



**UNIVERSITY OF NATIONAL AND WORLD ECONOMY,  
SOFIA - BULGARIA**

**CONCEPT OF DIGITAL  
COMPETITIVENESS FOCUSED IN  
INTELLECTUAL PROPERTY RIGHTS  
project 35/3 - National scientific fond, BG**

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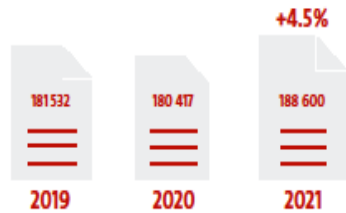
## **INTRODUCTUION**

The digital world of business is already a fact - the use of network, smartphones, tablets, ICT-based communication tools is a convenience and a necessity that brings benefits, contacts and profit for the company. ICT-based innovations optimize business processes, increase efficiency and improve business decision-making. ICT-based innovation is a necessity in the present and a good investment in the future for the business and the environment, for consumers and for the society as a whole. Nowadays the business discusses and plans its digital competitiveness as an actual business tool.

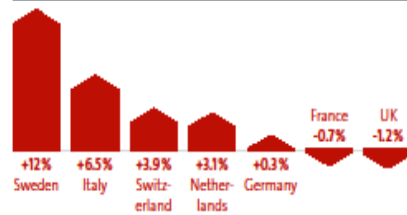
# Trends in patenting 2021

Europe is an **attractive technology market** for European and international companies

**Total patent applications**  
at the European Patent Office

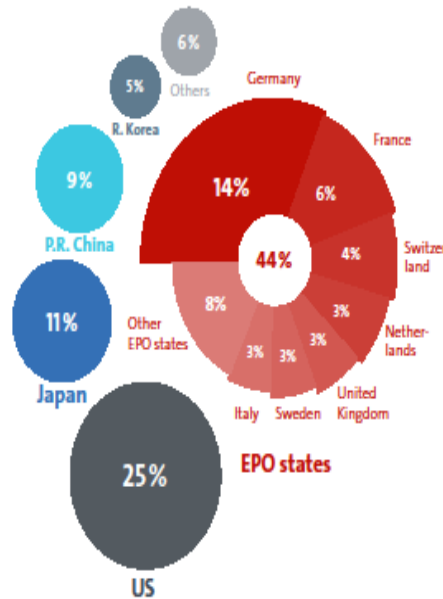


**Companies from Europe:** Relative growth compared with 2020

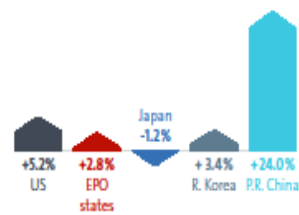


EPO states filing more than 4 000 applications.

**Countries of origin:**  
The 38 member states of the EPO account for almost half of all European patent applications

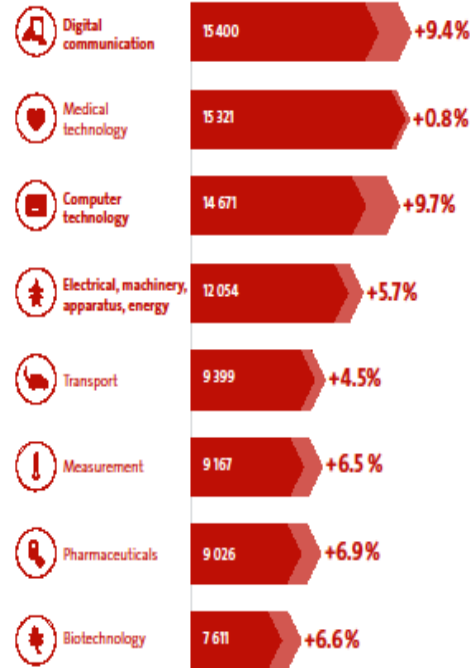


**Growth in filings** from the five leading patent territories

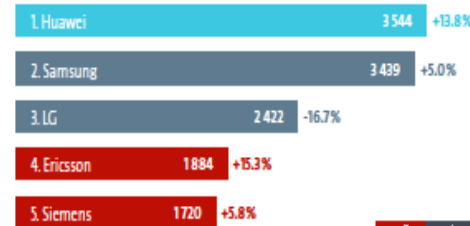


All figures are based on European patent applications. Status: Q1-Q2 2022. [epo.org/patent/index2021](http://epo.org/patent/index2021)

**Top technology fields:** Strong growth in digital technologies



**Top applicants** for European patents in 2021

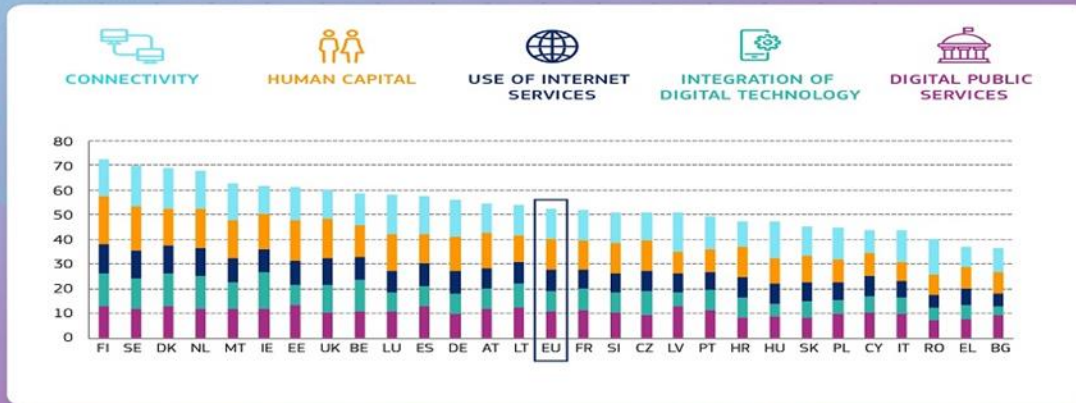


For the purposes of digital competitiveness, the European economy displays the DESI - Digital index. Economy and Society index whose goal is to rank the member countries in their "digital presentation" by measurable indicators: connectivity as infrastructure and quality, human capital as skills needed for digital connectivity, use of internet services provided to the public, implementation of digital technologies for business purposes and public digital public services. According to this index, Bulgaria ranks last in 27 EU countries.

# DESI

Digital Economy and Society Index

2020



#DESIEU #DigitalEU

That's why the scientific team under my conduction has started this project with general management objectives as follows:

1. To reveal a concept for 'company digital competitiveness'.
2. To define a place and the importance of intellectual property rights for the company digital competitiveness.
3. To present a model for assessment of the company digital competitiveness focused on intellectual property rights as a part from a strategy to achieve a digital competitiveness of the company.
4. To form a company digital competitiveness strategy focused on intellectual property rights.

# 1. Definitions in the 'company digital competitiveness'

- a narrow sense - a complex indicator of the company's competitiveness in a digital business environment;
- a broad sense - complex economic indicator for the results of the company's activity /goods, services, good name/, its competitive position and competitive advantages in a comparative analysis with the closest competitors in the business segment, taking into account the conditions and parameters of the digital business environment.

The concept of  
**"digital competitiveness of the  
company"** refers to the  
**competitiveness of the company in a  
digital business environment**



## **2. The place and the importance of intellectual property rights for the company digital competitiveness.**

The concept of "**intellectual property in the digital competitiveness of the company**" covers the following aspects:

- **Innovations of the company based on digital technologies / ICT /;**
- **Digital business identifiers of the company;**
- Organizational and technological infrastructure of the company based on digital technologies / ICT/;
- Organizational and technological infrastructure of the business environment based on digital technologies / ICT

The main point of analysis are the 2 aspects of IP rights of the company referred to the achieved digital competitiveness:

- Innovations of the company based on digital technologies / ICT /;
- Digital business identifiers of the company;

### **3. MODEL FOR ASSESSMENT OF THE COMPANY DIGITAL COMPETITIVENESS FOCUSED ON IP Rights**

The model consists of processes and results of an assessment of external and of internal factors. They are the following:

### 3.1. ASSESSMENT OF EXTERNAL FACTORS FOR THE COMPANY

3.1.1. Position of a country in the map for the national digital competitiveness - from IMD, from other sources, from BCCI and Center for the Democracy Study, BAS, UNWE, others.

3.1.2. Political stability of the country and the region: political system, legal system, institutional trust, educational system, social system.

### 3.1.3. Economic system of the country:

- digital connectivity of the country;
- national infrastructure for development of the ICT sector;
- information on scientific technological results in the ICT sector;
- protection through IPR and accessibility of scientific technological results in the ICT sector;
- information on macroeconomic indicators relevant to the ICT sector;
- access to national and European programs to promote the development of the ICT sector;
- accessibility to European programs to promote the development of the ICT sector, etc

## 3.2. ASSESSMENT OF THE INTERNAL FACTORS OF THE COMPANY

### 3.2.1. Factor "Technology"

1. Created new technologies relevant to the ICT field.
2. Introduced new technologies, relevant to the ICT field.
3. Implemented advanced technologies in the ICT field.
4. Intellectual property rights over the company's own technologies in the ICT field /number of patents, incl. patent applications, number of utility models, others/.
5. Number of national to international patents and utility models.
6. Ratio of national to international patents and utility models.
7. Created new products based on introduced new technologies in the ICT field, etc

### 3.2.2. Factor "Company staff"

1. Number of employees of the company with technical education from high school in the ICT field.
2. Number of employees of the company with university technical education in the ICT field.
3. Ratio of employees of the company with professional technical education or university education in the ICT field to the total number of employees engaged in activities of the company in the ICT field.
4. Number of employees of the company with professional practical training abroad in the ICT field.

### 3.2.3. Factor “Capital”

1. Constant capital - machines, equipment, and facilities related to ICT.
2. Working capital related to ICT.
3. Investments in the company, related to ICT - general and structure.
4. Costs for training of staff in ICT.
5. Costs for acquisition of intellectual property rights in ICT.
6. Costs for acquiring licenses in areas related to ICT, etc.



### 3.2.4. Factor "Competitive position of the company on the market"

1. Competitive evaluation of the products offered by the company /scientific technological level, phase of the product life cycle, costs for implementation, maintenance, service, efficiency of incurred costs/.
2. Competitive position on the domestic market regarding the goods/ services offered by the company.
3. Competitive position on foreign market / incl. the market of EC and Economic area countries/ regarding the goods / services offered by the company.
4. **Position of the company on the market of scientific technological products - number protected by IPR;** number of implemented IP rights and number of licensed IP rights.

**4. METHOD OF formation a company digital competitiveness strategy focused on intellectual property rights.**

## **General characteristics of modern digital and global market environment**

- Maturity of 20th century technologies" and the introduction of new technologies
- Shortening the product life cycle to the "self-cannibalism" phase in the product portfolio of technology companies
- Globalization and de globalization of the complex world marketes

**Details of this analysis you may see on: Markova, M.**

THE COMPANY DIGITAL COMPETITIVENESS FOCUSED ON INTELLECTUAL PROPERTY RIGHTS –  
CONCEPT, ASSESSMENT AND STRATEGY, ECONOMIC STUDIES, BSA ed, 2022

## **2. IPR as a focus of the company digital competitiveness strategy**

The development of complex business strategy focused on IPR is based on important assumptions such as the following:

2.1. IPR is an important business tool proved with the basic economic functions.

IP is a source of:

- revenue generation;
- cost reduction;
- strategic market position.

2. IPR is targeted at the achieving of the following business goals:

- to minimize risk, or explain how to protect IP objects;
- to realize cost reduction and receive a profit or explain what, when and how to implement and invest IP objects in business;
- to sustain the strategic market position or explain what products are appropriate for which market niches.

## **Strategic goals for a formation the company digital competitiveness strategy focused on IPR**

focused on IP is fundamental, and is designed to implement a system of sub-goals, which can be divided into two major groups:

### **1. Financial goals**

- Assists in increasing the economic benefit for the company. Through increased market share, the norm and the total mass of profit from the company's activities through the mechanisms of "patent monopoly" and "prestigious pricing".

3.1.2. Assists in establishing conquered market positions and breaking through new market segments.

3.1.3 Assists in the implementation of licensing penetration of markets in which protectionist barriers are placed and provides economic benefits for the company from the provision of licenses and forms of scientific, technical and industrial cooperation.

Etc.

## **2. Non-financial goals**

- Ensures the imposition of product and company identity, differentiation and consumer preferences.
- Helps to build and increase the favorable company image of an innovative company and a company that respects and values intellectual property.
- Assists in creating, imposing and developing the company image and good image. Etc.



#### 4.1.1. Complex analysis of IPR in innovations

The complex analysis of the IP in innovations should start with the well-known marketing tools of the 'product – place' matrix and SWOT analysis and then the effective specific IP instruments of IP research of the patent, utility model and design information and IP score shall be applied.

<b>Indicators for assessment of company innovations</b>	<b>Qualitative assessment</b>
<b>Sub strategy in innovations and IPRs in these</b>	aggressive or offensive
<b>Product position for each product</b>	good – bad
<b>Compatible position for each company product</b>	strong – weak
<b>Stage of the life cycle for the company products</b>	introducing, growth, maturity, decline
<b>IP rights for each company product</b>	patented inventions, registered UM and/or ID
<b>Company costs and/or resources for the product development in future</b>	Low – high, own - foreign/borrowed
<b>Product image /general or specific for the niche</b>	Good-bad

First of all, some answers to important business questions shall be found, such as (for instance):

1. What is the general business strategy of the company – to be a leader, to be a follower?
2. What are the company products for each market niche?
3. What is the compatible position of each company product?
4. Who are the direct competitors in the market niche?
5. What are the IP rights for these products – for our company and for the direct competitors?
6. What is the product life cycle stage for our product and for the competitors' product?
7. Are there sources for competitive innovations of the company products?

The company management should take strategic decisions regarding the innovations as following:

1. To implement the principally new, new and upgraded solutions.
2. To license some of the IP objects owned for the obtained innovations in the purpose to receive additional economic benefits and additional economic benefit such as license payments.
3. To take additional efforts including marketing activities to use the obtained innovations.

4. To sustain the achieved good image of the company based on the obtained innovations.
5. To take a new way of protection and combine some of the obtained IPR in the company innovations.
6. To increase the company competitiveness based on the obtained innovations.

Note: similar steps are implemented for business identifiers of company

The methodical scheme for formation of a complex digital competitiveness strategy focused on IPR consists of the following sub stages:

1. Use of the collected analytical and forecast information.
2. Integration of developed sub strategies for company innovations and for company BI.
3. Completion of a complex strategy and creation of options for possible strategies such as the use of strategic maneuvering.
4. Assessment of the expediency and strength of the formed complex strategy regarding the multi criteria matrix.

## **INSTEAD OF CONCLUSION:**

For a successful business today, an invariable condition is to take a decision of a digitization of the business and do efforts of a formation and implementation of a complex strategy in the digital competitiveness of the company with a focus on intellectual property rights

# Top technical fields for European patent applications

2022

TOP 10



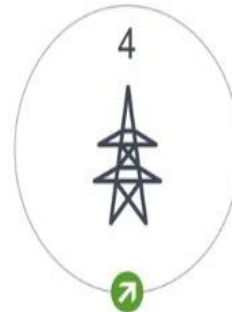
Digital communication  
**16 705**  
+11.2%



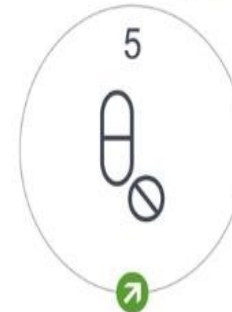
Medical technology  
**15 683**  
+1.0%



Computer technology  
**15 193**  
+1.8%



Electr. machinery,  
apparatus, energy  
**13 951**  
+18.2%



Pharmaceuticals  
**9 310**  
+1.0%



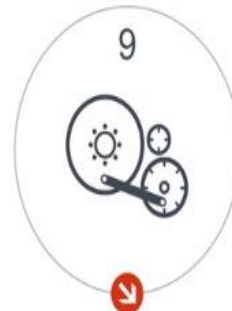
Transport  
**9 272**  
-2.6%



Measurement  
**9 185**  
+1.0%



Biotechnology  
**8 168**  
+11.0%



Other special  
machines  
**6 382**  
-1.8%



Organic fine  
chemistry  
**5 955**  
-0.4%



**THANK YOU FOR THE ATTENTION!**

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