developed two of the 17 national projects for European Digital Innovation Hubs (EDIHs) submitted to the EC:⁸⁴ i) Regional Innovation Center “Ambitious Gabrovo”; ii) Danube Digital Innovation Hub Association.

By most indicators of digitalization, the region is around the national average but lags significantly behind the EU average.

NCR performs below the national average in terms of digital skills. In 2020 there were around 4,700 people employed as ICT specialist in the region, which is a decrease compared to previous years.⁸⁵ Employment in high-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) is flat at 2.4% in 2020 (8,300 people) out of the total employment in the region. This is lower than the same indicator for the country – 4.2% in 2020 (131,000 people).⁸⁶

The share of people who use the internet for interaction with public authorities in NCR is only 17%, which is lower than the country’s average.⁸⁷

⁸⁴ National selection of European Digital Innovation Hubs in Bulgaria under the Digital Europe Programme 2021-2027.

⁸⁵ EUROSTAT, [Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex \(from 2008 onwards, NACE Rev. 2\)](#), last update: September 11, 2021.

⁸⁶ Ibid.

⁸⁷ According to data from EUROSTAT, [Individuals who used the internet for interaction with public authorities](#), last update: May 25, 2021. The interaction with public authorities includes the following activities: obtaining information from websites or apps, downloading official forms and/or submitting completed online forms

Green technologies and decarbonization

The natural conditions in North Central Region are the least favorable for the use of renewable energy sources in the country. As a result, the region has the smallest share in the installed capacity for energy from renewable sources, at only 2.7% of the total in the country.⁸⁸ NCR utilizes mostly solar energy, and the installed capacity represents 9% of the total for the country.

Gabrovo is investing in technologies for becoming a green smart city with capacity to monitor traffic, air and water quality in real time. Apart from that, the municipality has planned increasing digitization of the public administration and services provided to businesses and individuals. The municipality is to hold a Gabrovo Green Accelerator. The goal of the Accelerator is to provide access to training and financing to green companies in the early stages of their development. The winner of the Accelerator will use the award to develop its sustainable business in the municipality. The Accelerator will provide access to training and funding.

Key regional constructive capital stakeholders and innovative companies

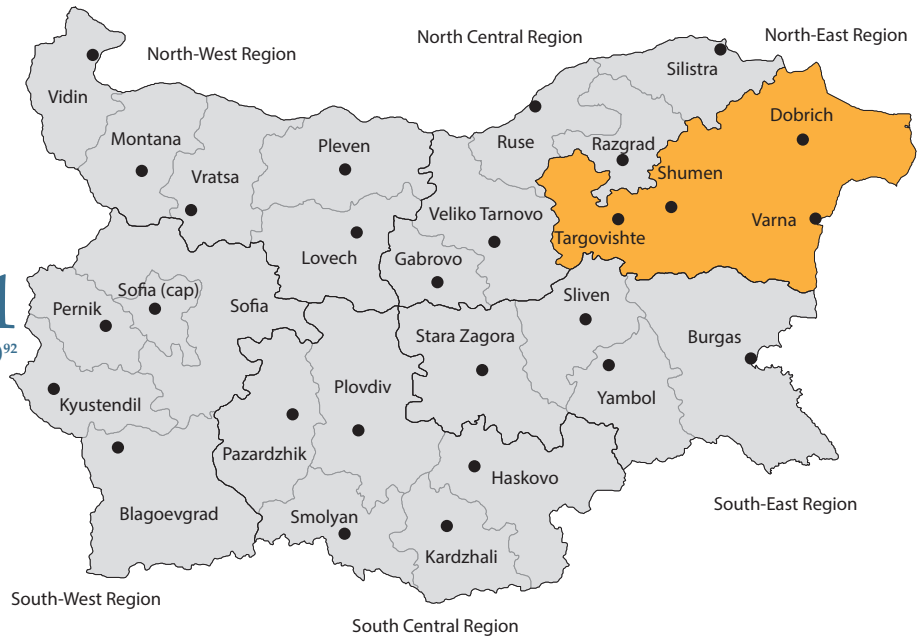
- Regional Innovation Center “Ambitious Gabrovo” (Gabrovo)
- Mechatronics AD (Gabrovo)
- STS Pack Holding (Gabrovo)
- Business Support Centre for SMEs (Ruse)
- Center for Sustainable Regional Development (Gabrovo)
- Hi-tech business Incubator (Gabrovo)
- Euro Perspectives Foundation (Gabrovo)
- High-Tech Park (Veliko Tarnovo)
- Association of Danube River Municipalities (Ruse)
- Black Sea Economic Zone Cluster (Varna)
- StartUP Factory (Ruse)
- Sirma (office Ruse)
- Musala Soft (office Ruse)

⁸⁸ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of North Central Region 2021-2027](#), 2020.

ANNEX 3. North-East Region

Regional
Innovation
Index, 2021
(RIS 2021)⁸⁹ | **35.5**
(rank: 229/240)⁹¹
Emerging
Innovator

EU Regional
Competitiveness
Index 2019
(0-100)⁹⁰ | **20.01**
(rank: 240/268)⁹²



GDP
(EUR million,
2019)⁹³ | **6 308**

EU Quality of
Government
Index⁹⁴ 2017
(0-100) | **19.6**
(rank: 177/202)⁹⁵

⁸⁹ European Commission, [Regional Innovation Scoreboard \(RIS2021\)](#), 2021.

⁹⁰ European Commission, [European Regional Competitiveness Index](#), 2019.

⁹¹ The RIS 2021 provides a comparative assessment of the performance of innovation systems across 240 regions of 22 EU countries, while Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are presented at country level. For more information, please refer to the Hollanders, H., and Es-Sadki, N., *RIS 2021 – Methodology Report*, European Commission, 2021.

⁹² The RCI 2019 has been measuring the competitiveness over the past ten years for all the NUTS II level regions across the (then) 28 EU member States. It is based on the NUTS II level but those which are part of the same metropolitan area are combined. For more information, please refer to the [RCI Methodological Paper](#): Annoni, P., and Dijkstra, L., *The EU Regional Competitiveness Index 2019*, European Commission, 2019.

⁹³ National Statistical Institute (NSI), [GDP by Regions](#), January 28, 2021 (the latest available data is for 2019).

⁹⁴ Charron, N., Lapuente, V., and Annoni, P., “Measuring Quality of Government in EU Regions Across Space and Time,” *Papers in Regional Science*, vol. 98 (1) February 2019, DOI: 10.1111/pirs.12437. For more information, please visit the QoG EU Regional *Database* (the latest available data is for 2019).

⁹⁵ The sub-national regions are at the NUTS 1 or NUTS 2 level, depending on the country. For more information, please refer to the [Regions’ Scorecards and Benchmark Tool](#).

The North-East Region is the smallest by size region in Bulgaria, bordering the Black Sea and the Danube River. The administrative districts in the North-East Region are Varna, Shumen, Targovishte and Dobrich. Varna is the largest one and hosts over half of the region's population. Agricultural territories take up 68.3% of the total area of the region, including some of the most fertile lands in the country.

The NER holds second place in the country in terms of GDP per capita. The region's investment stock is concentrated primarily in the Varna district, with its appeal as a tourist and logistical center on the Black Sea coast. The FDI stock in the North-East planning region amounts to EUR 2.46 billion⁹⁶. Varna, the country's third most populous city, is a leader in innovation capabilities in North Bulgaria.

It is noteworthy that the Varna district is significantly ahead of the other districts of the NER in terms of economic development. Varna is gradually becoming a preferred coastal outsourcing destination, which could be the first step towards building a strong core of high-tech businesses in the future.

There are 52,549 enterprises from the non-financial sector operating in the region (12.8% of the total in the country) that generated revenues of EUR 15.577 billion, SMEs contributing the largest share in the revenues.⁹⁷

The number of successfully awarded contracts within tenders published on Tenders Electronic Daily (TED)⁹⁸ above EUR the 130,000 threshold is 338, well below the average for the country of 494.

The region still lags far behind in terms of digitalization of business and local authorities, as well as the reception of green technologies in comparison to the average EU level.



Territory
14 645 km²



Population
922 230 people



GDP per capita
EUR 6 805



**Smart Specialization
Strategy 2021-2027
focus areas:**

- CleanTech, circular and low-carbon economy
- Mechatronics
- Industry for Healthy lifestyle and BioTech
- New Technologies in the Creative and Recreative Industries
- Informatics and ICT

⁹⁶ National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020 (the latest available data is for 2019).

⁹⁷ National Statistical Institute, [Revenues](#), August 31, 2021 (the latest available data is for 2020).

⁹⁸ Tenders Electronic Daily (TED) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement.

Advantages

Opportunities for participation in Black Sea economic cooperation.

Varna is the largest multipurpose Bulgarian sea port with modern equipment and specialized terminals. Varna also possess an international airport.

Increasing GDP per capita in all districts of the region.

Second place in terms of average annual salary in the country.

The amount of R&D funding in the region has been on the rise. An increase in the number of R&D employees in the enterprises sector.

The region ranks first in the country with the highest share of enterprises that launched product innovations.

Good potential for the development of maritime industry, agriculture and tourism.

Opportunities for development of new wind and solar energy sources.

Disadvantages

Declining and aging population.

Higher than the national average unemployment rate.

Outflow of FDI in recent years.

Underdeveloped transport, technical and digital infrastructure.

Low activity of enterprises in terms of participation in forms of technology transfer.

Difficulties in recruiting highly qualified employees.

Insufficient connection and networking opportunities between the local authorities, science and business.

Substantial intraregional socio-economic differences.

Paths to attract constructive capital: key takeaways from interviews and focus groups with stakeholders

- “Varna City of Knowledge label” – Memorandum of Cooperation between the municipality, large, innovative IT companies and research institutions, which will unite efforts towards the smart specialization of the region. Some key projects include: i) development of a high-tech industrial zone in Varna; ii) the construction of a high-tech innovation area “Malka chaika” (Small seagull) in Varna; iii) reconstruction of the mathematical and other vocational schools in the city.
- Shumen and Targovishte are taking steps towards becoming smart cities – by implementing solutions as monitoring traffic, air, video surveillance, etc.
- There are robotics schools in Varna, as well as a Robotics Club at the Technical University. A Robo Academy has been established in Shumen in order to provoke the interest of young people in science and technology.
- The blue economy has great potential for development in NER and innovative companies such as Sea Harmony are a proof of success.
- Potential for green growth and energy efficiency solution could be found not only in traditional or offshore installations, but also in coastal water turbines, technologies for capturing energy from waves, tides, as well as floating solar panels and photovoltaic power plants.
- The agricultural sector holds substantial potential for the region, but it needs modernization; this can be done by introducing digital solutions that connect the state and business, including potential investors
- Smart systems are being developed in the municipality to find and propose the most appropriate land for potential investors. The municipality is aware of such solutions and is taking steps to digitalize its systems, but there is still a lack of administrative readiness among employees for this type of business services.
- More and more ICT companies outsource in Varna.

Table 11. EU funds financing 2014-2020 by region*

	EUR Total	Beneficiaries (total)
Bulgaria	12 163 295 942	33 158
South-West	3 534 564 750	12 717
South Central	1 264 479 709	5 838
South-East	1 557 013 392	4 329
North-East	717 897 344	3 866
North Central	688 168 424	3 165
North-West	927 827 732	2 799

* Sum of contracted projects as of June 2021.

Source: CSD/ARC Fund based on data from the Information System for Management and Monitoring EU Funds.

Table 12. GDP and GVA by economic sector and region, 2019 – NER (EUR, million)

Statistical region (NUTS II)	Gross Value Added by economic sector (GVA)			GDP	GDP per capita (EUR)
	Agriculture	Industry	Services		
North-East	335	1 419	3 691	6 308	6 805
Varna	89	834	2 470	3 931	8 355
Dobrich	102	171	490	884	5 118
Targovishte	59	168	288	596	5 353
Shumen	85	246	443	897	5 203
North Central	319	1 265	2 350	4 557	5 852
North-West	328	1 095	1 987	3 939	5 357
South-East	302	2 194	3 389	6 819	6 632
South-West	287	4 599	21 830	30 951	14 751
South Central	411	2 667	4 401	8 666	6 153

Source: NSI, CSD, and ARC Fund, 2021.

Regional business environment and investment landscape

In 2020, Varna was awarded the City of Knowledge label, which prompted the municipality, educational institutions and businesses to sign a Memorandum of Cooperation to promote regional development and smart specialization. This is an initiative aimed at long-term development toward achieving a transformation of the economic profile of Varna and the region through digital,

innovative and green solutions, towards high productivity and income. Leading sectoral and national associations such as: Health & Life Sciences Cluster Bulgaria, Artificial Intelligence Bulgaria Cluster, United Drone Society, Bulgarian Employers Association Innovative Technologies and Professional Association of Robotics and Automation, also participate in the Memorandum.

During 2021-2027, more resources from both European and national funds will be focused on intraregional development and cooperation. Such support for integrated urban development will also be provided through EU territorial instruments and the Program for Development of Regions 2021-2027. As a result, 10 urban municipalities will be additionally funded to develop 4 urban clusters. For the North Central and the North-East regions, which fall into a single cluster group – the municipalities of Ruse, Veliko Tarnovo, and Varna are selected as beneficiaries.⁹⁹

FDI, R&D and innovation

The FDI stock in the NCR is EUR 2.46 billion.¹⁰⁰ All districts in the region with the exception of Targovishte, have recently recorded a decline in FDI. Some of the outflow is attributed to increased political instability. Local stakeholders have reported increased foreign investor interest in the industrial zones in Shumen and Varna.

The NER falls into the group of emerging innovators and ranks 229th among 240 EU regions on the overall performance of its innovation system. Nevertheless, the NCR's innovation performance has gradually increased over time (8.4% change between 2014 and 2021).¹⁰¹

The region has potential for regional and sectoral specialization, as its individual economic centers have specific competitive advantages in both traditional and high-tech sectors. The presence of a large area of agricultural land, as well as the sea – provide prospects for the development of agriculture, tourism, and energy.

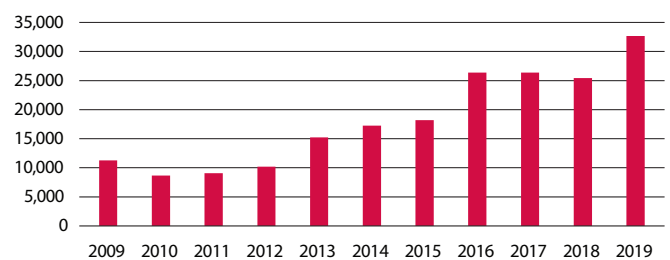
The number of innovative enterprises in NCR is 1,620, or 3.02% of the number of all enterprises registered in the region.¹⁰²

The region's total R&D expenditures amount to EUR 32.647 million annually, of which slightly over the half come from business. The numbers show a robust annual growth. According to the data, the NER is ahead of

all other regions with the exception of the South Central in terms of R&D expenditures growth.

The staff engaged in R&D in the regional economy is around 3,687 people¹⁰³. The number of R&D staff in enterprises is only a quarter of the total number for the region. The number of students in universities in NER has declined by 32.0% in the past decade, which was more than the average for the country (-20.7%)¹⁰⁴.

Figure 13. R&D expenditure in the North-East Region (EUR, thousand)



Source: NSI.

The North-East region has traditions in the following industries: food processing, chemicals, construction, electrical equipment, textiles and leather, agriculture and tourism (primarily summer tourism). The maritime industry is of particular importance to the economy of the region, including shipping, port management, shipbuilding and ship repairs, marine resources, maritime science and education, as well as all other activities and services covering the maritime business.¹⁰⁵

Varna has become a regional hub for higher-tech sectors, such as mechatronics related to maritime industry, and ICT. Varna is also an outsourcing destination. In Dobrich, there are opportunities for developing agriculture and biotech (pharmaceuticals and cosmetics). Innovative companies emerge in the digitalization of agriculture.

There is medium tech production of rubber/plastics products in Dobrich and Shumen. of chemical products and transport equipment in Varna; electrical equipment and metal products in Targovishte, and metal and mineral products in Shumen.

⁹⁹ The Program for the Development of Regions 2021-2027 is co-financed by the European Regional Development Fund and the Just Transition Fund. The program is still under final preparation and draft version is available on: bgregio.eu.

¹⁰⁰ National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020.

¹⁰¹ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

¹⁰² According to the latest available data from NSI (2016-2018)

¹⁰³ National Statistical Institute, [Total R&D personnel by sectors, regions and sex](#), February 26, 2021 (the latest available data is for 2019).

¹⁰⁴ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of North-East Region 2021-2027](#), 2020.

¹⁰⁵ MRDPW (2012). Annual monitoring report on the updated document on the implementation of the regional development plan for the north-eastern region 2011-2013.

In terms of smart specialization in 2014-2020 NER put an emphasis on mechatronics and clean technologies, healthy life and biotechnology and new technologies in the creative and recreative industries.

Digitalization

There is only one submitted project proposal from NER for a European Digital Innovation Hub from the Association Varna Digital Innovation Hub.

The NER lags behind the EU average but is on the country's average in digitalization, including on indicators related to business digitalization; the degree of e-government penetration; and the degree of digital reception in society.

In 2020 there were around 5,800 people employed ICT specialist in the region, which is a decline from previous years.¹⁰⁶ The employment in high-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) declined to 1.4% out of the total employment in the region (5,700 people in 2020), lower than the country's level of 4.2% in 2020 (131,000 people).

The share of the people who use internet for interaction with public authorities is 26%, which is the second highest score among the country's regions.¹⁰⁷

¹⁰⁶ EUROSTAT, [Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex \(from 2008 onwards, NACE Rev. 2\)](#), last update: September 11, 2021.

¹⁰⁷ According to data from EUROSTAT, [Individuals who used the internet for interaction with public authorities](#), last update: May 25, 2021. The interaction with public authorities includes the following activities: obtaining information from websites or apps, downloading official forms and/or submitting completed online forms

Green technologies and decarbonization

The natural conditions of the region are suitable for the development of renewable energy, such as solar, and onshore and offshore wind.

The region has the best conditions for wind energy and it hosts the most installations of onshore wind – in the municipalities of Kavarna, Balchik and Shabla¹⁰⁸. The region does not yet have any offshore wind installations.

Interviewed stakeholders from the region have repeatedly acknowledged that NER has started attracting constructive investments in green and blue technologies, thus making the economy more carbon neutral.

Some local companies, such as Sea Harmony, have implemented green manufacturing solutions with a global impact. Sea Harmony helps reverse the ecological decline of marine ecosystems by developing a sustainable mussel and aquaculture industry through reef technology.

Key regional constructive capital stakeholders and innovative companies

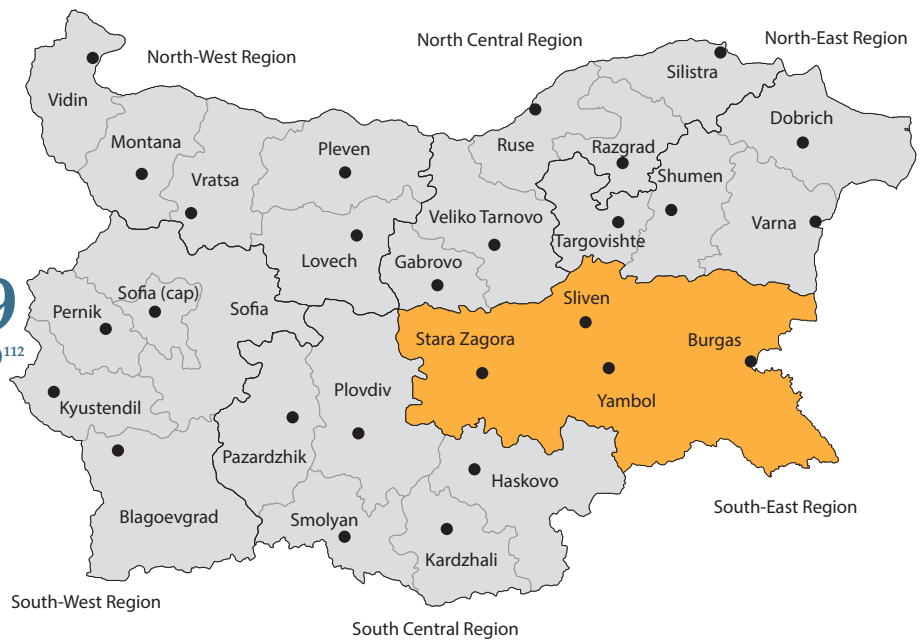
- Marine Cluster (Varna)
- Dobrudja Agricultural Institute (Dobrich)
- Technical University of Varna (including its High Technology Park) (Varna)
- Regional Agency for Entrepreneurship and Innovation (Varna)
- Black Sea Economic Zone Cluster (Varna)
- Chamber of Commerce and Industry – Dobrich
- Sea Harmony (Varna)
- Solvay (Devnya)
- Chernomorec (Varna)
- Farma Vet (Shumen)
- Agropolihim (Devnya)
- KBC Group (Shared Service Center, office Varna)
- Coca-Cola European Partners (office Varna)
- PaySafe Group (office Varna)
- Pontica Solutions (office Varna)

¹⁰⁸ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of North-East Region 2021-2027](#), 2020.

ANNEX 4. South-East Region

Regional
Innovation
Index, 2021
(RIS 2021)¹⁰⁹ | **27.2**
(rank: 234/240)¹¹¹
Emerging
Innovator

EU Regional
Competitiveness
Index 2019
(0-100)¹¹⁰ | **13.79**
(rank: 248/268)¹¹²



GDP
(EUR million,
2019)¹¹³ | **6 819**

EU Quality of
Government
Index¹¹⁴ 2017
(0-100) | **1.6**
(rank: 199/202)¹¹⁵

¹⁰⁹ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

¹¹⁰ European Commission, [European Regional Competitiveness Index](#), 2019.

¹¹¹ The RIS 2021 provides a comparative assessment of the performance of innovation systems across 240 regions of 22 EU countries, while Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are presented at country level. For more information, please refer to the Hollanders, H., and Es-Sadki, N., *RIS 2021 – Methodology Report*, European Commission, 2021.

¹¹² The RCI 2019 has been measuring the competitiveness over the past ten years for all the NUTS II level regions across the (then) 28 EU member States. It is based on the NUTS II level but those which are part of the same metropolitan area are combined. For more information, please refer to the [RCI Methodological Paper](#): Annoni, P., and Dijkstra, L., *The EU Regional Competitiveness Index 2019*, European Commission, 2019.

¹¹³ National Statistical Institute (NSI), [GDP by Regions](#), January 28, 2021 (the latest available data is for 2019).

¹¹⁴ Charron, N., Lapuente, V., and Annoni, P., “Measuring Quality of Government in EU Regions Across Space and Time,” *Papers in Regional Science*, vol. 98 (1) February 2019, DOI: 10.1111/pirs.12437. For more information, please visit the QoG EU Regional *Database* (the latest available data is for 2019).

¹¹⁵ The sub-national regions are at the NUTS 1 or NUTS 2 level, depending on the country. For more information, please refer to the [Regions’ Scorecards and Benchmark Tool](#).

The South-East Region is located on the Black Sea coast and borders Turkey. The major administrative districts in SER are Burgas, Sliven, Yambol and Stara Zagora. Burgas is the regional capital and represents half of the region's territory.

The SER ranks third in terms of GDP and GDP per capita. Yet, its GDP is more than four times smaller than that of the leading region in the country, SWR.¹¹⁶ The economy of the region is centered around two leading industrial cities – Burgas and Stara Zagora. Stara Zagora district has the highest growth in GDP and GDP per capita in the region. The gross value added in the industrial sector in Stara Zagora district is the highest in the region, and has almost doubled in value during the past decade.

The FDI stock has reached EUR 3.309 billion.¹¹⁷ The region is classified as an emerging innovator and is among the lowest performing in European Union.¹¹⁸

One of the main challenges for the region in the coming years is to lay the groundwork for the transformation of the energy sector. The region hosts the country's biggest lignite open coal mine and the largest energy producing complex – Maritza East. Exiting coal by 2030 will be the region's greatest challenge and opportunity as it will be among the largest recipients of EU funds in the country until 2027. The region has ambitions to specialize in industrial manufacturing, including for the automotive industry.

There are 56,330 enterprises from the non-financial sector operating in the region that generate revenues of EUR 17.277 billion. SMEs provide the largest share of the revenues.¹¹⁹

The number of successfully awarded contracts within tenders published on Tenders Electronic Daily (TED)¹²⁰ above the EUR 130,000 threshold is 546, which is higher than the average for the country of 494. The region is also the second most successful in the country in terms of EU funds' investments in the 2014-2020 period.

The city of Burgas is considered one of the „smartest“ in Bulgaria, although the digitalization of business and administration is still comparatively low.



Territory
19 799 km²



Population
1 020 187 people



GDP per capita
EUR 6 632



**Smart Specialization
Strategy 2021-2027
focus areas:**

- CleanTech, circular and low-carbon economy
- Mechatronics
- Industry for Healthy lifestyle and BioTech
- Informatics and ICT

¹¹⁶ National Statistical Institute, *GDP by Regions*, January 28, 2021.

¹¹⁷ National Statistical Institute, *Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts*, November 30, 2020 (the latest available data is for 2019).

¹¹⁸ European Commission, *Regional innovation scoreboard (RIS2021)*, 2021.

¹¹⁹ National Statistical Institute, *Revenues*, August 31, 2021 (the latest available data is for 2020).

¹²⁰ Tenders Electronic Daily (TED) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement.

Advantages

Increasing GDP per capita, although it remains below the national average.

Possibility for development of intermodal transport by air, sea and land.

Rising levels of FDIs in non-financial enterprises.

Steady growth of R&D employees although from a low base.

Relatively well-established network of research institutes and universities.

Many (40%) companies said they have launched new products on the international market.

Sizable public funding opportunities expected for the energy transition of the region.

Opportunity for the development of the blue economy in the region, including jointly with other countries.

Disadvantages

Population decline and aging.

Intraregional demographic, social, economic and territorial imbalances.

The coefficient of economic activity remains below the national average.

Deteriorating innovation potential.

Low activity of enterprises in the region in terms of participation in technology transfer.

Low share of people with digital skills.

The largest emitter of greenhouse gases and sulfur dioxide in the country.

Low air quality due to polluting industrial production.

Paths to attract constructive capital: key takeaways from the interviews and focus groups with stakeholders

- The individual regional stakeholders responsible for the business environment are active but their work is not well coordinated.
- Municipalities need to work on fostering their information campaigns toward regional business perspectives, as well to improve their events organizational and digital skills, and e-public services.
- Stara Zagora needs to develop a Territorial 'Just Transition' Plan for the region to utilize additional funds from the EU 'Just Transition' Fund. The document is of great strategic importance for the future economic and social development of the whole region.
- The Chamber of Commerce and Industry Stara Zagora is working on a project toward building an intermodal terminal for combined cargo Stara Zagora. This is an infrastructure project of strategic importance for the investment attractiveness of the region, which will be proposed for integration into the Just Transition Plan of Stara Zagora and neighboring areas affected by the conversion of coal production, as well as within the Three Seas Initiative.
- One of the most vexing problems for the region is the lack of skilled technical staff with both secondary and higher education.
- The Maritza East coal industrial complex is expected to lay off a lot of qualified personnel in the energy transition. The region needs to retain the highest possible share of this personnel by opening up opportunities in mechatronics, hydrogen, digital technologies, artificial intelligence, and others.
- There has been a strong ICT community in Burgas for years, but one is also being created in Stara Zagora (e.g. ZaraLab).
- In the Industrial Zone in Stara Zagora there are modern laboratories, which could provide more added value for the businesses in the region (e.g. 3D laboratory for virtual reality).
- Potential restoration of Stara Zagora Airport as a cargo airport could improve the overall regional investment attractiveness.

Table 13. EU funds financing 2014-2020 by region*

	EUR Total	Beneficiaries (total)
Bulgaria	12 163 295 942	33 158
South-West	3 534 564 750	12 717
South Central	1 264 479 709	5 838
South-East	1 557 013 392	4 329
North-East	717 897 344	3 866
North Central	688 168 424	3 165
North-West	927 827 732	2 799

* Sum of contracted projects as of June 2021.

Source: CSD/ARC Fund based on data from the Information System for Management and Monitoring EU Funds.

Table 14. GDP and GVA by economic sector and region, 2019 – SER (EUR, million)

Statistical region (NUTS II)	Gross Value Added by economic sector (GVA)			GDP	GDP per capita (EUR)
	Agriculture	Industry	Services		
South-East	302	2 194	3 389	6 819	6 632
Burgas	98	599	1 734	2 816	6 870
Sliven	57	184	424	770	4 157
Stara Zagora	86	1 253	923	2 620	8 155
Yambol	62	159	308	613	5 186
North-East	335	1 419	3 691	6 308	6 805
North Central	319	1 265	2 350	4 557	5 852
North-West	328	1 095	1 987	3 939	5 357
South-West	287	4 599	21 830	30 951	14 751
South Central	411	2 667	4 401	8 666	6 153

Source: NSI, CSD, and ARC Fund, 2021.

Regional business environment and investment landscape

Overall, the region is attractive for foreign investment. It has good infrastructure and a key geographical location. Stara Zagora and Burgas have a fast highway connection to the capital, as well as access to the Black Sea. Burgas also has an international airport.

Among the main challenges in the development of the SER during the next decade is the energy transition and coal exit. Stara Zagora will be the most affected district in the country.

The municipalities of Burgas and Stara Zagora are some of the most active regional stakeholders, but there is still much to improve, especially in terms of dialogue with business. Businesses often note that digitalization in the region is insufficient and is often a barrier to investors. There is hope that the established digital innovation hubs in Burgas and Stara Zagora will play a positive role in the region's further digitalization.

During the EU funding period 2021-2027, more resources from both European and national funds will be focused on intraregional development and cooperation. SER will receive some of the highest amounts of support in its history, depending on the level of preparedness of local and regional authorities and other stakeholders. The EU territorial support instruments further fund 10 urban municipalities to develop 4 urban clusters. For the South-East and South Central regions, which fall into a single cluster group – the municipalities of Burgas, Stara Zagora, and Plovdiv have been selected as beneficiaries.¹²¹

FDI, R&D and innovation

Foreign direct investment (FDI) stock in the non-financial sector in the region amounts to EUR 3.309 billion.¹²² This represents nearly 13% of the total amount for the country. Investments are expected to increase in the coming years, but this largely depends on the proper implementation of forthcoming reforms and the management of ongoing infrastructure projects, educational reforms and regional networks.

The SER falls into the group of *Emerging innovators* and ranks 234th among 240 EU regions. Moreover, SER's innovation performance has increased over the past decade by just 0.7%.¹²³ The region has potential for specialization in both traditional and high-tech areas. The presence of a large area of agricultural land, the connection with the sea and the largest energy complex in the country provide great prospects for the development of biotechnology and agriculture, ICT, and energy transition.

¹²¹ The Program for the Development of Regions 2021-2027 is co-financed by the European Regional Development Fund and the Just Transition Fund. The program is still under final preparation and draft version is available on: bgregio.eu.

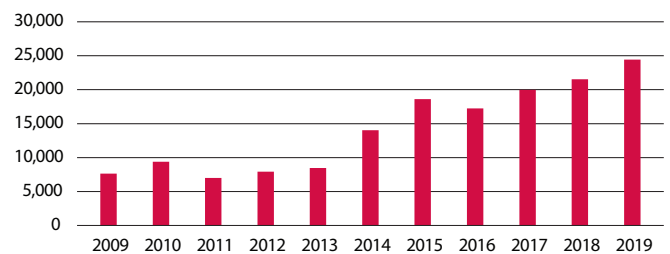
¹²² National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020.

¹²³ European Commission, [Regional innovation scoreboard \(RIS2021\)](#). The data concerns the period 2014-2020.

The number of innovative enterprises in SER is 1,697¹²⁴, or 2.91% of the number of all enterprises positioned in the region.

The region's total R&D expenditures are growing and amount to EUR 24.438¹²⁵ million annually, of which more than 75% comes from business. The staff engaged in R&D in the regional economy is around 2,730 people¹²⁶, and it is rising. According to this indicator, the region ranks third in the country after South-West and South Central regions.

Figure 14. R&D expenditure in the South-East Region (EUR, thousand)



Source: NSI.

During the last decade the number of students in universities in the region has decreased by 31.4% in SER, which is by a third higher than the average decline for the country¹²⁷.

South-East region has traditions in: food and drinks production, textile production, chemical industry, and wood processing. Although, it is not among the leaders in terms of R&D expenditures, it also has good opportunities for smart specialization in the spheres related to mechatronics (including automotive and robotics), ICT, biotechnology, agriculture and chemical industries.

The energy sector has a leading position in the region, with the largest oil refinery on the Balkans in Burgas and the largest coal energy complex of the country in Stara Zagora. Both are facing challenges and opportunities in the context of the 'just energy' transformation process in Europe. Stara Zagora and Burgas possess good

¹²⁴ National Statistical Institute, Data for 2016-2018.

¹²⁵ National Statistical Institute, [Total intramural R&D expenditure \(GERD\) by regions and sectors](#), February 26, 2021 (the latest available data is for 2019).

¹²⁶ National Statistical Institute, [Total R&D personnel by sectors, regions and sex](#), February 26, 2021 (the latest available data is for 2019).

¹²⁷ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of South-East Region 2021-2027](#), 2020.

potential for the development of hydrogen energy, which could become a hub for innovation and high-tech investment. However, many stakeholders are worried energy transition if misguided could result in unemployment, falling living standards, industrial and population decline.

In terms of smart specialization during the period 2014-2020 SER chose to specialize in mechatronics and clean technologies, healthy life and biotechnology, and new technologies in the creative and recreative industries. The Stara Zagora district has already accumulated production and human resources in medium and medium high-tech industrial sectors, which is a good basis for smart specialization of industries with higher added value.

Digitalization

SER has submitted two of altogether 17 national projects of Bulgaria have been submitted the development of European Digital Innovation Hubs (EDIHs):¹²⁸ i) European Digital Innovation Hub “ZAGORE”; ii) South-east Digital Innovation Hub Association (DigIhub).

SER is at the country’s average level of digitalization but is lagging behind the EU average. The region has around 4,400 employed ICT specialists¹²⁹, which are on the rise. The share of people who use the internet for interaction with public authorities is 23% in SER, which is below the country’s average (41%).¹³⁰

The employment in high-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) rose to 1.2% out of total employment in the region (to 5,200 people in 2020). Yet it remains well below the country’s 4.2% in 2020 (131,000 people).¹³¹

¹²⁸ National selection of European Digital Innovation Hubs in Bulgaria under the Digital Europe Programme 2021-2027.

¹²⁹ EUROSTAT, *Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex (from 2008 onwards, NACE Rev. 2)*, last update: September 11, 2021.

¹³⁰ According to data from EUROSTAT, *Individuals who used the internet for interaction with public authorities*, last update: May 25, 2021. The interaction with public authorities includes the following activities: obtaining information from websites or apps, downloading official forms and/or submitting completed online forms.

¹³¹ EUROSTAT, *Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex (from 2008 onwards, NACE Rev. 2)* (data is for 2020).

Green technologies and decarbonization

The natural conditions in SER are particularly favorable for the deployment of solar energy. The renewable energy sources installed capacity in the SER represent 13.6% of the total in the country, which ranks the region third after SCR and NER¹³². In each municipality of the South-East Region there are photovoltaic power plants. The leading districts are Yambol, Burgas and Stara Zagora. Pilot projects are currently being developed related to the implementation of hydrogen energy in the Maritza East Complex.

Whether the region will succeed in making the ‘Just Energy’ Transition a success will ultimately depend on how well the regional and local administrations will cooperate with businesses and regional stakeholders in leveraging the sizable EU public support to attract constructive capital from the private sector internationally. There are many existing legislative and regulatory bottlenecks in the development and penetration of renewable energy sources, which have allowed only large-scale incumbents to benefit. For example, stakeholders have pointed out that energy distribution companies are disincentivized to link to the network smaller (household and community) producers.

Key regional constructive capital stakeholders and innovative companies

- Chamber of Commerce and Industry Stara Zagora
- Thracian University of Stara Zagora
- Stara Zagora Regional Economic Development Agency (Stara Zagora)
- Pure Environment Technologies Cluster (Stara Zagora)
- BalBok (Laboratory, Stara Zagora)
- Yazaki Bulgaria (Yambol)
- Standard Profil (Stara Zagora)
- Bulmetal (Gurkovo, Stara Zagora)
- Caproni (Kazanlak, Stara Zagora)
- TechnoLogica (office Burgas)
- Musala Soft (office Burgas)
- Scalefocus (office Burgas)

¹³² Ministry of Regional Development and Public Works, *Integrated territorial development strategy of South-East Region 2021-2027, 2020.*

ANNEX 5. South Central Region

Regional
Innovation
Index, 2021
(RIS 2021)¹³³ | **35.7**
(rank: 228/240)¹³⁵
Emerging
Innovator

EU Regional
Competitiveness
Index 2019
(0-100)¹³⁴ | **21.21**
(rank: 237/268)¹³⁶



GDP
(EUR million,
2019)¹³⁷ | **8 666**

EU Quality of
Government
Index¹³⁸ 2017
(0-100) | **15.8**
(rank: 184/202)¹³⁹

¹³³ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

¹³⁴ European Commission, [European Regional Competitiveness Index](#), 2019.

¹³⁵ The RIS 2021 provides a comparative assessment of the performance of innovation systems across 240 regions of 22 EU countries, while Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are presented at country level. For more information, please refer to the Hollanders, H., and Es-Sadki, N., [RIS 2021 – Methodology Report](#), European Commission, 2021.

¹³⁶ The RCI 2019 has been measuring the competitiveness over the past ten years for all the NUTS II level regions across the (then) 28 EU member States. It is based on the NUTS II level but those which are part of the same metropolitan area are combined. For more information, please refer to the [RCI Methodological Paper](#): Annoni, P., and Dijkstra, L., [The EU Regional Competitiveness Index 2019](#), European Commission, 2019.

¹³⁷ National Statistical Institute (NSI), [GDP by Regions](#), January 28, 2021 (the latest available data is for 2019).

¹³⁸ Charron, N., Lapuente, V., and Annoni, P., “[Measuring Quality of Government in EU Regions Across Space and Time](#),” *Papers in Regional Science*, vol. 98 (1) February 2019, DOI: 10.1111/pirs.12437. For more information, please visit the [QoG EU Regional Database](#) (the latest available data is for 2019).

¹³⁹ The sub-national regions are at the NUTS 1 or NUTS 2 level, depending on the country. For more information, please refer to the [Regions’ Scorecards and Benchmark Tool](#).

The territory of the South Central Region encompasses five districts: Pazardzhik, Plovdiv, Smolyan, Haskovo, and Kardzhali. Almost half of the region's area is agricultural territories.

The SCR ranks second after the South-West in terms of GDP and fourth in terms of GDP per capita, after SWR, SER and NER. A comparison between the most developed SWR and SCR shows more than three times difference in GDP – EUR 30.951 billion compared to EUR 8.666 billion¹⁴⁰.

The economy of the region is determined primarily by the second largest city in the country – Plovdiv, although there are some small municipalities with an increasing share of business activity.

The FDI stock of the region is EUR 2.850 billion.¹⁴¹ The region is classified as an emerging innovator and is among the lowest performing in the European Union.¹⁴²

There are 72,539 enterprises from the non-financial sector operating in the region that generated revenues of EUR 22.877 billion. SMEs had the largest share in these revenues.¹⁴³

The number of successfully awarded contracts within tenders published on Tenders Electronic Daily (TED)¹⁴⁴ above the EUR 130,000 threshold is 487, lower than the country's average of 494.

Green technologies are actively entering the region. There are already several smart factories established in the region, which has set a successful example for the rest.



Territory
22 306 km²



Population
1 403 991 people



GDP per capita
EUR 6 153



**Smart Specialization
Strategy 2021-2027
focus areas:**

- CleanTech, circular and low-carbon economy
- Mechatronics
- Industry for Healthy lifestyle and BioTech
- Informatics and ICT

¹⁴⁰ National Statistical Institute, [GDP by Regions](#), January 28, 2021 .

¹⁴¹ National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020 (the latest available data is for 2019).

¹⁴² European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

¹⁴³ National Statistical Institute, [Revenues](#), August 31, 2021 (the latest available data is for 2020).

¹⁴⁴ Tenders Electronic Daily (TED) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement.

Advantages

The region has the second largest population in the country. The region ranks second in terms of total GDP. Strong performance of research institutes involved in European projects.

The number of people employed in R&D amounts to 4,405 people and is rising, which is the most significant research potential in the country after SWR.

The region has the highest share of utility models, patents and EU research projects compared to other Bulgarian regions.

An established intermodal network, Plovdiv International Airport complements the transport services of the region.

Good potential for the use of renewable energy sources, in particular biomass, hydro and solar energy.

Opportunities for tourism – cultural and historical, spa, natural, eco-tourism, etc.

Disadvantages

Declining population, except in the Kardzhali district. GDP per capita in the region is significantly lower than the national average.

Recent outflows of foreign direct investment in non-financial enterprises.

Relatively low business innovation activity in terms of product and organizational innovations.

Below the country's average in terms of labor productivity of employees.

Underdeveloped railway network in some districts (e.g. Smolyan).

Significant interregional disparities in socio-economic development.

Paths to attract constructive capital: key takeaways from interviews and focus groups with stakeholders

- There is lack of strong integrated one-stop shop system for the benefit of investors – complete information on what is available, where it is available, what are the responsible institutions, etc. In this regard, the Municipality of Plovdiv, the Chamber of Commerce and Industry, Plovdiv and the Trakia Economic Zone cooperate well with each other, and could serve as a model example.
- Plovdiv is the first choice in the country of many local and foreign investors because of the relative abundance of labor force at lower costs. A well-known problem for the municipality of Plovdiv, related to investments is its limited size in terms of territory, which constrains its incentives regime.
- Faster introduction and promotion of e-government in SCR municipalities is critical for easing interactions with business and citizens. Digitalization of banks is also needed.
- In Plovdiv, there is an active group of new generation entrepreneurs, IT companies and specialists, ICT Cluster, as well as popular annual events for promotion of digitalization, innovation and doing business in the SCR.
- The Plovdiv district is forming a strong core for the development of projects related to the smart specialization of the region (mechatronics, biotechnology, etc.).
- There are good examples of local communities in smaller towns and municipalities, e.g. established club for innovation and entrepreneurship at a school in the town of Harmanli.
- Innovation in large enterprises is leading development of the economy, but is often overlooked. Innovation is not just about start-ups, there is a lot of innovation in existing companies that needs to be supported.

Table 15. EU funds financing 2014-2020 by region*

	EUR Total	Beneficiaries (total)
Bulgaria	12 163 295 942	33 158
South-West	3 534 564 750	12 717
South Central	1 264 479 709	5 838
South-East	1 557 013 392	4 329
North-East	717 897 344	3 866
North Central	688 168 424	3 165
North-West	927 827 732	2 799

* Sum of contracted projects as of June 2021.

Source: CSD/ARC Fund based on data from the Information System for Management and Monitoring EU Funds.

Table 16. GDP and GVA by economic sector and region, 2019 – SCR (EUR, million)

Statistical region (NUTS II)	Gross Value Added by economic sector (GVA)			GDP	GDP per capita (EUR)
	Agriculture	Industry	Services		
South Central	411	2 667	4 401	8 666	6 153
Kardzhali	74	257	329	764	4 911
Pazardzhik	82	436	600	1 295	5 095
Plovdiv	137	1 531	2 592	4 936	7 393
Smolyan	40	211	288	624	5 972
Haskovo	79	233	593	1 048	4 620
North-East	335	1 419	3 691	6 308	6 805
North Central	319	1 265	2 350	4 557	5 852
North-West	328	1 095	1 987	3 939	5 357
South-West	287	4 599	21 830	30 951	14 751
South-East	302	2 194	3 389	6 819	6 632

Source: NSI, CSD, and ARC Fund, 2021.

Regional business environment and investment landscape

Plovdiv prides itself for its investment climate. Most recently, due to economic instability in the Middle East and Turkey, the region has seen an increase in companies interested from these countries in moving their business to Plovdiv.

There are many small municipalities in the SCR that are developing rapidly because of their flexible local government, as well as because of the presence of large factories that unite cluster productions around themselves. An example of such a municipality

is Stamboliyski. These will be aided by increased European funding in the next decade. Plovdiv will further benefit from regional development funds from EU territorial instruments, as it will receive financing for establishing an urban cluster in 2021-2027.

Besides the Plovdiv district, the other regional centers lag further behind the national average. Smolyan and Kardzhali lag behind others in their innovative development, while Smolyan and Haskovo have attracted very low FDI volumes.

FDI, R&D and innovation

The total FDI stock in SCR declined recently to EUR 2.85 billion.¹⁴⁵ This makes up only 11% of the total amount of foreign direct investment in non-financial enterprises for the country.

The SCR falls into the group of emerging innovators and ranks 228th among 240 EU regions.¹⁴⁶ The number of innovative enterprises in SCR is 3,136, or 4.31% of the number of all enterprises registered in the region.

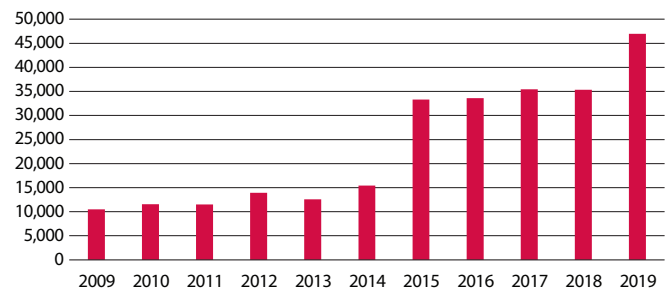
The region's total R&D expenditures amount to EUR 46.976 million annually (and rising), of which more than 60% come from the business sector.¹⁴⁷

The staff engaged in R&D in the region is on the rise, reaching around 4,405 people, which ranks the region second in the country on this count.¹⁴⁸

In the regional structure of R&D expenditures, enterprises have the highest share – 46%, followed by universities – 1,741 (40%) and public sector – 581 people (13%).

In the interregional partnerships, the region is presented mainly by Plovdiv and it is noteworthy that partners from other districts within the SWR are not or are rarely involved.

Figure 15. R&D expenditure in the South Central Region (EUR, thousand)



Source: NSI.

The number of students in universities in the region has decreased in the last decade by 18%, which is a lower decline than the country's average.¹⁴⁹

The Trakia Economic Zone (TEZ) operates on the territory of the SCR, which is among the most developed zones in terms of management and technology attractiveness in Bulgaria and Southeast Europe. TEZ plans to design and introduce the first carbon-neutral industrial parks in Bulgaria, which are a novelty for Europe as well.

The leading sectors in the SCR are manufacture of food products, beverages and tobacco products, followed by manufacture of basic metals, rubber and plastic products. Agriculture and organic farming also have a good starting position. The agricultural land in the region is abundant and fertile, and can be used to it smart and bio agriculture. The region is a preferred tourist destination with prospects for the development of creative industries.

In terms of smart specialization in 2014-2020 the SCR prioritized mechatronics and clean technologies, healthy life and biotechnology, and informatics and ICT. In addition, the municipality of Plovdiv itself developed a project for an Innovative strategy for smart specialization 2016-2020.

¹⁴⁵ National Statistical Institute, [Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts](#), November 30, 2020.

¹⁴⁶ [Regional innovation scoreboard \(RIS2021\)](#), European Commission, 2021.

¹⁴⁷ National Statistical Institute, [Total intramural R&D expenditure \(GERD\) by regions and sectors](#), February 26, 2021 (the latest available data is for 2019).

¹⁴⁸ National Statistical Institute, [Total R&D personnel by sectors, regions and sex](#), February 26, 2021 (the latest available data is for 2019).

¹⁴⁹ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of South Central Region 2021-2027](#), 2020.

Digitalization

SCR stakeholders submitted 5 of the 17 Bulgarian project proposals from SCR for European Digital Innovation Hubs (EDIHs): i) Utilities Digital Innovation Hub, ii) AgroHub Digital Innovation Hub, iii) Regional Innovation Center “Innovative Biotechnologies, Bioresources and Product of Next Generation”, iv) European Digital Innovation Hub L’Artis, and v) Digital innovation hub Mechanics.¹⁵⁰

The SCR is above the country’s average in most indicators of digitalization, but still lacks considerably behind the EU’s average level. In 2020 there were around 8,800 employed ICT specialists in the region, which has risen in recent years.¹⁵¹

Employment in high-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) has increased to above 2.9% out of total employment in the region (to 18,400 people in 2020). This indicator is higher for the country as a whole at 4.2% in 2020 (131,000 people).¹⁵²

The share of people who use the internet for interaction with public authorities is 20% in the SCR, which is below the country’s average.¹⁵³

Green technologies and decarbonization

The natural conditions of the region are suitable for the development of renewable energy installations. Based on the rich water resources in the South Central Region, 80% of the installed capacity for hydroelectric power in the country are concentrated on its territory (the leader is Pazardzhik district). Moreover, the SCR hosts 27% of the country’s solar power capacity, second only to the South-East Region¹⁵⁴.

¹⁵⁰ National selection of European Digital Innovation Hubs in Bulgaria under the Digital Europe Programme 2021-2027.

¹⁵¹ EUROSTAT, [Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex \(from 2008 onwards, NACE Rev. 2\)](#), last update: September 11, 2021 (data for 2020).

¹⁵² Ibid.

¹⁵³ According to data from EUROSTAT, [Individuals who used the internet for interaction with public authorities](#), last update: May 25, 2021. The interaction with public authorities includes the following activities: obtaining information from websites or apps, downloading official forms and/or submitting completed online forms.

¹⁵⁴ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of South Central Region 2021-2027](#), 2020.

Stakeholders from the region note that Bulgarian legislation on the environment is much more cumbersome than that of the EU. They see a need to optimize the regulatory framework regarding environmental impact assessments. Frequent changes of regulations and long administrative procedures have a negative impact on the opportunities for attracting constructive investments and stimulate corrupt practices. For instance, stakeholders have insisted for an urgent easing of the regime for construction of small renewable energy systems, up to 30 KWh.

The municipality of Plovdiv and the regional electricity distribution company EVN are currently under discussion for signing a Memorandum of Cooperation to outline strategic joint actions regarding regional environmental issues. Such memoranda could speed up the green transition and the circular economy if they ease household and business access to the electricity distribution system.

Key regional constructive capital stakeholders and innovative companies

- Chamber of Commerce and Industry (Plovdiv)
- AgroHub.BG (office Plovdiv)
- ICT Cluster – Plovdiv
- Trakia Economic Zone (Plovdiv)
- Srednogorie Industrial Cluster (Sofia)
- Paisii Hilendarski University of Plovdiv
- Medical University of Plovdiv
- Subsidiary of University of Mining and Geology (Kardzhali)
- Assarel-Medet (Panagyurishte)
- Liebherr (Radinovo, Plovdiv)
- Neochim (Dimitrovgrad)
- ORAK Engineering (Plovdiv)
- Aiger Engineering (Plovdiv)
- Vitanea (Plovdiv)

ANNEX 6. South-West Region

Regional
Innovation
Index, 2021
(RIS 2021)¹⁵⁵ | **55.6**
(rank: 199/240)¹⁵⁷
Emerging
Innovator

EU Regional
Competitiveness
Index 2019
(0-100)¹⁵⁶ | **44.29**
(rank: 181/268)¹⁵⁸



GDP
(EUR million,
2019)¹⁵⁹ | **30 951**

EU Quality of
Government
Index¹⁶⁰ 2017
(0-100) | **8.3**
(rank: 195/202)¹⁶¹

¹⁵⁵ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

¹⁵⁶ European Commission, [European Regional Competitiveness Index](#), 2019.

¹⁵⁷ The RIS 2021 provides a comparative assessment of the performance of innovation systems across 240 regions of 22 EU countries, while Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are presented at country level. For more information, please refer to the Hollanders, H., and Es-Sadki, N., *RIS 2021 – Methodology Report*, European Commission, 2021.

¹⁵⁸ The RCI 2019 has been measuring the competitiveness over the past ten years for all the NUTS II level regions across the (then) 28 EU member States. It is based on the NUTS II level but those which are part of the same metropolitan area are combined. For more information, please refer to the [RCI Methodological Paper](#): Annoni, P., and Dijkstra, L., *The EU Regional Competitiveness Index 2019*, European Commission, 2019.

¹⁵⁹ National Statistical Institute (NSI), [GDP by Regions](#), January 28, 2021 (the latest available data is for 2019).

¹⁶⁰ Charron, N., Lapuente, V., and Annoni, P., “Measuring Quality of Government in EU Regions Across Space and Time,” *Papers in Regional Science*, vol. 98 (1) February 2019, DOI: 10.1111/pirs.12437. For more information, please visit the [QoG EU Regional Database](#) (the latest available data is for 2019).

¹⁶¹ The sub-national regions are at the NUTS 1 or NUTS 2 level, depending on the country. For more information, please refer to the [Regions’ Scorecards and Benchmark Tool](#).

Overview

The South-West Region (SWR) borders with Greece, Serbia and the Republic of North Macedonia. The region consists of five districts: Sofia city, Sofia, Pernik, Kyustendil, and Blagoevgrad.

The SWR is the most advanced Bulgarian region in terms of socio-economic development due to the presence of the capital city, Sofia. The region is the only one classified as an emerging innovator + in Bulgaria.¹⁶² However, it still lags behind the average innovation development level of other European regions.

The FDI stock in the region, the highest in the country, reached EUR 14.978 billion in 2019¹⁶³. SWR's GDP is eight times higher than that of the least developed North-West Region.¹⁶⁴ SWR's GDP exceeds the contribution of all other planning regions combined, forming nearly 51% of GDP at the national level. However, there are considerable intra-regional disparities in SWR. The region needs further influx of constructive capital towards an innovation-driven, digitalized and green economy.

The SWR has the most diverse economy in the country with opportunities for developing smart specialization and attracting constructive capital in all priority areas for the country.

The region is host to more than 40% of all companies registered in the country, or 164,520 enterprises that generate revenues of EUR 92.091 billion¹⁶⁵.

The number of successfully awarded contracts from public tenders published on the Tenders Electronic Daily (TED)¹⁶⁶ above the EUR 130,000 threshold is 886, while the average for the country was 494 in 2019.

It also possessed the most developed (densest) network of higher education and R&D units in the country. Yet, most of these are concentrated in the city of Sofia.

The population of the region is nearly 30% of the population of the country. Nearly 33% of the country's workforce is concentrated in the region.



Territory
20 040 km²



Population
2 085 071 people



GDP per capita
EUR 14 751



Smart Specialization Strategy 2021-2027 focus areas:

- CleanTech, circular and low-carbon economy
- Mechatronics
- Industry for Healthy lifestyle and BioTech
- Informatics and ICT
- New Technologies in the Creative and Recreative Industries

¹⁶² European Commission, *Regional innovation scoreboard (RIS2021)*, 2021.

¹⁶³ National Statistical Institute, *Foreign direct investments in non-financial enterprises as of 31.12 by statistical regions and districts*, November 30, 2020 (the latest available data is for 2019).

¹⁶⁴ Ibid.

¹⁶⁵ National Statistical Institute, *Revenues*, August 31, 2021 (the latest available data is for 2020).

¹⁶⁶ Tenders Electronic Daily (TED) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement.

Advantages

The most sophisticated constructive capital demand factors in the country due to the presence of the capital, Sofia.

Key location, borders with the most developed EU country in the region - Greece.

Well-developed network of regional and local transport infrastructure, with potential for transnational cooperation.

Highly developed entrepreneurial eco-system with concentration of research and university units.

Ample resources for energy from renewable sources – wind, solar, geothermal with opportunity for the regional ‘just energy’ transition.

Concentration of high-tech production, capital and knowledge intensive human resources.

Well-developed industrial and services sectors. Sofia is an important IT hub with an international profile.

Disadvantages

Lack of constructive capital centers outside the capital Sofia; history of transborder criminality and corruption feeding into corrosive capital flows.

Significant intraregional inequalities in relation in socio-economic and infrastructural development.

Continuous decline and aging of the population (and hence demand for constructive capital) with the exception of Sofia city.

Weak links between the public sector, research centers and business. Low public-private partnership culture.

Low productivity and resource efficiency across SMEs and low share of high-tech enterprises, in particular outside Sofia city.

Low mobility of the population and business in some municipalities.

Paths to attract constructive capital: key takeaways from interviews and focus groups with stakeholders

- In Sofia, there are offices of a number of leading international companies in the field of ICT. The city is one of the economic centers in Europe with the highest number of newly-established start-ups, especially in the field of ICT.
- There is a lack of overall smart regional specialization focus toward high-tech niche production and services. The national strategy for smart specialization needs to put emphasis on regional and sectoral niche strengths.
- A key challenge for the region is to find new niches for development. Currently, Sofia city is mainly associated with IT and outsourcing services. But Sofia needs to develop another face: towards innovations, digitalization and green growth. Biotechnologies and life sciences are a good opportunity for the city to become a recognizable biotech hub in the Balkans. There are enough high-quality biotech companies, clusters, medical centers and specialists in SWR.
- Bulgaria could also specialize in the space/aerospace industry, based on its strong IT hub around Sofia city. Currently, it is very difficult to raise (quality, constructive) foreign investment in the sector, because the country is relatively unknown to international financial companies and investors. In addition, investments are longer-term in terms of returns, in intangible assets, which further complicates raising capital.
- The region is developing a strong community in terms of robotics and automation. The Professional Association of Robotics and Automation is an active stakeholder engaged with promoting robotics related activities and education of students throughout the country.
- Due to the high demand for skilled labor, leading IT companies have established their own academies for talent development in recent years. This further boosts the economic potential of the region and creates preconditions for more collaboration with science and universities, and for attracting more sophisticated constructive capital in the region.
- Labor productivity is low and the industrial production is highly energy intensive and energy inefficient. However, there is improvement in the quality of the workforce as well as increasing the number of students studying engineering and science, ICT, entrepreneurship, innovation and innovation in finance, etc.
- The internationalization of enterprises is low and the contribution of foreign direct investment to technology transfer is limited.
- There is a need to lower barriers to innovation by encouraging risk-taking and promotion of venture capital.
- In Sofia, increasing attention is paid to energy and resource efficiency and smart urban agriculture (e.g. hydroponics, aquaponics, aeroponics, vertical and rooftop gardens, etc.). As for the latter, there is a need for regulations with regard to the availability of municipal plots, opportunities for market realization as well as to enable public-partnership projects to ensure the entry of constructive capital.

Table 17. EU funds financing 2014-2020 by region*

	EUR Total	Beneficiaries (total)
Bulgaria	12 163 295 942	33 158
South-West	3 534 564 750	12 717
South Central	1 264 479 709	5 838
South-East	1 557 013 392	4 329
North-East	717 897 344	3 866
North Central	688 168 424	3 165
North-West	927 827 732	2 799

* Sum of contracted projects as of June 2021.

Source: CSD/ARC Fund based on data from the Information System for Management and Monitoring EU Funds.

Table 18. GDP and GVA by economic sector and region, 2019 – SWR (EUR, million)

Statistical region (NUTS II)	Gross Value Added by economic sector (GVA)			GDP	GDP per capita (EUR)
	Agriculture	Industry	Services		
South-West	287	4 599	21 830	30 951	14 751
Blagoevgrad	109	367	910	1 605	5 281
Kyustendil	45	143	305	571	4 841
Pernik	26	154	315	574	4 784
Sofia	75	957	678	1 980	8 691
Sofia city	32	2 978	19 622	26 220	19 737
North-East	335	1 419	3 691	6 308	6 805
North Central	319	1 265	2 350	4 557	5 852
North-West	328	1 095	1 987	3 939	5 357
South Central	411	2 667	4 401	8 666	6 153
South-East	302	2 194	3 389	6 819	6 632

Source: NSI, CSD, and ARC Fund, 2021.

Regional business environment and investment landscape

SWR's prospects for development and investment are positive in the long-term. Sofia city is likely to continue to concentrate an increasing share of economic activity in the country due to the positive demographic processes and its leadership in high-tech sectors. Hence, the region will be a critical indication for the country's ability to attract more constructive capital.

The region's highly skilled workforce will continue to attract investment in the fast-growing sectors of the IT industry, business services outsourcing and some relatively high value-added industrial activities.

Part of the SWR faces considerable industrial restructuring towards a green energy transition in the coming decade. The success of the transition will depend on the capacity of regional stakeholders to leverage EU public support in attracting higher private constructive capital investments. Pernik, and Kyustendil will have to develop Territorial Just Transition Plans for coal exit, which will drive EU support for the restructuring. This support will come on top of EU funding for recovery and resilience and for structural and investment support for the period 2021-2027. The focus of the latter two strands of funding will be on intraregional development and cooperation, to overcome overconcentration of resources in Sofia city. In addition, EU territorial instruments (such as Interreg) will provide further support for integrated urban development for the region and in particular for Sofia and Blagoevgrad.

FDI, R&D and innovation

The foreign direct investment (FDI) stock in SWR reached EUR 14.978 billion. FDI flows have been increasing in all districts of the region, with the exception of Pernik, with the most noticeable growth being in the Sofia city. Almost 60% of the country's FDI stocks are invested in SWR.

Investments in SWR are expected to grow further in the coming years with industrial zones and new R&D infrastructure, providing more and more opportunities for digitalization and green growth. However, attracting world class constructive capital would require furthering reforms in rule of law and administrative services in the country and in SWR in particular. Increasing the talent

pool would be a critical constraint for the longer-term development of the country and the region.

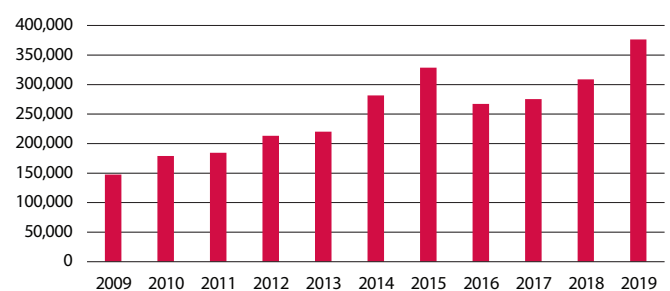
The SWR's innovation performance has increased by 11.4% between 2014 and 2021 and is the only region in Bulgaria which ranks in the upper scale of the group of Emerging Innovators + in the EU Regional Innovation Scoreboard.¹⁶⁷

The region has potential for regional and sectoral specialization in both traditional and high-tech thematic areas. There are prominent ICT, fintech, biotech, artificial intelligence and robotics and space science communities that could become the core for future knowledge and technology transfer and further smart specialization in these sectors.

The number of enterprises reporting R&D in SWR is 6,270, or 3.84% of all enterprises registered in the region¹⁶⁸. This points out to a high innovation absorptive capacity, which can propel constructive capital to the region.

The SWR has the highest share of R&D in the country. The region's total annual R&D expenditures amount to EUR 376 million, of which more than 2/3 come from business. Staff engaged in R&D in the region is around 20,175 people.¹⁶⁹ The number of students in universities decreased at average by over 20% in the country between 2011 and 2019 and by 32% in the SWR.¹⁷⁰

Figure 16. R&D expenditures in the South-West Region (EUR, thousand)



Source: NSI.

¹⁶⁷ European Commission, [Regional innovation scoreboard \(RIS2021\)](#), 2021.

¹⁶⁸ According to the latest available data from NSI (2016-2018).

¹⁶⁹ National Statistical Institute, [Total R&D personnel by sectors, regions and sex](#), February 26, 2021 (the latest available data is for 2019).

¹⁷⁰ Ministry of Regional Development and Public Works, [Integrated territorial development strategy of South-West Region 2021-2027](#), 2020.

In terms of smart specialization in the period 2014-2020, SWR focused on healthy life and biotechnology, informatics and ICT, and new technologies in the creative and recreative industries. In addition, the municipality of Sofia developed its own Strategy for Smart Specialization in 2015.

Digitalization

In 2020 there were almost 70,000 employed ICT specialists in the region. In addition, employment in high-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) was 8.6% of the total in the region (or 89,400 people in 2020). The corresponding indicators for the country as a whole stood at 4.2% (131,000 people)¹⁷¹.

The percentage of people who use the internet for interaction with public authorities is 41% in SWR, which was almost twice higher than the average for the rest of the regions (26%).¹⁷²

Regional stakeholders from SWR have applied for funding with the European Commission to develop three Digital Innovation Hubs until 2027¹⁷³: i) European Digital Innovation Hub in the Construction Sector, ii) European Digital Innovation Hub for Data Science, High Performance Computing and Artificial Intelligence, and iii) Association CreaTech Bulgaria.

¹⁷¹ EUROSTAT, *Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex (from 2008 onwards, NACE Rev. 2)*, last update: September 11, 2021.

¹⁷² According to data from EUROSTAT, *Individuals who used the internet for interaction with public authorities*, last update: May 25, 2021. The interaction with public authorities includes the following activities: obtaining information from websites or apps, downloading official forms and/or submitting completed online forms.

¹⁷³ National selection of European Digital Innovation Hubs in Bulgaria under the Digital Europe Programme 2021-2027.

Green technologies and decarbonization

The SWR, as well as the country as a whole, lags considerably behind EU average levels in the adoption of green technologies and decarbonization. The region is a large energy consumer. Given its very high share in the economy of the country it can lead in industrial energy efficiency and e-mobility, as well as household decarbonization.

The SWR holds 9.4% of the installed renewable energy sources capacity in the country¹⁷⁴. The region holds 14% of the built water energy capacity in the country. Blagoevgrad district and Sandanski municipality are leading in hydro capacity.

Key regional constructive capital stakeholders and innovative companies

- Health & Life Sciences Cluster Bulgaria (Sofia)
- Artificial Intelligence Cluster Bulgaria (Sofia)
- Professional Association of Robotics and Automation (Sofia)
- Invest Sofia (Sofia)
- Sofia Tech Park (Sofia)
- The Bulgarian Startup Association (BESCO) – Sofia
- The Bulgarian Employers Association Innovative Technologies (Sofia)
- Electric Vehicles Industrial Cluster (Sofia)
- Antelope Audio (Elektrosfera) – Sofia
- Printivo (Sofia)
- Bizportal (Sofia)
- Ondo Smart Farming Solutions (Sofia)
- Endurosat (Sofia)
- LAM'ON (Sofia)
- Power Drone (Sofia)
- Bulbera (Sofia)
- Next Door (Sofia)
- Alegi Engineering (Zlatitsa)
- ESCREO (Sofia)
- MP Studio (Sofia)
- Evedo Bulgaria (Sofia)
- International Power Supply (Sofia)

¹⁷⁴ Ministry of Regional Development and Public Works, *Integrated territorial development strategy of South-West Region 2021-2027, 2020*.

