

# Innovation.bg

*Innovation.bg* is the flagship initiative of ARC Fund.

- The *Innovation.bg 2021* zooms in on the dynamics of foreign direct investment flows in Bulgaria, including those made by innovative companies, and on the investments, related to the advancement of the ICT sector. The report analyses the policy of the Bulgarian government for supporting competitive businesses in the context of the burgeoning global challenges.
- The *National Innovation Forum* is a platform bringing together the government, the business community and research organizations to discuss ways of enhancing the performance of Bulgarian companies and boosting the innovation potential of the economy.
- The *Innovative Enterprise of the Year* contest is open to participants from all sectors of the industry nationwide. The Innovative Enterprise of the Year award acknowledges innovative enterprises, which have developed new, or have significantly improved their existing products, services or processes over a period of three years.

## *Innovation.bg 2021*

*Innovation.bg* is the Applied Research and Communications Fund's program for shaping the national innovation policy agenda. Through its three key components, ARC Fund provides expertise, policy-oriented and impact assessment know-how.

Since 2004, the *Innovation.bg* report has been a comprehensive annual performance assessment tool, which provides independent analysis of the national innovation system and the innovation performance of the Bulgarian economy. The report assesses the degree of business innovation activity, based on the understanding of the types of innovation and the degree of novelty of innovation products and processes. Bulgaria's innovation potential is evaluated in five major fields:

- 1) **Gross Innovation Product**, i.e. performance of the national innovation system, main innovation targets and challenges enterprises face.
- 2) **Entrepreneurship and innovation networks**, which reviews the setting up of new enterprises and the participation of Bulgarian producers in national and international value chains for the development of new products and services.
- 3) **Investment and Financing of Innovation**, which considers the role of foreign direct investment and the transfer of foreign R&D products and knowledge as well as the



available instruments for R&D investment.

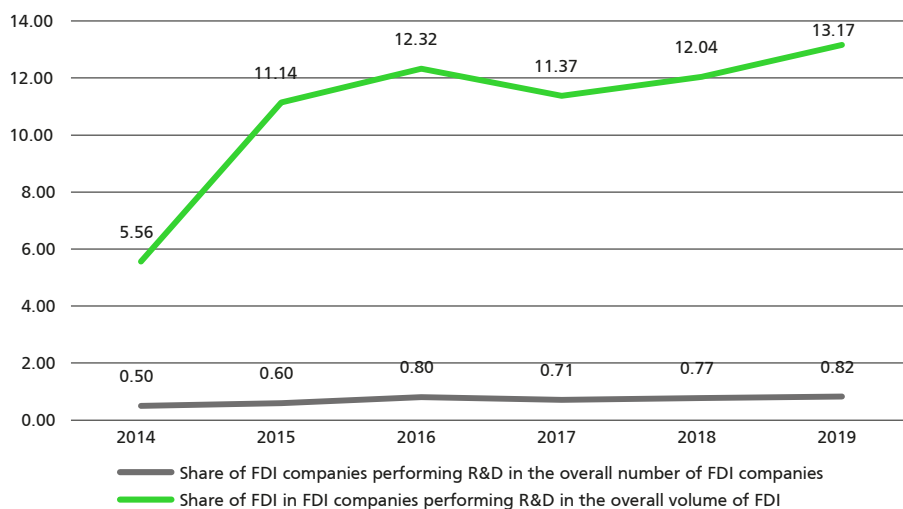
4) **Human capital for innovation**, i. e. availability of human resources capable of adopting foreign and/or creating local innovations in the economy.

5) **Information and communication technologies (ICT)**, i.e. ICT infrastructure as a R&D catalyst.

*Innovation.bg 2021: Building Innovation Recovery and Resilience in Bulgaria* highlights the dynamics of foreign direct investment flows in Bulgaria, including those made by innovative companies. The number of

companies with direct foreign investment has been significantly reduced by about 4,300, or more than 23% in five years. On the other hand, there has been an increase of 17.4% of the total volume of investments for the same period, which reached EUR 25 billion in 2019. At the same time, there has been **an increase in FDI companies, engaged in research**. However modest their number (only 38), the growth in investments in 2014–2019 is significant – over 2.5 times. Investments in FDI companies, which report to the NSI that they carry out research and development, rose from 5.5% in 2014 to 13.17% in 2019.

Fig. 1. Share of FDI companies performing R&D (2014 – 2019)



Source: National Statistic Institute

Foreign investment for the sole purpose of reducing costs is not sustainable and can easily leave the country. That is why it is necessary for the Invest Bulgaria Agency (IBA), the Ministry of Economy and local authorities to negotiate and know the conditions under which already existing foreign investments can move along the value chain and engage in research. After 14 years of EU membership, Bul-

garia enters the programing period 2021–2027 with unenviable positions in terms of innovation potential, digitalization of business models and spread of green technologies, compared to the EU average and the rest of CEE countries. A number of challenges in the business environment remain unresolved and Bulgaria is still classified as a country, poor in financial and human capital.

The latest edition of the European Innovation Scoreboard (EIS) shows that Bulgaria remains in the group of **modest (or emerging) innovators** with an improvement of 6% compared to 2014, along with ten other Member States, whose innovation index has grown by less than 10%. In comparison, the innovation potential of European economies has improved by an average of 12.5% over the same period. Bulgaria **fails to meet its national target** of moving to the higher category of moderate innovators and achieve an R&D spending level of 1.5% of GDP. Thus, the country's lag behind the European average continues to widen.

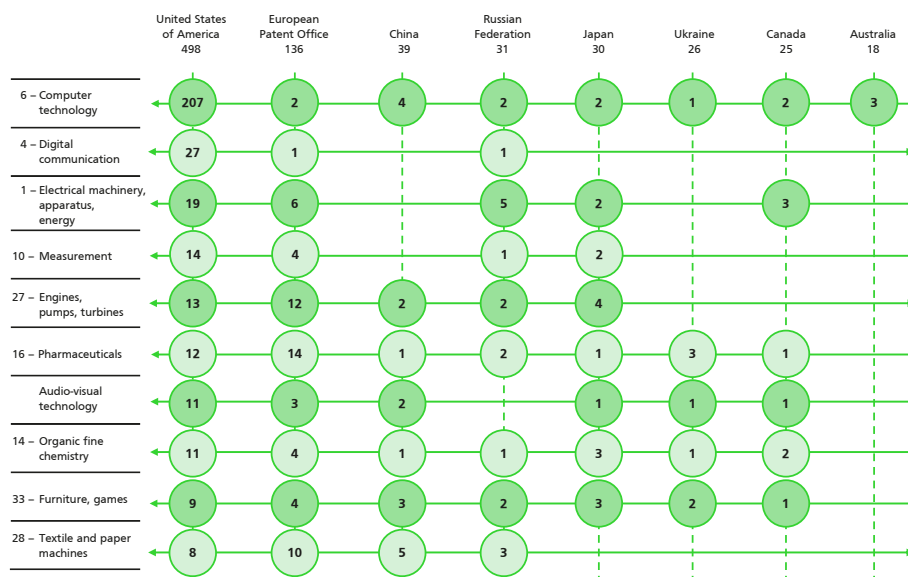
The crisis year of 2020 marked a **significant increase in the patent activity of Bulgarian inventors**. The national Patent Office issued the record 216 Bulgarian patents (after the last one in 2000), which reconfirms the trend of growing patent activity that started in 2015. While the introduction of process innovations by SMEs in Bulgaria has been almost constant over the last eight years (between 16% and 19% of the total number

of SMEs), product innovations are more closely linked to patent activity.

**The number of scientific publications** with the participation of scientists from Bulgaria continued to grow in 2020. The Bulgarian presence in the Scopus database increased with 7,021 new documents, which is a growth of 17% compared to the previous year, ranking the country 55th among a total of 240. Within Eastern Europe, Bulgaria ranks 11th (23 countries in total) both in terms of the number of documents referred to in the database and the H-index, which assesses both the productivity and relevance of publications.

The impact of the COVID-19 crisis on the SME sector seems significant. The decline in number of SMEs and number of people, employed by SMEs, is -4% and -4.4%, respectively, against the average European levels of -1.3% and -1.7%. An even greater annual drop of -6.2% was registered in terms of value added, generated by SMEs (-7.6% for the EU-27).

*Fig. 2. Patent activity of Bulgarian patent holders in foreign patent offices, main technological areas, 2000 – 2019, number*

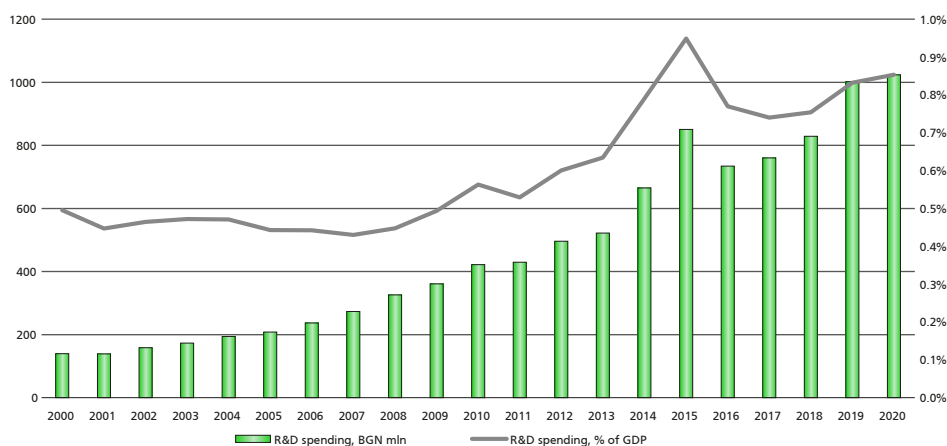


Source: WIPO IP Statistics Data Center, 2021.

In 2020, R&D spending marked a timid increase of 2% on an annual basis (against the background of a minimal decline in GDP), which is almost entirely the result of private sector efforts. Thus, R&D spending as a share of GDP in 2020 amounted to only 0.85% - significantly below the 1.5% set in

the strategic and program framework of the country for the seven-year period. Bulgaria has a long way to go to catch up over the next seven years, particularly against the background of the new and even more ambitious plans of the EU's innovation leaders.

Fig. 3. R&D spending in Bulgaria, 2000 – 2020



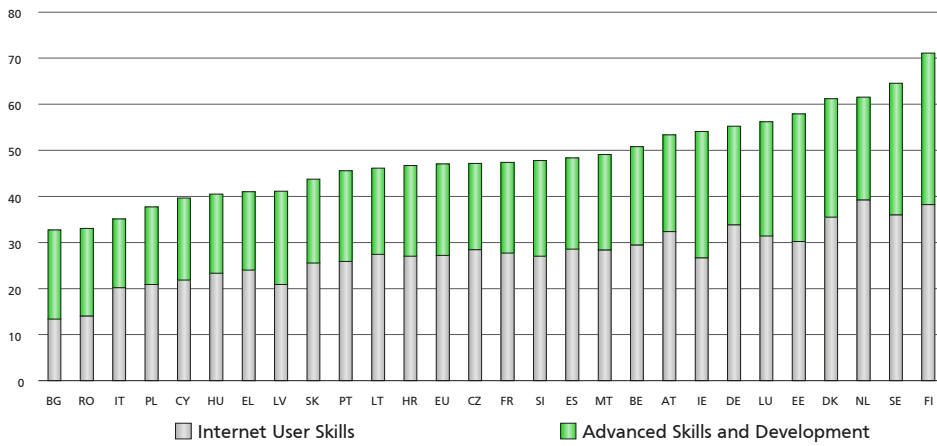
Source: NSI, 2021.

In terms of the human resources, Bulgaria will face an **increasing shortage** and widening discrepancies between skills supply and demand over the next programming period. Deteriorating talent development indicators will hamper both the practical implementation of measures and the effective use of EU financial resources. **The digital skills** of the population in Bulgaria continue to be **among the lowest in Europe**, which further delays e-government and the adoption of Industry 4.0 technologies by enterprises.

One of the indicators that gives **early signals for rapid improvement** is the share of enterprises that use technologies with built-in artificial intelligence. Bulgaria ranks 8th according to this indicator with just over 31% (compared to an average of 25% for the European Union) of non-financial

companies with more than 10 employees on average per year using at least 2 technologies with AI. Similarly, Bulgarian companies, which are currently integrated into international value chains, have no choice, but to optimize and automate their business processes not just concurrently, but in advance of their partners. According to these indicators, **Bulgaria exceeds the average European levels**, which is partly due to relocation of some European production to the country – automotive electronics and other related auto parts, railway carriages, lifting machines, domestic appliances. **The automation of business processes with built-in artificial intelligence** is used almost twice as much in Bulgaria (20%) as averagely in Europe (12%).

Fig. 4. EU's digital economy and society index, human capital, 2021

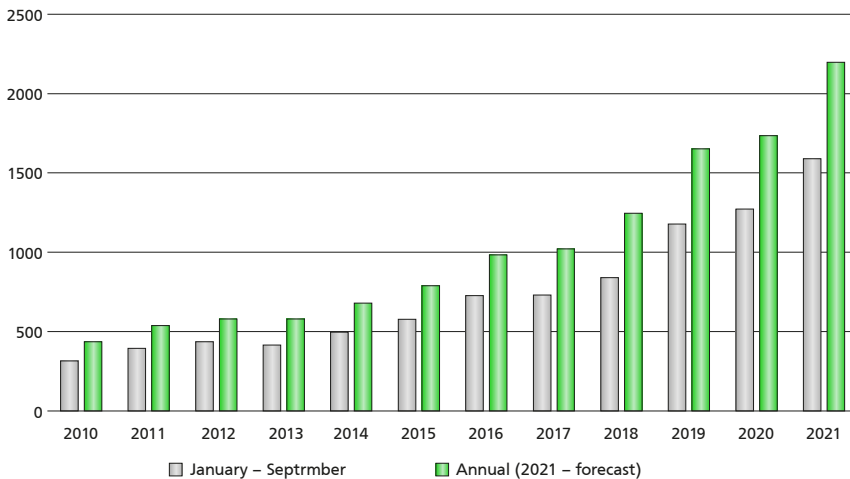


Source: The Digital Economy and Society Index (DESI), 2021.

ARC Fund strove to **expand the scope of Innovation.bg** by developing a methodology for evaluating the innovation potential of Bulgarian regions according to the S3 priorities, and **fully digitalizing** the build-up and

presentation of the final results of the Innovation.bg report, the Innovative Enterprise of the Year contest, and the National Innovation Forum (e-Innovation.bg platform).

Fig. 5. Growth in exports of telecommunications, computer and information services 2010 – 2021, EUR million



Source: Bulgarian National Bank balance of payments, 2021.

### Seventeenth National Innovation Forum

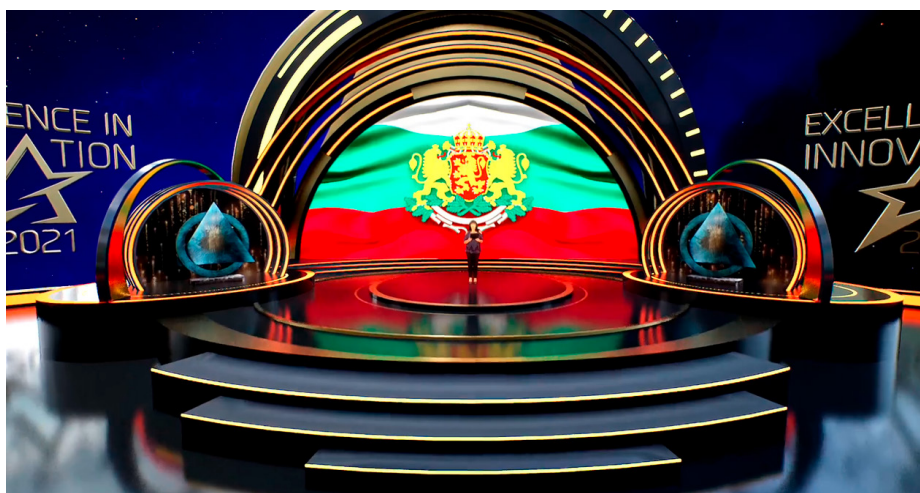
Held for a seventeenth year in a row, the **National Innovation Forum** gathered more than 270 representatives of the policy, research and business communities to share their views on Bulgaria's capacity for recovery and resilience through innovation over the past challenging year. The event was held in a 3D virtual setting, which was custom-designed and animated by MP Studio, the **award winner** for Innovation in the Creative Industries in 2017. The Forum was supported by the **Enterprise Europe Network - Bulgaria**, the Executive Agency for SMEs at DG GROW of the European Commission and Konrad Adenauer Foundation's Sofia Office.

During the Forum, **Dr. Ognian Shentov**, Chairman of ARC Fund, noted that the EU reconfirmed its priorities for digital transformation as a basis for a more ecologically- and socially-oriented approach for solving global challenges. He emphasized that to position itself convincingly on the international technological leaders' investment map, Bulgaria needs a significantly

different approach, followed by a series of breakthroughs. He pointed out that no few Bulgarian innovative companies have the potential to turn into the future "unicorns".

The Director of Konrad Adenauer Foundation's Sofia Office **Thorsten Geissler** underlined the key role of innovations in generating economic growth and prosperity and pointed out that innovations need to be sustainable, accounting for Earth's limited resources. He accentuated on the significance of educational innovations as a condition for future success.

The President of Bulgaria **Rumen Radev** reminded that in 2021 Bulgaria performed best in the Global Innovation Index (ranking 35th out of 132 countries) since 2013. The country also ranks first in Europe by number of women, employed in science and technologies. He noted that the country needs to mobilize the scientific potential of the leading universities, research institutes and centers of excellence and competence.

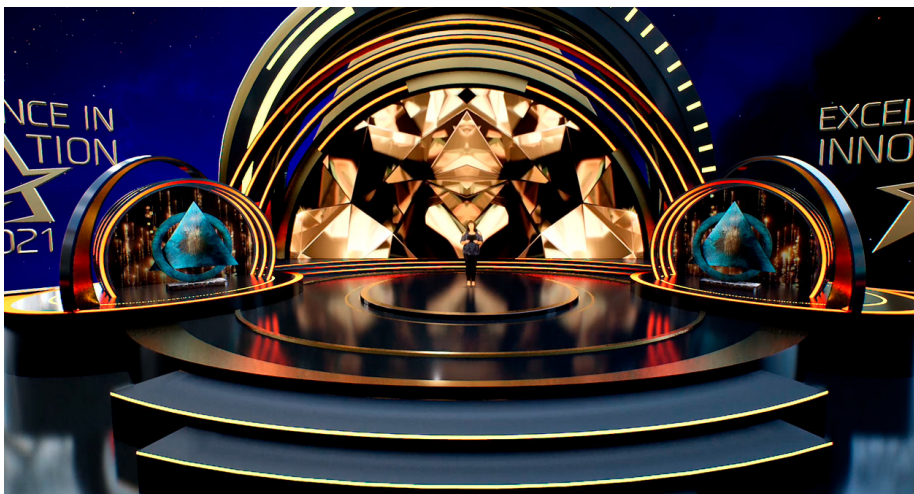


17th National Innovation Forum, Sofia, 7 December 2021

### Innovative Enterprise of the Year 2021

Since 2004, **Innovative Enterprise of the Year** awards have been given to Bulgarian companies, successfully integrating innovations or scientific achievements in their practice and improving their long-term performance.

Companies are assessed by area of impact of the innovation by an expert group and an external jury. In its 2021 edition, Sofia Tech Park joined as a co-organizer of the contest.



*Digital award ceremony of the Innovative Enterprise of the Year 2021*



Twenty-one out of 90+ applicant companies from various sectors of the economy reached the final stage of the competition. Awards were given in eight innovation areas. The winners were selected by a 21-member jury, composed of representatives of public authorities, funding organizations, the business, academia and the media. The companies' cutting-edge innovations were assessed, based on a set of indicators

such as high quality and novelty of the innovation, impact on national and world markets, environment and society, efficiency of the business model. Apart from the awards in a number of categories, all finalists are granted the **Excellence in Innovation**<sup>®</sup> label of the Applied Research and Communications Fund.

Award winners in the 2021 edition of the contest:

**Cupffee Ltd.** – for its edible biodegradable wafer cups for hot and cold beverages

**Orenda Group Ltd.** – for its 100% natural mineral sunscreen lotion with invisible zinc

**Omnio Ltd.** – for its AI-based platform operating a fraud and anti-money laundering alert system

**Atlas Agro Science Ltd.** – for its 100% organic liquid plant stimulant, based on waste water sediments

**CMYK Ingredients JSC** – for its liquid fermented herbs and spices

**ZenHold JSC** – for its interactive VR for trainings, based on videos of real locations, ordered by clients

**Spark Vision Ltd.** – for its smart glasses for blind people, helping them to read and recognize objects

**Iris Solutions Ltd.** – for its application, enabling receipt of direct transfers in merchants' digital channels

**A Data Pro Ltd.** – for its analysis of the interest of news readers and social network users to various topics