National Research, development and Innovation Office
Hungary

PERSPECTIVES FROM HUNGARY SCIENCE POLICY AND FUNDING

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National Research, Development and Innovation Office

EOSC Tripartite event, 23.03.2023, Budapest

1 RDI IN HUNGARY

CURRENT STATE OF PLAY

THE EUROPEAN PARADOX

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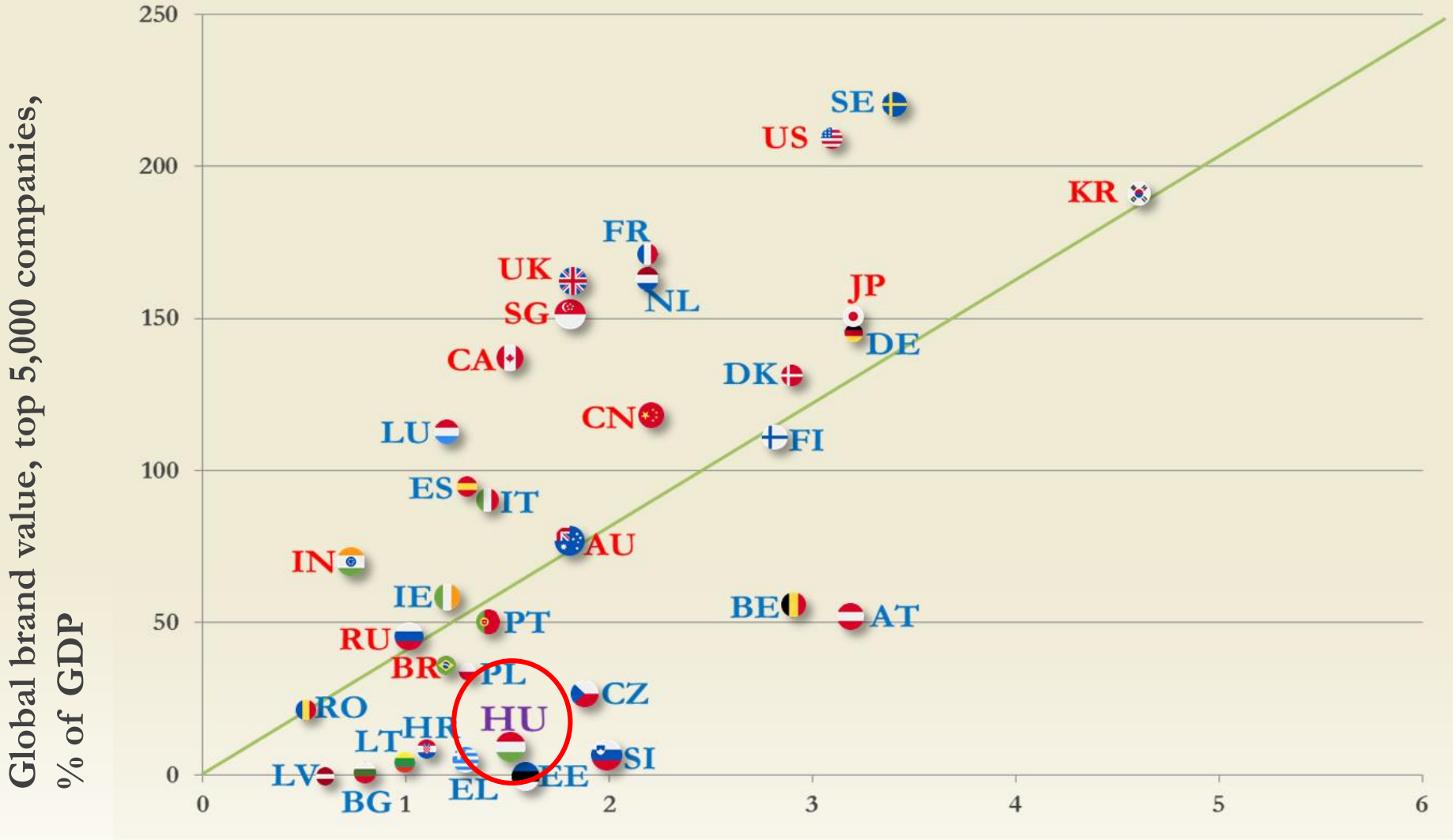
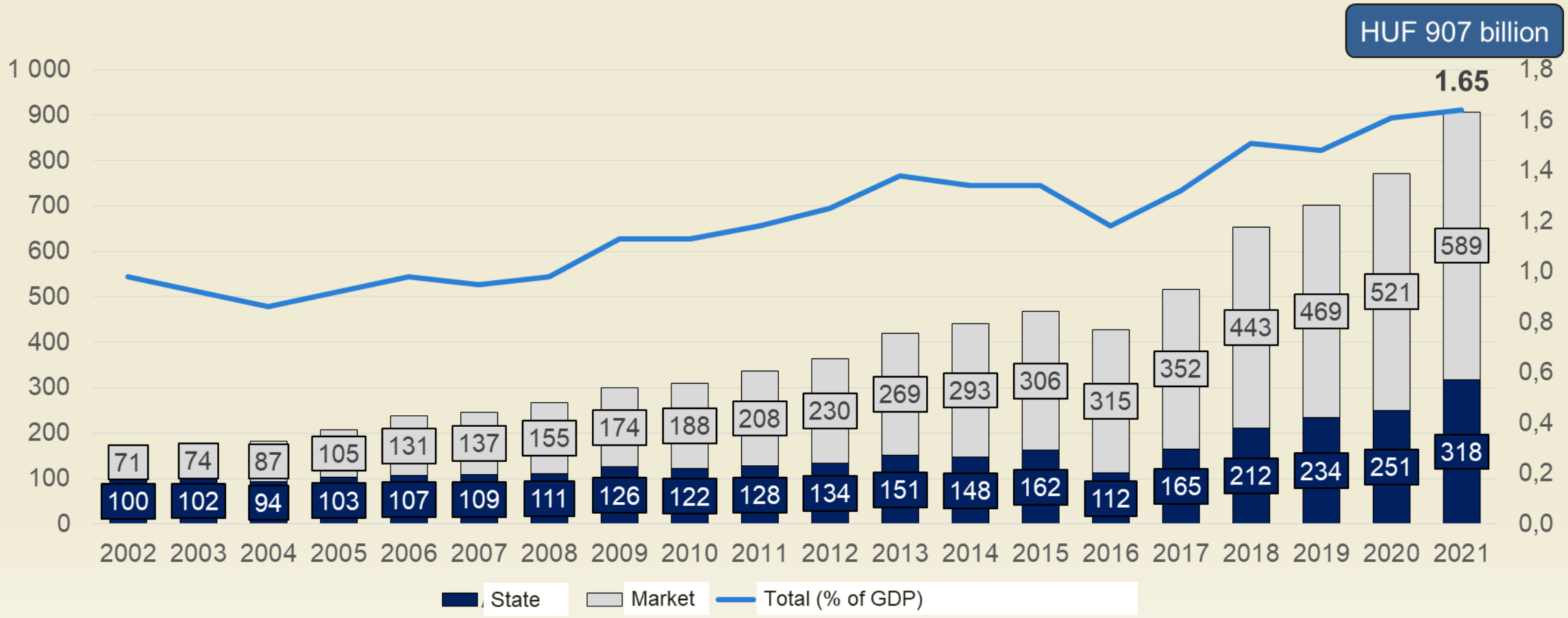


The main competitors of Europe are strong in innovation and have a good position in global competition, while most European countries perform better in R&D.

Development of domestic R&D expenditures (in billion HUF and in proportion to GDP



EIS: Hungary ranks 21st in the EU in the field of innovation, 1st among emerging innovators

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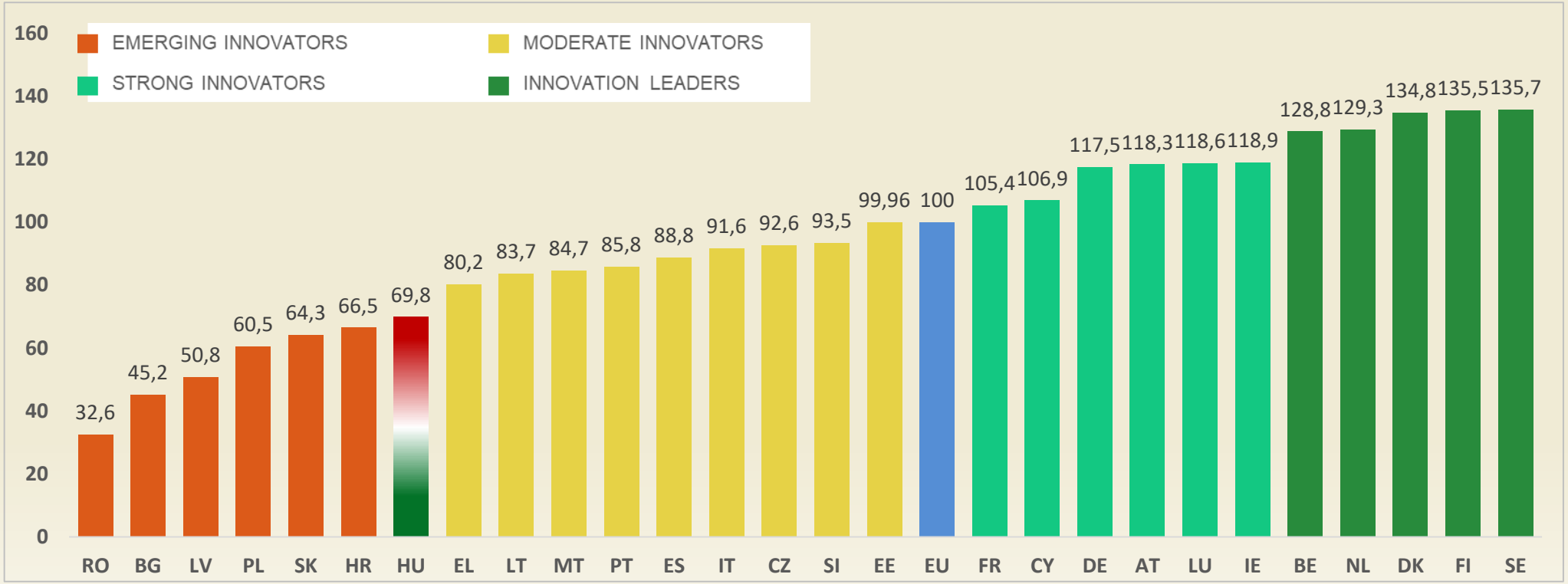
Innovation ranking of European countries based on EIS2022

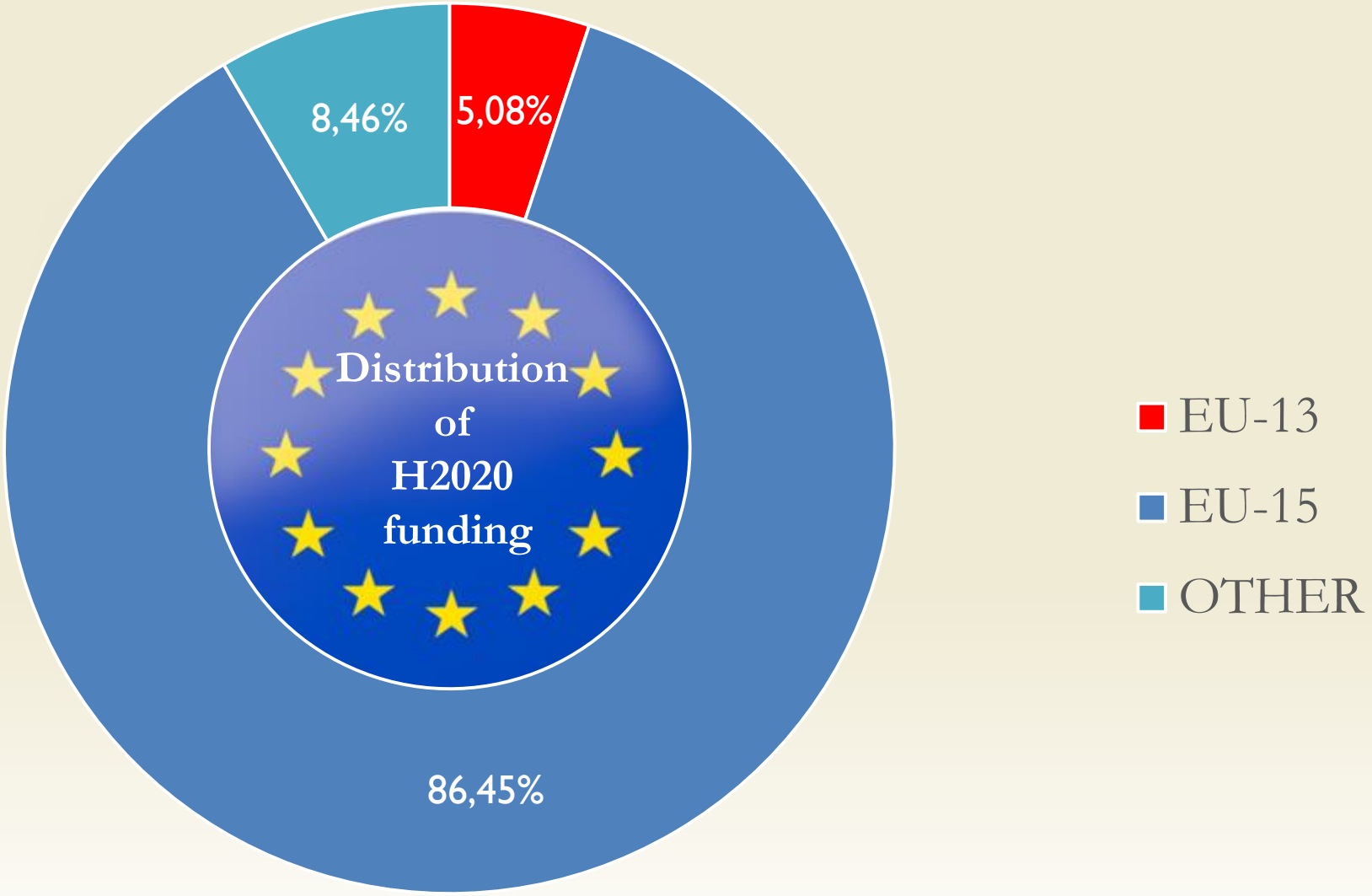
As a percentage of the 2022 EU average

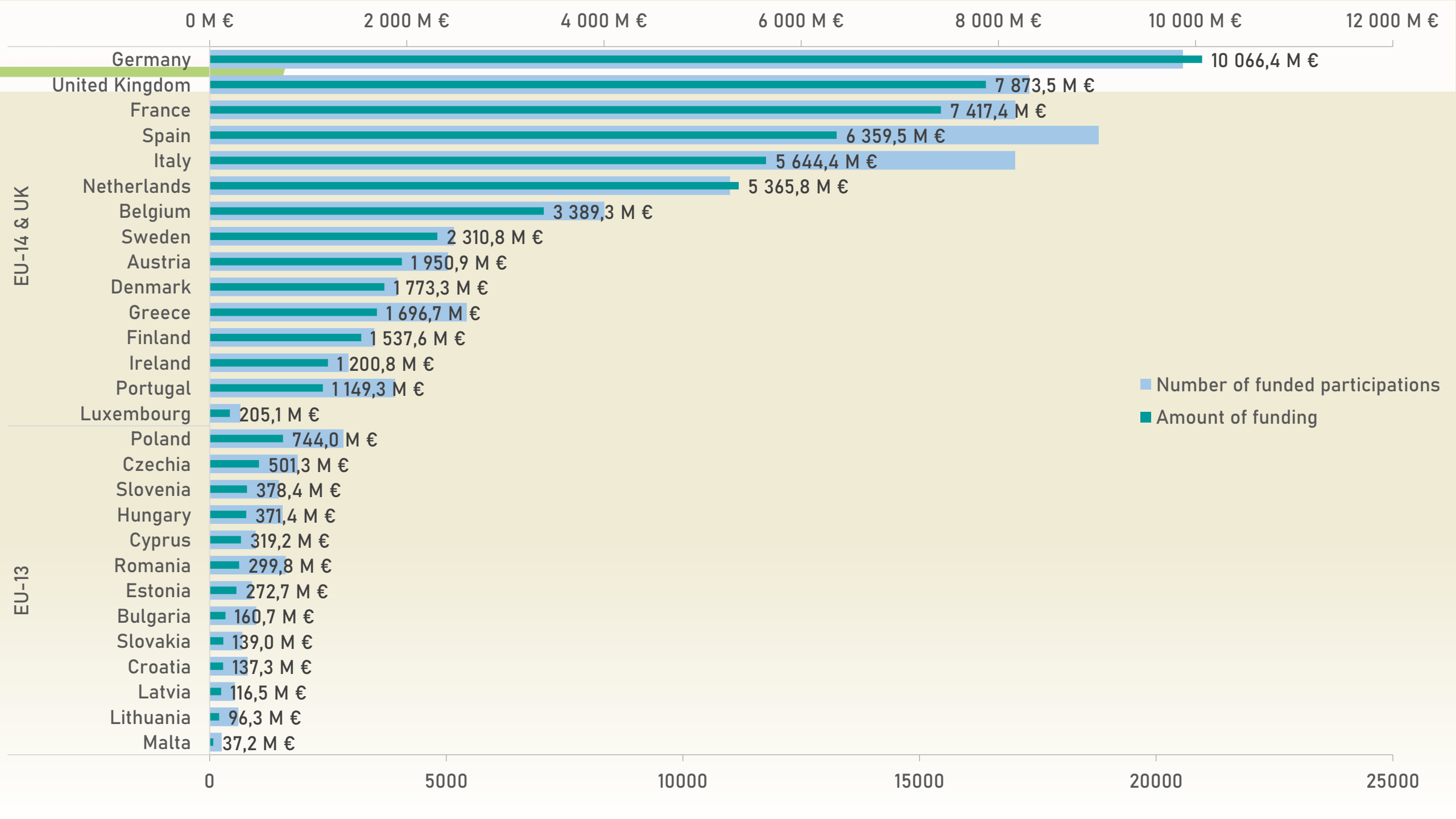


On the European Innovation Scoreboard for 2022, Hungary is at the 21st place, leading the group of „emerging innovators". Hungary's innovation performance is 69.8% of the EU average in 2022.

Performance gap in Horizon 2020

Performance gap between EU15 and EU13 countries in Horizon 2020




0 M €
2 000 M €
4 000 M €
6 000 M €
8 000 M €
10 000 M €
12 000 M €
EU-14 & UK
Germany
10 066,4 M €
United Kingdom
7 873,5 M €
France
7 417,4 M €
Spain
6 359,5 M €
Italy
5 644,4 M €
Netherlands
5 365,8 M €
Belgium
3 389,3 M €
Sweden
2 310,8 M €
Austria
1 950,9 M €
Denmark
1 773,3 M €
Greece
1 696,7 M €
Finland
1 537,6 M €
Ireland
1 200,8 M €
Portugal
1 149,3 M €
Luxembourg
205,1 M €
EU-13
Poland
744,0 M €
Czechia
501,3 M €
Slovenia
378,4 M €
Hungary
371,4 M €
Cyprus
319,2 M €
Romania
299,8 M €
Estonia
272,7 M €
Bulgaria
160,7 M €
Slovakia
139,0 M €
Croatia
137,3 M €
Latvia
116,5 M €
Lithuania
96,3 M €
Malta
37,2 M €
Number of funded participations
Amount of funding
0
5000
10000
15000
20000
25000

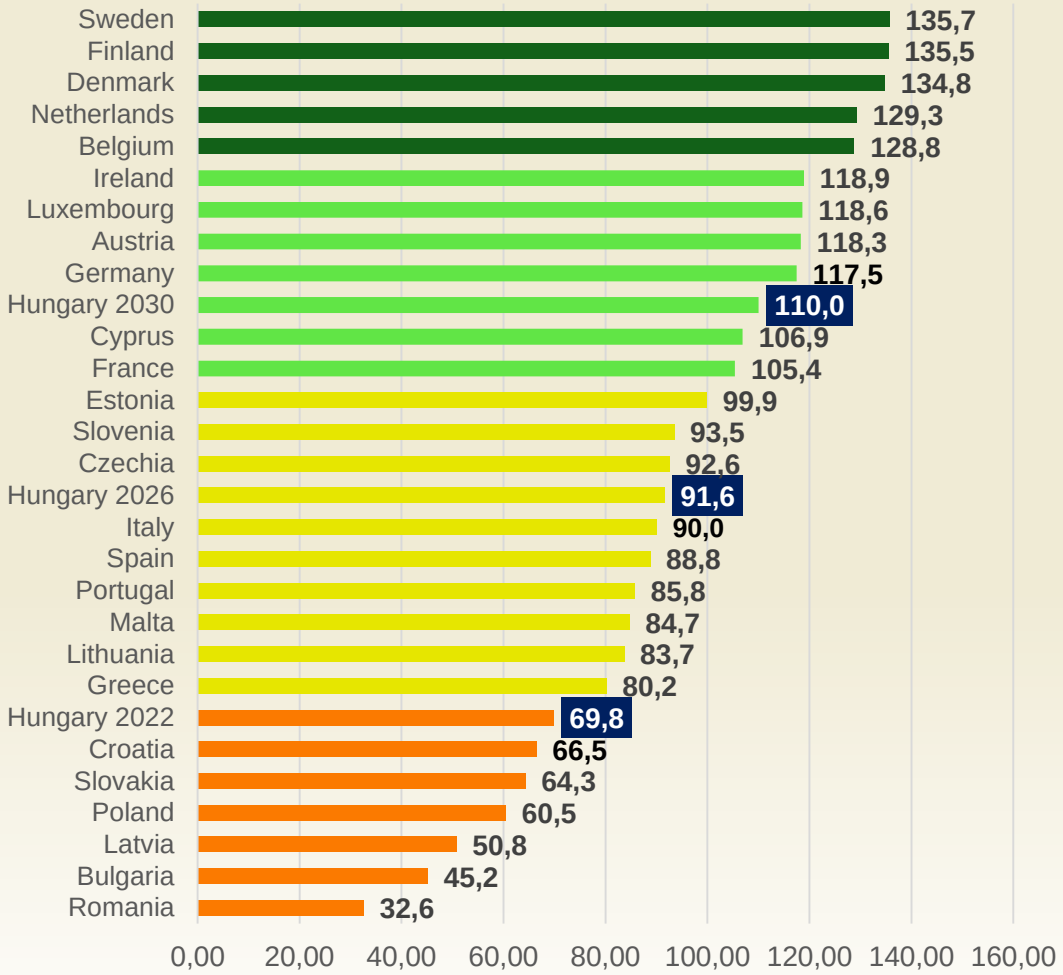
2 RDI PROGRAMME FRAMEWORK IN HUNGARY

CHALLENGES & ANSWERS

Vision: Hungary among Europe's top 10 innovators by 2030

Aggregate innovation index, 2022

European Innovation Scoreboard, as a percentage of the 2022 EU average



What is needed?

Strategic target indicators until 2030

1. **Knowledge production:** R&D employment per million people in research and development places will be among the highest in the EU (reaching 9,000)

2. **Knowledge flow:** Tripling the number of RDI collaborations between companies and research institutes/universities

3. **Knowledge usage**:
   A. One in three Hungarian SMEs innovate
   B. Unicorns are created

Source: European Innovation Scoreboard, 2022

SMART SPECIALIZATION STRATEGY 2021-2027 AND SECTORAL STRATEGIES

NATIONAL RESEARCH, DEVELOPMENT AND INNOVATION OFFICE
HUNGARY

National Digitalization Strategy

- Digital skills development of SMEs
- Development of integration of digital technologies in the whole economy
- Development of the ICT sector as a priority

National RDI Strategy

1. Knowledge production
2. Knowledge transfer
3. Knowledge exploitation

National SME Strategy

1. Strengthening the value-creating capacity of companies of high growth potential
2. Provide a predictable framework for the entire SME sector

Special Ministerial Order: NRDI Office is responsible for planning and implementation of S3

S3 PRIORITIES

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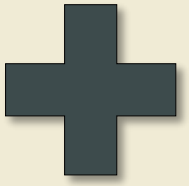
Agriculture, food industry



Health

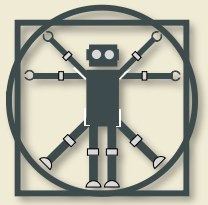
Digital economy

Creative indsutry

Resource-efficient economy

Energy, climate

Services



Cutting-edge technologies

Public sector and university innovation

Training, education

Gov. decree 428/2021. (VII. 2.) on National Smart Specialization Strategy 2021-2027

System of RDI programmes of NRDIO

National Research, Development and Innovation Office Hungary

International and domestic research and technological infrastructures

Researchers

Businesses

HEIs and Research institutions

New National Excellence Programme

National Conference of Student Research

Basic research („OTKA")

Forefront Research Excellence Programme

Cooperative Doctoral Programme

Calls for business enterprises (NRDI Fund and operational programmes)

Horizon Europe

International calls

Science Parks

Competence Centres

Thematic Excellence Programme

National Laboratories

University Innovation Ecosystem

International Excellence

WE ORGANIZE THE INNOVATION ECOSYSTEM AROUND OUR UNIVERSITIES

University Innovation Ecosystem

National Laboratory

Higher Education Industry Cooperation Center (FIEK)

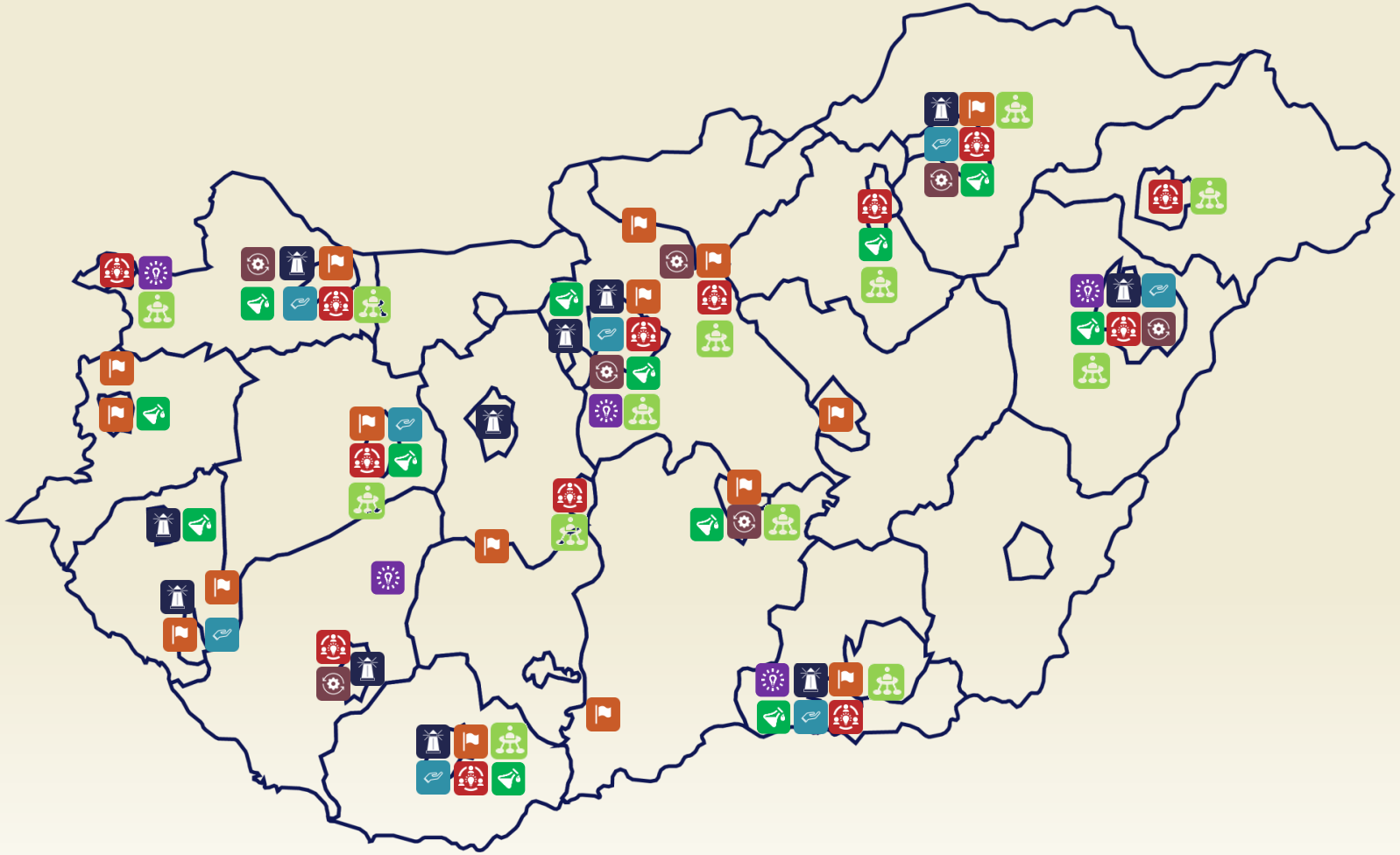
Competence Center (new FIEK)

Territorial Innovation Platform

Science Park

Bay Zoltán Nonprofit Kft.

Eötvös Loránd Research Network



- 2023 – Ministry of Culture and Innovation

NATIONAL LABORATORIES

National Research, Development and Innovation Office
Hungary

BUDAPEST

- National Laboratory of Tumor Biology
- HCEMM NL
- National Laboratory of Agricultural Technology
- Molecular Fingerprinting NL
- Autonomous systems NL
- Artificial Intelligence NL
- Quantum Information NL
- Secure Technologies NL
- *National Laboratory for Nanoplasmonic Laser Fusion*
- National Laboratory for Info-communication and Information Technology
- Social Innovation NL
- National Laboratory for Digital Heritage

SZEGED

- National Laboratory for Laser-based Transmutation
- ELI NL
- National Laboratory for Biotechnology

PÉCS

- National Laboratory for Virology
- National Laboratory of Human Reproduction

VESZPRÉM

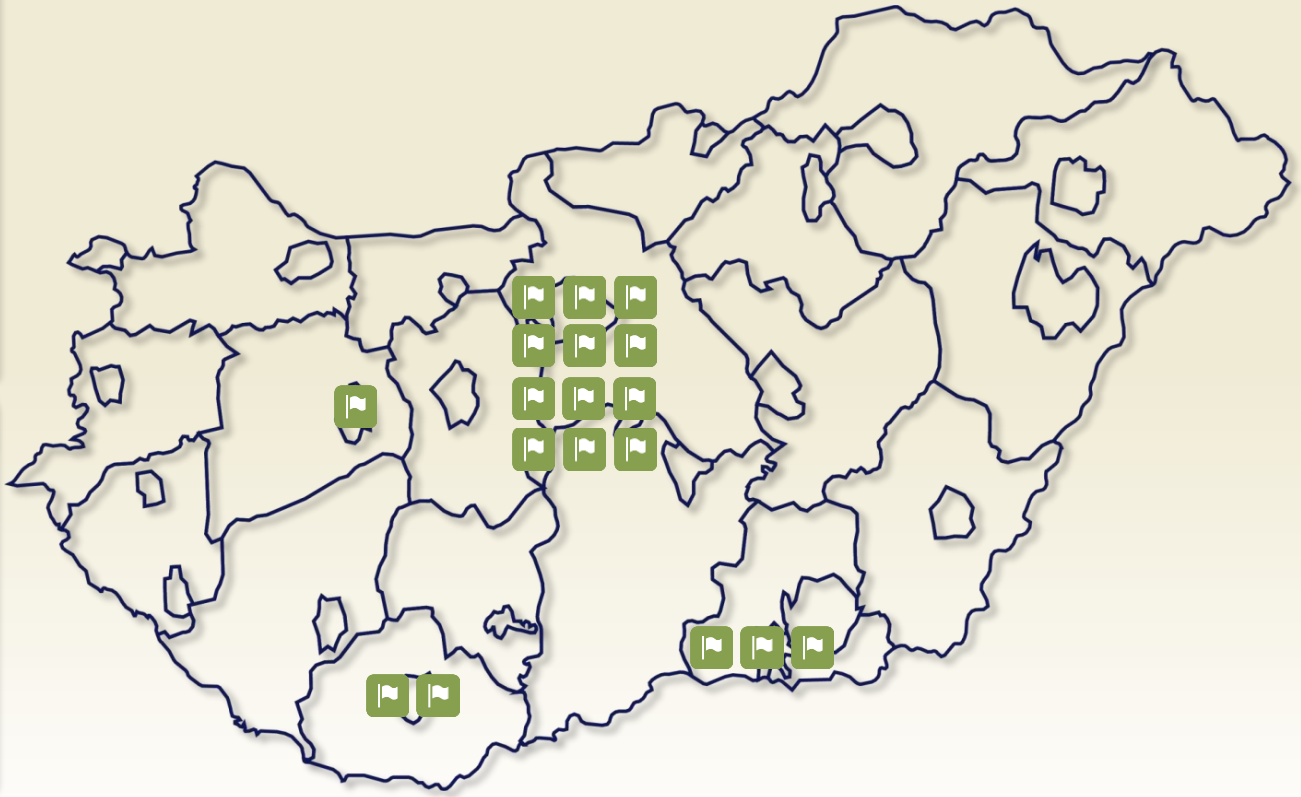
- Multidisciplinary Laboratory for Climate Change

Secure society and environment

Industry and digitization

Culture and family

Health

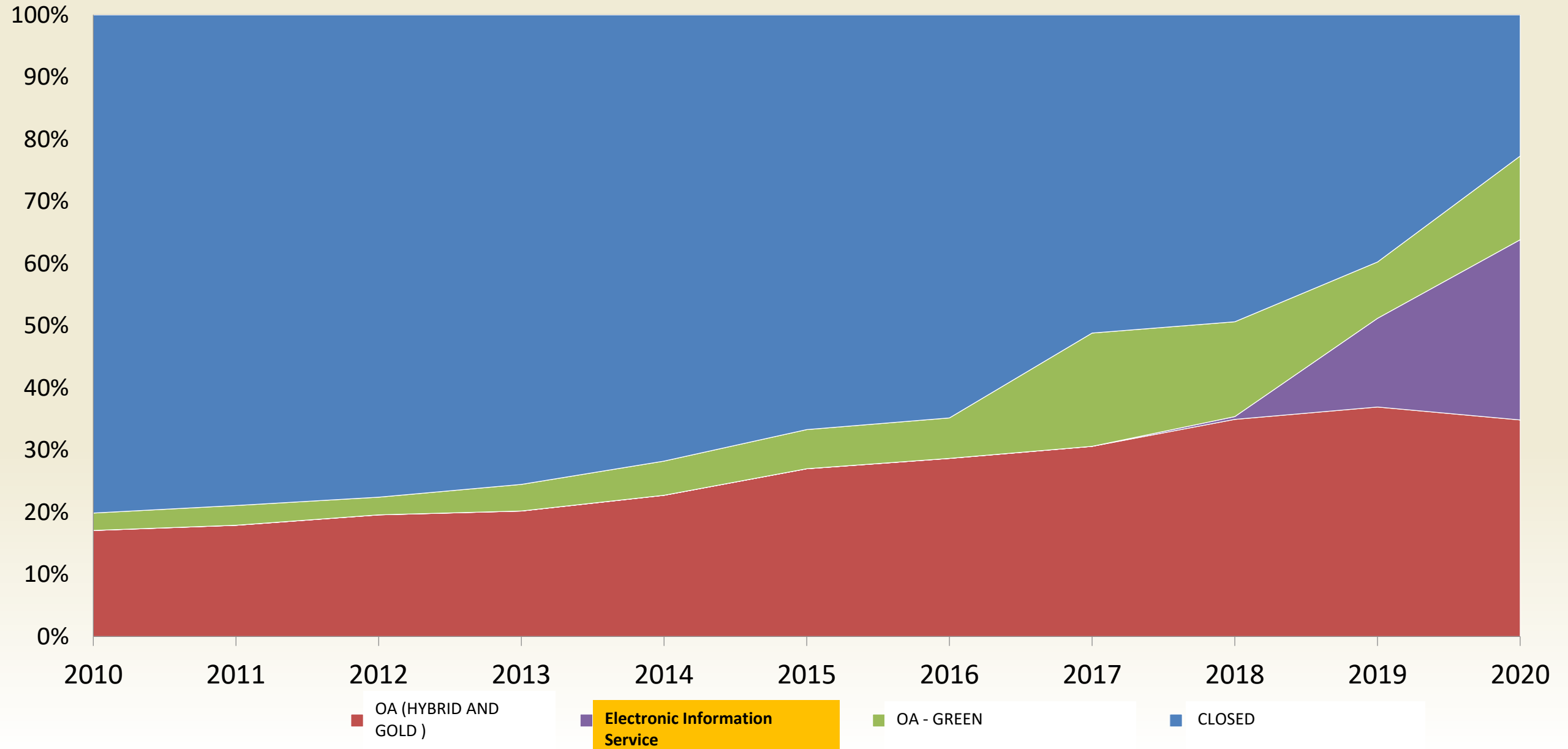


3 OPEN SCIENCE IN NATIONAL CONTEXT

NRDIO GOALS, ACTIVITIES & PRACTICES

Distribution of Hungarian scientific output 2010-2020

National Research, development and Innovation Office
Hungary



OS GOALS OF NRDIO

- Establishment of a National Open Science Advisory Board
- Formulation of a national resolution ("Open Science White Paper")
- Join the EOSC Association
- Enforcement of Open Science principles in research and innovation applications

Open Science
OS Hungarian Position Paper

National Research, Development and Innovation Office Hungary

The statement has been published with the aim of expressing a **common position** on Open Science, based on **professional consensus**, summarizes the **principles and the fields of activity** of Open Science that best **serve the interests and development of Hungarian science**.

The statement reflects on the key pillars of the Open Science ecosystem

- open access to research outputs;
- FAIR and CARE research data management;
- research integrity;
- next generation metrics in research assessment;
- new types of rewards and initiatives;
- international cooperation networks;
- Citizen Science;
- education and skills.

Open Science

nkfih

Advisory Board to the position paper

National Research, Development and Innovation Office Hungary

Funding organizations

Association of Hungarian PhD and DLA Candidates (DOSZ)
College of University Library Directors (EKK)
Eötvös Loránd Research Network (ELKH)
Ministry for Innovation and Technology (ITM)
Governmental Agency for IT Development (KIFÜ)
Hungarian Accreditation Committee (MAB)
Hungarian Rectors' Conference (MRK)
Library and Information Centre of the Hungarian Academy of Sciences (MTA KIK)
Hungarian Doctoral Council (ODT)
National Scientific Student Council (OTDT)

OS RELATED ACTIVITIES IN RDI FUNDING SYSTEM

NRDI Office has incorporated several measures in relation to Open Science into the RDI funding system:

Science Patronage Programme

- **Budget:** 1 billion HUF from the NRDI Fund
- **Aim**: promoting the internationalisation of the Hungarian scientific research community and supporting the **development of open science practices in Hungary**.
- **Dedicated budget for Open Access publication**

- up to 10% of the direct project costs at the Postdoctoral and Young researchers' excellence programme Call for thematic research projects (OTKA).

Open Science - participation in EOSC activities

National Research, Development and Innovation Office Hungary

Hungary takes part in the EOSC (European Open Science Cloud) activities (representation in the EOSC Steering Board, participation in the EOSC Association, providing data on national OS practices)

Further plans:

- The NRDI Office, as the main RDI funding organisation, will join the EOSC Association
- Collecting and reporting about national data and investments, policies, digital research outputs, open science skills and infrastructure capacities related to EOSC
- Further mainstreaming open science (OS) across national research funding programmes
- Increasing the connection of national/regional research infrastructures to the EOSC platform
- Contributing intensifying EOSC outreach and communication including through national EOSC events

Relevance of citizen science in the national RDI Strategy

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- **Hungary's RDI strategy for 2021-2030** stresses the **importance of increasing the public awareness of the value of science and innovation** and highlighted that it is necessary to promote the **accessibility of scientific results and innovation methods** not only for universities, research institutes and businesses, but also **for society in general.**

Dedicated Citizen Science Support measure under the Science Patronage Programme

National Research, Development and Innovation Office Hungary

The programme provides funding for

- **participation** in international scientific and innovation events and **conferences held abroad**
- **organizing** international scientific and innovation events and **conferences in Hungary** (with special regard to events related to international research infrastructure memberships)
- social promotion of the results of science and innovation, and **support of Citizen Science**
- **supporting the publication of scientific books** in paper-based and at the same time **open-access** electronic format.

648 applications **270 awarded grants**

ERA Action 14 on Citizen Science

National Research, Development and Innovation Office Hungary

Hungary is committed to actively take part in ERA Action 14 Bring science closer to citizens under the ERA Policy Agenda and priority is given to the following activities:

Plastic Pirates Initiative

- **Hungary has joined the Plastic Pirates** citizen science initiative and participates in the "Europeanisation of the Plastic Pirates Citizen Science Campaign" action coordinated by DLR-PT and will contribute to further development of the initiative by fine tuning the citizen science approach and methodology and by organizing local sampling campaign and communication activities.

Mutual Learning Exercise

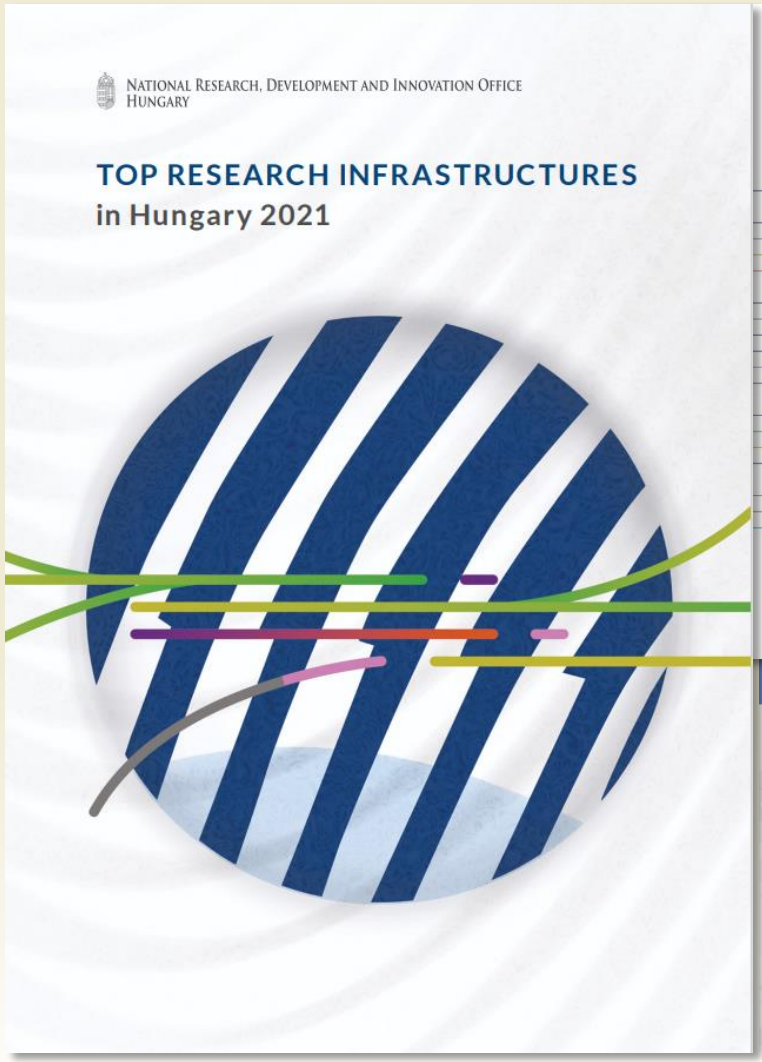
- **Hungary participates** in the Mutual Learning Exercise "Citizen Science Initiatives – Policy and Practice" launched under the PSF in 2022.
- Hungary is committed to get engaged in the **continuation of the MLE** on Citizen Science and **prepare the ground for a policy coordination mechanism** on public engagement practices and a network of exchange among responsible national organizations

FURTHER PLANS BASED ON INSTITUTIONAL LEVEL INITIATIVES

Although several citizen science activities are implemented at institutional level at Hungarian universities or research organizations but no dedicated platform or network has been established to monitor or link these initiatives.

- developing a monitoring system for the ongoing CS projects,
- a national Citizen Science network/hub will be established to create a common platform for those organizations which have already been implementing citizen science actions or express their commitment to promote public engagement in RDI

Top research infrastructures in Hungary 2021

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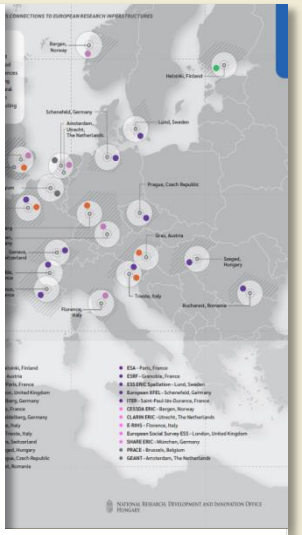


LARGE-SCALE RI

ELI-ALPS EXTREME LIGHT INFRASTRUCTURE ATTOSECOND LIGHT PULSE SOURCE

eli attosecond

Description of the research infrastructure

Activities and Services

2 LARGE SCALE KEY RIS

40 EXCELLENT RI

10 EXCELLENT NEW RI CLUSTERS

5 EMERGING RIS

THANK YOU FOR YOUR ATTENTION!