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# Centers of Excellence and Centers of Competence in Bulgaria

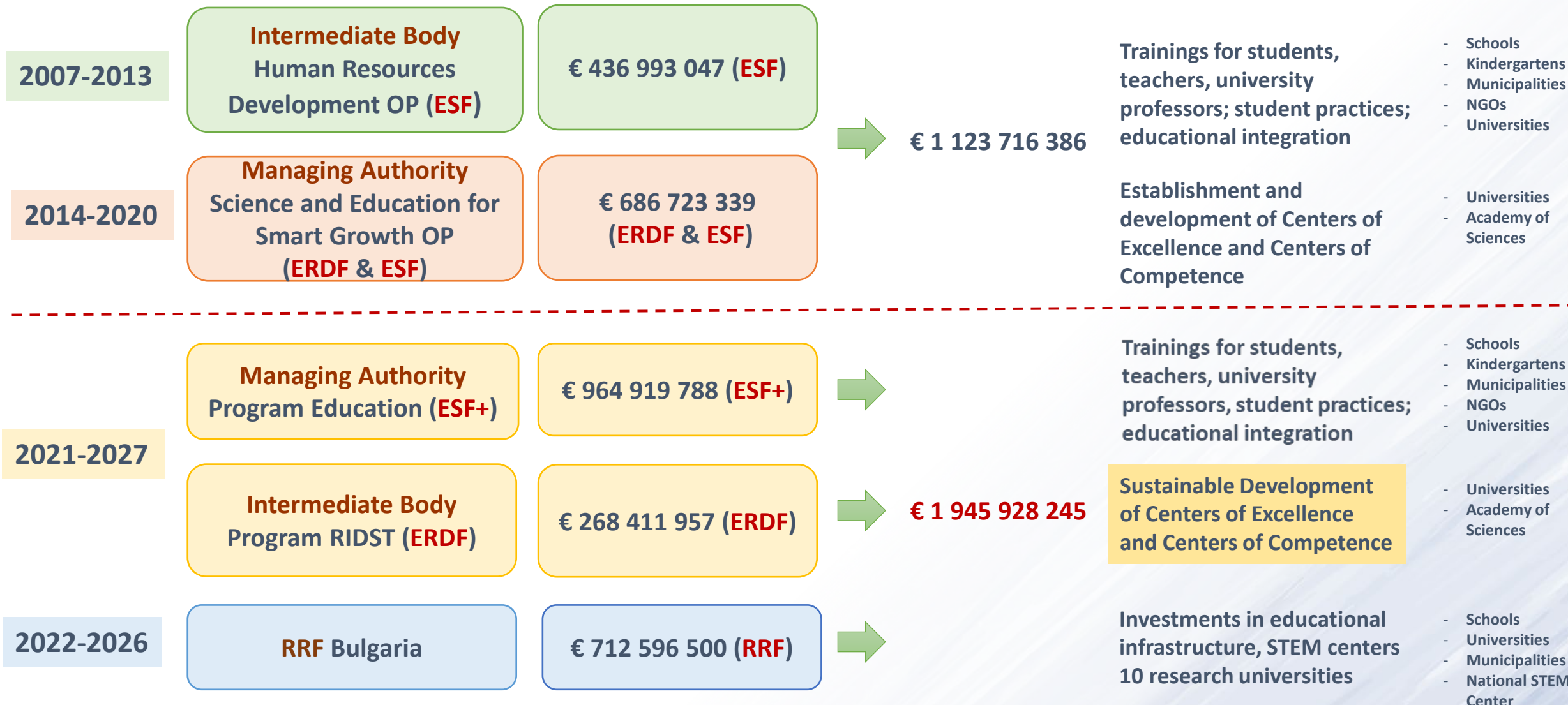


**Building thriving innovation ecosystems  
through university-industry collaboration**

**Tuesday 19 November 2024, Skopje**

**Ivan Popov**  
**Deputy Executive Director**  
**Executive Agency “Program Education”, Bulgaria**

## Executive Agency “Program Education” – who we are:



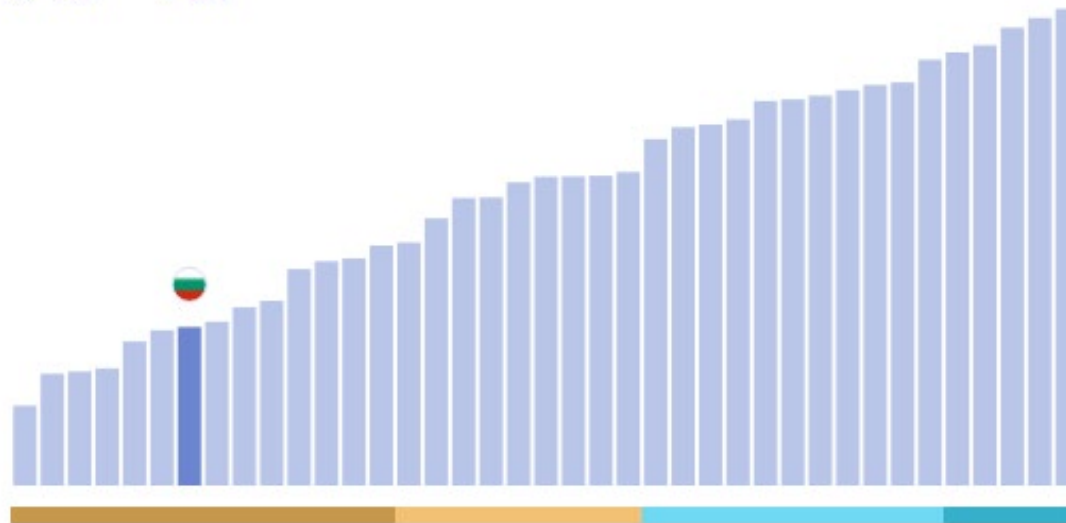
# Bulgaria on the European Innovation Scoreboard

## Innovation index 2024

50.6 | Rank 33

vs 2023    vs 2017

▲ 1.9    ▲ 2.7



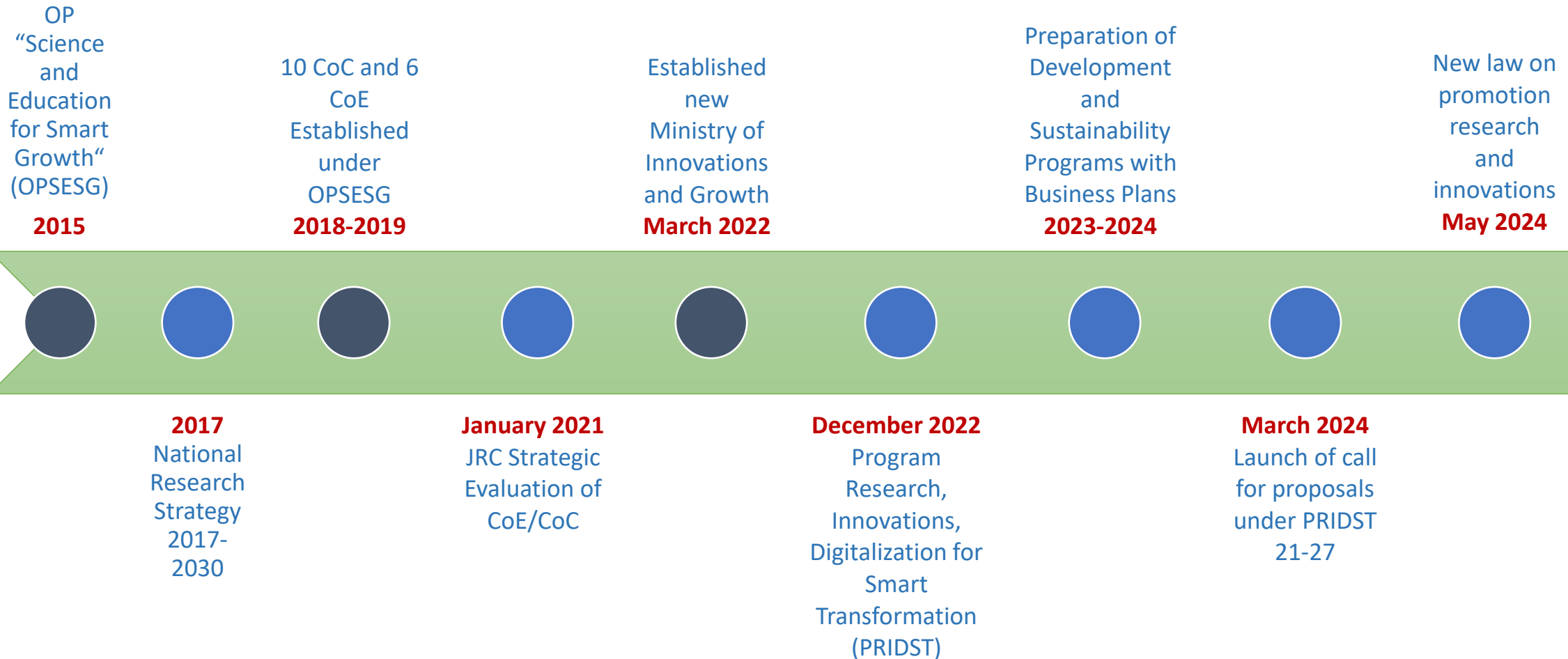
EIS Interactive Tool, 2024,

## Emerging Innovator



- 46% of the EU Innovation Index average
- Below 70 % of the 2024 EU average
- Underperforms the Emerging Innovators' average
- Improving, but slower than the EU overall
- Behind 7 non-EU countries (Switzerland, Norway, UK, Iceland, Serbia, Turkey, Montenegro)
- Second-lowest in the EU

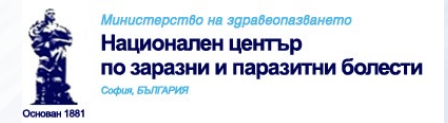
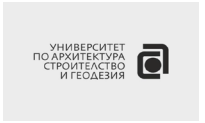
## Conditions for creating Centers of Excellence and Centers of Competence in Bulgaria



НАЦИОНАЛЕН ДИАГНОСТИЧЕН НАУЧНОИЗСЛЕДОВАТЕЛСКИ  
 ВЕТЕРИНАРНОМЕДИЦИНСКИ ИНСТИТУТ "ПРОФ. Д-Р Г. ПАВЛОВ"  
 София, България



Медицински институт  
 на  
 Министерство на  
 вътрешните работи



СДРУЖЕНИЕ СЪВРЕМЕНИ  
 ЛЕТАТЕЛНИ ТЕХНОЛОГИИ





## Relevance to the Integrated Strategy for Smart Specialization

### Thematic area "Informatics and ICT";

- **CoC:** Digitization of the economy in an environment of Big data (**DEBD**), University of National and World Economy
- **CoC:** Establishment and Development of a Center of Competence "Quantum Communication, Intelligent Security Systems and Risk Management" (**Quasar**), Institute of Robotics - BAS
- **CoE:** Universities for science, Informatics and technology in society (**UNITE**), Sofia University "St. Kliment Ohridski"
- **CoE:** Centre of Excellence in Informatics and Information and Communication Technologies, Institute of Information and Communication Technologies - BAS
- **CoE:** Big Data for Smart Society (**GATE**), Sofia University "St. Kliment Ohridski"

### Thematic area "Mechatronics and microelectronics";

- **CoC:** Smart Mechatronic, Eco- and Energy Saving Systems and Technologies; Technical University – Gabrovo;
- **CoC:** Centre of competence **HITMOBIL**–Technologies and Systems for Generation, Storage and Utilization of Clean Energy; Institute of Electrochemistry and Energy Systems - BAS
- **CoC:** Mechatronics and Clean Technologies (**MIRACle**); Institute of Mechanics – BAS
- **CoE:** National Centre for clean technology and Mechatronics, Institute of General and Inorganic Chemistry - BAS

### Thematic area "Healthy living industries, bioeconomy and biotechnologies";

- **CoC:** Sustainable utilization of bio-resources and waste of medicinal and aromatic plants for innovative bioactive products, Institute of Organic Chemistry with Centre of Phytochemistry – BAS
- **CoC:** CoC in the field of personalized medicine, 3D and telemedicine, robotic-assisted and minimally invasive surgery , Medical university - Pleven
- **CoC:** Personalized Innovative Medicine Competence Centre (**PERIMED**), Medical University - Plovdiv
- **CoC:** Fundamental Translational and Clinical Investigations on Infections and Immunity, National Centre of Infectious and Parasitic Diseases;
- **CoE:** Center of Plant Systems Biology and Biotechnology (**PlantaSYST**), Center of Plant Systems Biology and Biotechnology

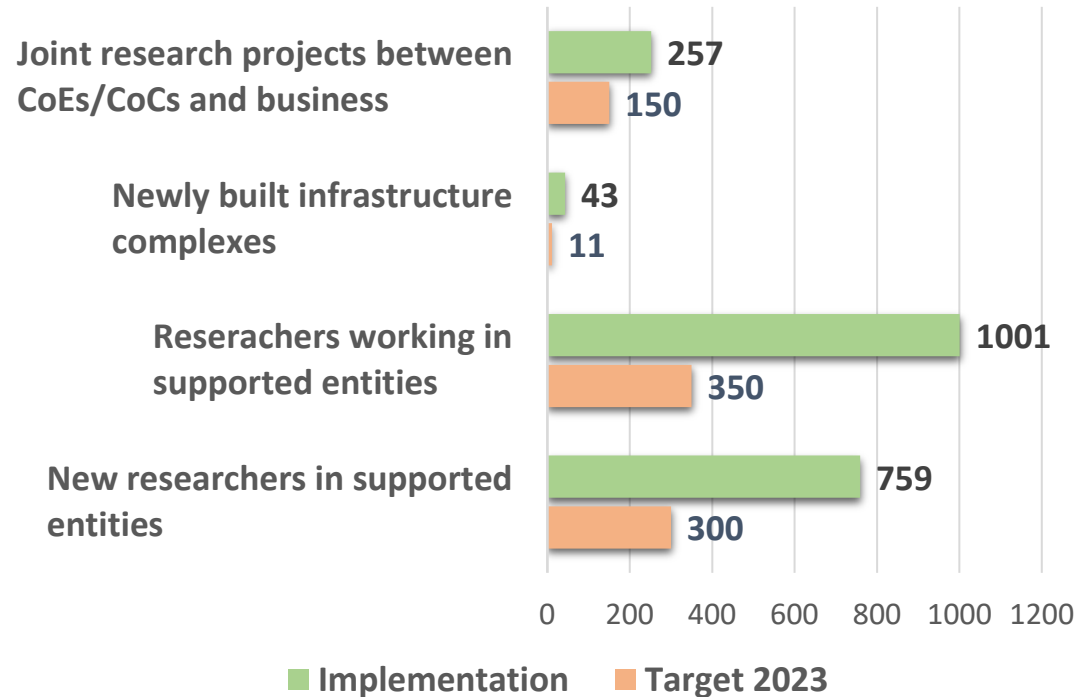
### Thematic area "New technologies in creative and recreational industries";

- **CoE:** Construction and development of the Centre of excellence "**Heritage BG**", Sofia University "St. Kliment Ohridski"

### Thematic area "Clean technologies, circular and low carbon economy".

- **CoC:** Clean technologies for sustainable environment – water, waste, energy for circular economy (**Clean&Circle**), Sofia University "St. Kliment Ohridski"

## CoC & CoE results and outputs



- ✓ Total number of **scientific publications**, incl .: **2817**  
Q1 637 Q2 360 Q3 173 Q4 513
- ✓ **Publications** in the top 10% of the most cited: **72**
- ✓ Number of **patents**, incl. requests: **70**
- ✓ Number of **useful models**, incl. requests **41**
- ✓ Number of **young scientists** up to 34 years old who participate in research and development activities in the center (in EPRV) **180**
- ✓ Number of **leading national researchers** **272**
- ✓ Number of **leading international researchers** **86**
- ✓ Number of **doctoral students, postdoctoral students** and specialists in ISIS thematic areas (in EPRV) **161**
- ✓ Number of **attracted scientists from other countries** and/or Bulgarian scientists who were employed in foreign scientific organizations **37**
- ✓ Number of **scientists trained** through transnational mobility and international cooperation **414**
- ✓ **Joint research projects** developed between the centers (CVP and Central Committee) and business **257**

## Strategic Evaluation of Bulgarian CoEs and CoCs (2021)

### Conclusion:

CoEs and CoCs – strongly focused on scientific research excellence and less so on **commercialization, market orientation, innovation capacity-building, or self-sustainability.**

**Technology transfer** activity is still relatively **limited**



### Recommendation:

Development of a **Vision** and a **Strategy** for the post 2023 period with a **Business Plan** that should contain the following elements:

Analysis of the opportunities of the **market** (national and international)

Identification of national and international **business partners**, and national and international R&D support programs

Identification of international collaborators for **R&D and technology development**

Detailed **organizational** and **governance** reporting structures

Mix of **income sources** and their evolution whilst the center matures

Presentation of a detailed roadmap towards institutional, scientific, and financial **sustainability**





1. Workshop on exchange of experience between the Central Project Management Agency of Lithuania, the Managing Authority of the OP "Science and Education for Smart Growth" and the project managers for the construction and development of Centers of Excellence and Competence Centers  
April 17, 2019



2. Workshop with experts from the Czech Republic on the topic "Commercialization and internationalization of the results of the projects for centers of excellence and centers of competence"  
November 12-13, 2020

## Support under the Interreg Europe



1. Working visit of experts in the field of scientific research and innovation from Belgium, Lithuania, Finland, France and the Czech Republic to provide support to the management teams of the Centers of Excellence and Competence Centers based on the existing experience in the other European regions - June 18 - 19, 2019

2. Partnership meeting with experts in the field of technology transfer from the Czech Republic, the Netherlands, Spain and Finland in relation to policies and activities for the transfer of knowledge and technology and the use of research infrastructure based on the existing experience in other European regions - 14 - 15 December 2021  
Mr.



## JASPERS: Review and advice on the preparation of Development and Sustainability Programs with Business Plans (DSPBP) for the CoEs and CoCs in Bulgaria





## Support from the European Regional and Development Fund

### Science and Education for Smart Growth **2014-2020**

**215 mln. euro**

16 CoEs & CoCs  
established



75 % - for research  
infrastructure



25 % - for research  
activities



Building and  
development  
stage



19 CoEs & CoCs -  
operational

25 % - for research  
infrastructure

75 % - for research  
activities

Operational  
stage

### Research, Innovation and Digitalization for Smart Transformation

**2021-2027**

**168 mln. euro**

#### Focus in 2021-2027:

- Improved Center capacity (personnel & equipment)
- Stronger industry collaboration
- Faster research-to-innovation path through tech transfer
- Technology transfer & commercialization
- Attracting young talent
- Promoting internationalization
- Reducing regional disparities

#### ISSS thematic areas:

Informatics and ICT

**Mechatronics and  
microelectronics**

**Healthy living industries,  
bioeconomy and  
biotechnology**

**New technologies in  
creative and recreational  
industries**

**Clean technologies, circular  
and low-carbon economy**

# Performance based funding of CoE & CoC 2021-2027

1. Direct staff costs



2. A flat rate of 40 % of eligible direct staff costs to cover the remaining eligible costs

Unit costs per month – Researchers R1-R4, Administrative Director, Innovation professionals

1. Check – conditions for reimbursement of the unit cost (*full-time or part-time employment contract, 1-page report*)

2. Check – **A result parameter** by which the specific results and indicators achieved are measured

2.1. Scientific publications  
Q1 – Q4 quartiles

- Q1 - 30
- Q2 - 10
- Q3 - 5
- Q4 - 2

2.2. Intellectual Property Protection and Cooperation

- International/EU/BG patent applications
- International/EU/BG utility model applications
- Contracts concluded with enterprises

2.3. Revenues – technology transfer agreements

- license agreements
- effective cooperation with enterprises
- research services to enterprises
- research or innovation projects and programs

2.4. Research and innovation personnel

- research staff (R3 or R4) for the first 3 months
- research staff (R1 or R2) for the entire period
- Innovation staff for the entire period

Direct staff costs



Result Parameter x 1000 BGN

The Result parameter is calculated and checked for each calendar year!





Plantasyst



UNITE



Clean & Circle








GATE







## ЛЕГЕНДА

-  Информатика и ИКТ
-  Мехатроника и микроелектроника
-  Индустрия за здравословен живот, биоикономика и биотехнологии
-  Нови технологии в креативни и рекреативни индустрии
-  Чисти технологии, кръгова и нисковъглеродна икономика

**Брой: 8 Сума: 75 214 972 лв.**

**Брой: 30 Сума: 114 770 777 лв.**

**Брой: 18 Сума: 111 010 909 лв.**

**Брой: 13 Сума: 12 496 428 лв.**

**Брой: 8 Сума: 18 340 208 лв.**

ЦК по персонализирана медицина, ЗД и телемедицина, роботизирана и минималноинвазивна хирургия  
 Медицински университет гр. Плевен  
 Научно-изследователска лаборатория за прецизна онкология и геномна медицина;  
 Лаборатория за прецизна патология с приложение на методи на телепатология, морфометрия и телемедицина; Лаборатория за ЗД принтиране, моделиране и анализ;  
 Лаборатория за изследване и обучение на хирурзи в среда на виртуална реалност VR  
**Сума: 9 425 098 лв.**  
[Линк към проекта](#)

<https://sf.mon.bg/?go=page&pageId=582>

ЦК Чисти технологии за устойчива околна среда – води, отпадъци, енергия за кръгова икономика  
 Clean&Circle  
 Лесотехнически университет  
 Лаборатория по технологии за обработка на твърди отпадъци  
**Сума: 480 125 лв.**  
[Линк към проекта](#)

Студентски парк

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