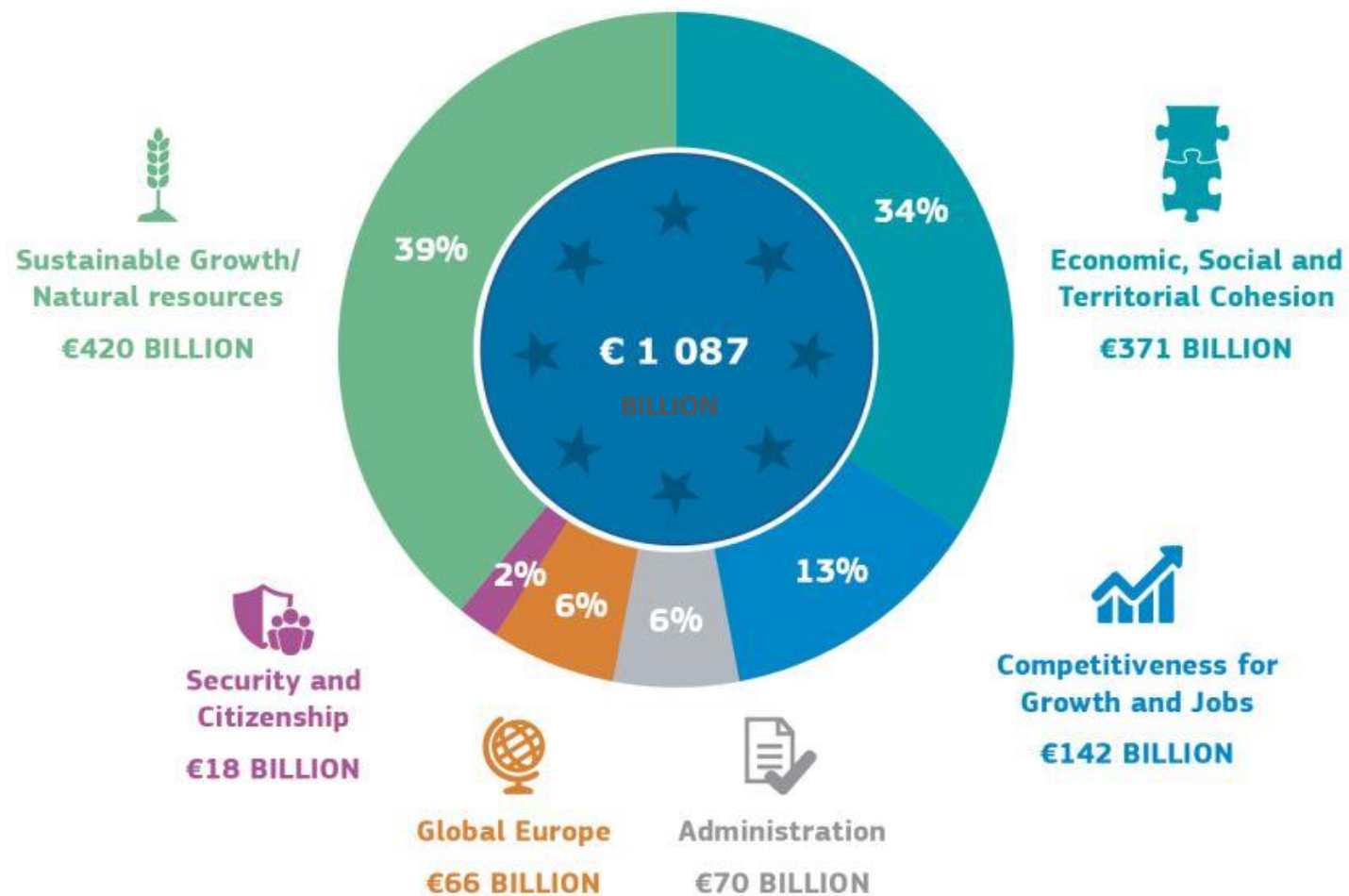


# Euroopa teadusrahastu – miks just selline?





EL eelarve  
2021-27 =  
ca 1% SKPst

# Refusing to stay in its lane

4

Research and development spending\*, \$bn



Source: OECD

\*Public- and private-sector

Economist

Table 1: Lead country and technology monopoly risk.

Technology	Lead country	Technology monopoly risk
<b>Advanced materials and manufacturing</b>		
1. Nanoscale materials and manufacturing	China	high
2. Coatings	China	high
3. Smart materials	China	medium
4. Advanced composite materials	China	medium
5. Novel metamaterials	China	medium
6. High-specification machining processes	China	medium
7. Advanced explosives and energetic materials	China	medium
8. Critical minerals extraction and processing	China	low
9. Advanced magnets and superconductors	China	low
10. Advanced protection	China	low
11. Continuous flow chemical synthesis	China	low
12. Additive manufacturing (incl. 3D printing)	China	low
<b>Artificial intelligence, computing and communications</b>		
13. Advanced radiofrequency communications (incl. 5G and 6G)	China	high
14. Advanced optical communications	China	medium
15. Artificial intelligence (AI) algorithms and hardware accelerators	China	medium
16. Distributed ledgers	China	medium
17. Advanced data analytics	China	medium
18. Machine learning (incl. neural networks and deep learning)	China	low
19. Protective cybersecurity technologies	China	low
20. High performance computing	USA	low
21. Advanced integrated circuit design and fabrication	USA	low
22. Natural language processing (incl. speech and text recognition and analysis)	USA	low
<b>Energy and environment</b>		
23. Hydrogen and ammonia for power	China	high
24. Supercapacitors	China	high
25. Electric batteries	China	high
26. Photovoltaics	China	medium
27. Nuclear waste management and recycling	China	medium
28. Directed energy technologies	China	medium
29. Biofuels	China	low
30. Nuclear energy	China	low
<b>Quantum</b>		
31. Quantum computing	USA	medium
32. Post-quantum cryptography	China	low
33. Quantum communications (incl. quantum key distribution)	China	low
34. Quantum sensors	China	low
<b>Biotechnology, gene technology and vaccines</b>		
35. Synthetic biology	China	high
36. Biological manufacturing	China	medium
37. Vaccines and medical countermeasures	USA	medium
<b>Sensing, timing and navigation</b>		
38. Photonic sensors	China	high
<b>Defence, space, robotics and transportation</b>		
39. Advanced aircraft engines (incl. hypersonics)	China	medium
40. Drones, swarming and collaborative robots	China	medium
41. Small satellites	USA	low
42. Autonomous systems operation technology	China	low
43. Advanced robotics	China	low
44. Space launch systems	USA	low

ASPI's Critical Technology Tracker

# China Tested New DF-27 Hypersonic ICBM That Can Penetrate Mainland US Defense Systems — Leaked Info

By Sakshi Tiwari | April 14, 2023

Among a sea of disclosures made by the leaked classified Pentagon document is the alarming revelation that China tested a long-range hypersonic missile dubbed the 'DF-27' that can penetrate the US mainland defenses.

Although the disclosures related to the Russia-Ukraine war have hogged the limelight, the classified documents also offer a significant glimpse into security risks posed to the US by China. For instance, the paper revealed how China had agreed to supply lethal weapons to Russia, without giving further details.

However, the most shocking is China's secret DF-27 ICBM test, which the country or the United States did not publicize. The Washington Post reported that Beijing conducted a test with its latest advanced experimental missile, the DF-27 ICBM, on February 25, 2023.

According to the document, the vehicle flew for 12 minutes over 1,300 miles (2,100 kilometers) and had a "high probability" of breaching American ballistic missile defense systems. The leaks have, thus, exposed the massive leaps that Beijing has made in its hypersonic program.

<https://www.eurasiantimes.com/china-tested-new-df-27-hypersonic-icbm-that-can-penetrate/>

## Defence, space, robotics and transportation

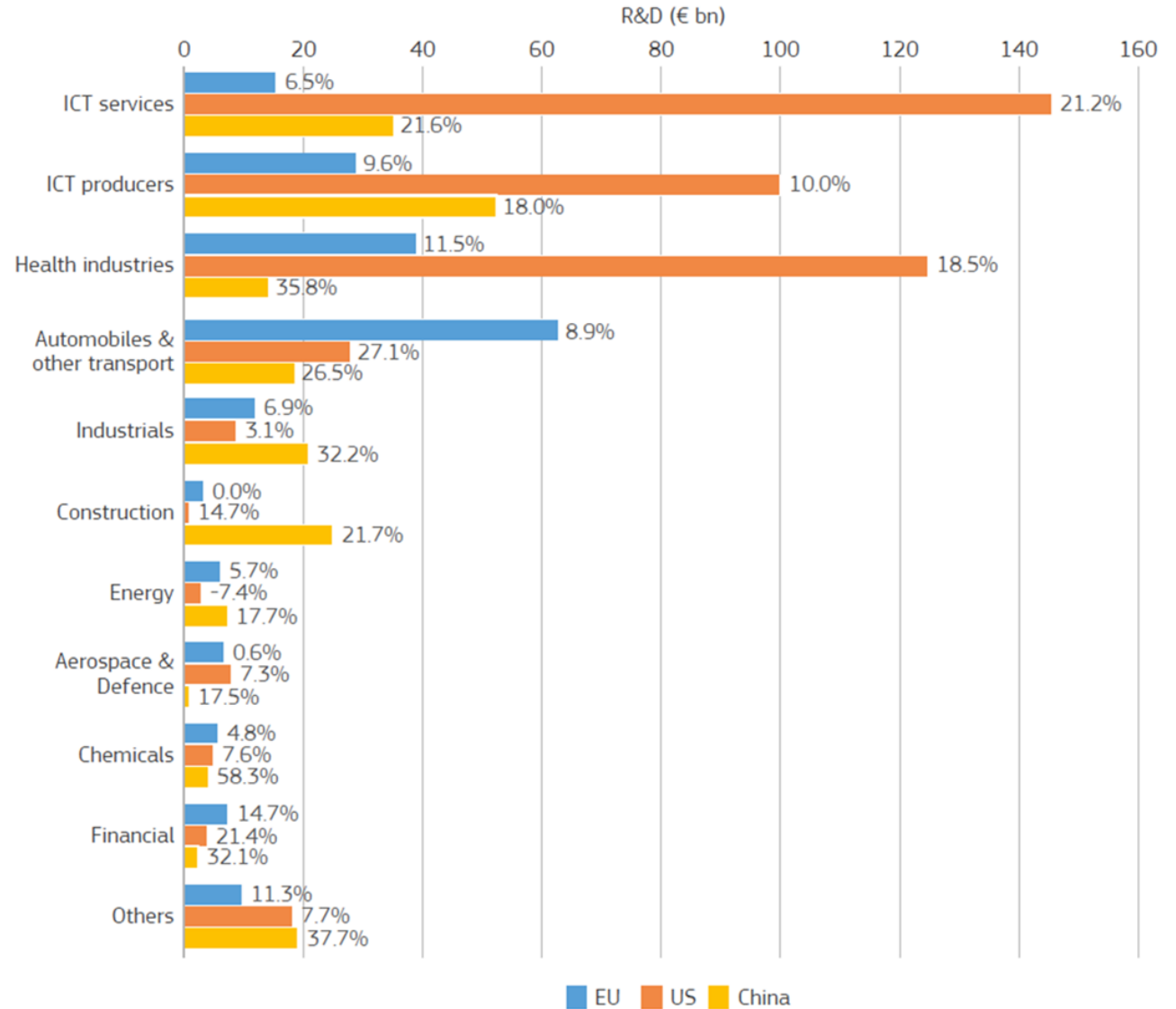
Table 2: Top 5 country rankings: Defence, space, robotics and transportation.

Technology	Top 5 countries					Technology monopoly risk
Advanced aircraft engines (incl. hypersonics)	 48.49%	 11.69%	 6.96%	 3.93%	 3.60%	7/10 4.15 <b>medium</b>
Drones, swarming and collaborative robots	 36.07%	 10.30%	 6.13%	 5.15%	 4.53%	5/10 3.50 <b>medium</b>
Small satellites	 24.49%	 17.32%	 7.82%	 4.36%	 4.11%	5/10 1.41 <b>low</b>
Autonomous systems operation technology	 26.20%	 21.01%	 5.28%	 5.11%	 3.55%	3/10 1.25 <b>low</b>
Advanced robotics	 27.89%	 24.64%	 5.49%	 4.81%	 3.79%	4/10 1.13 <b>low</b>
Space launch systems	 19.67%	 18.24%	 9.81%	 8.18%	 6.53%	1/10 1.08 <b>low</b>

# Industrial R&D investments 2021 (companies)

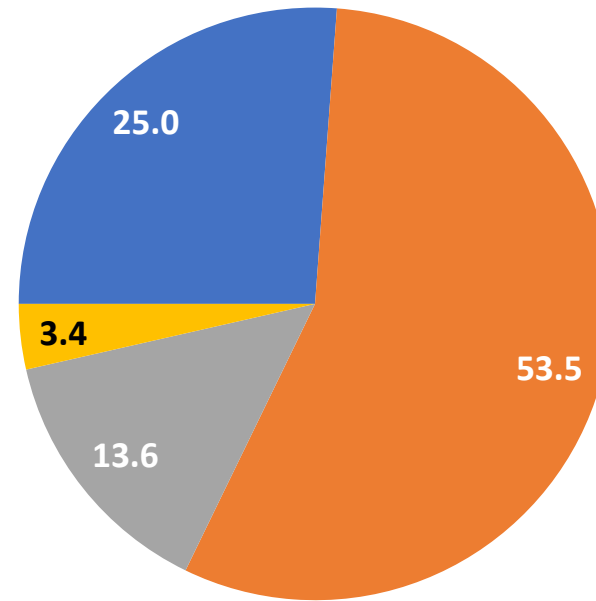
- R&D investment and 1-year growth rate by region/country and sector, 2021

- Source: EU Industrial R&D Investment Scoreboard 2022

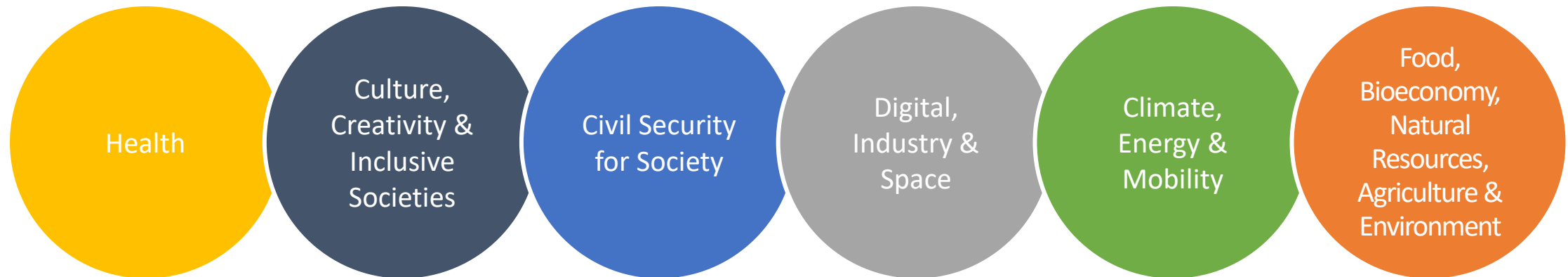


# Horizon Europe 95 bn

## GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

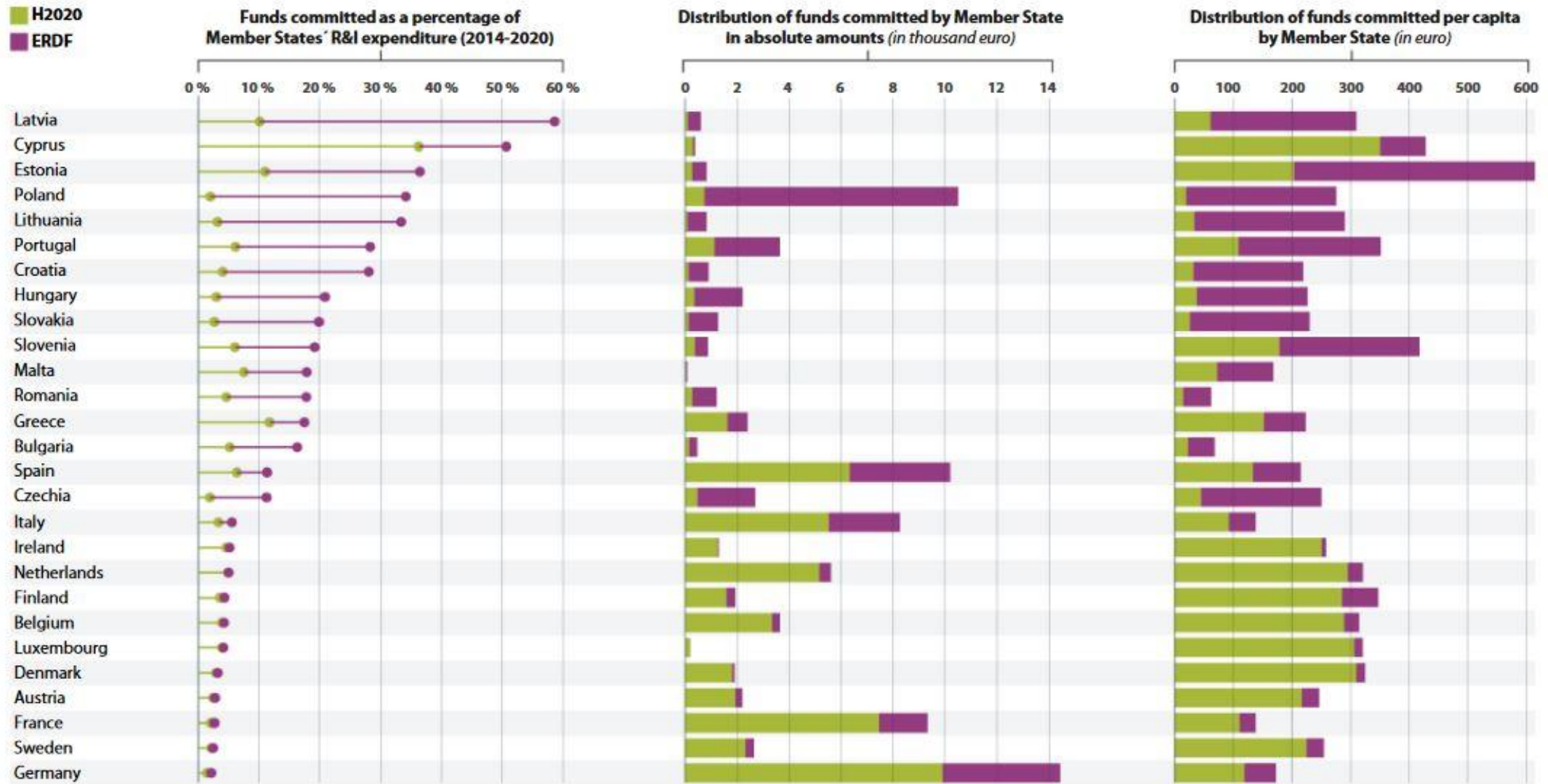


- Excellent Science
- Global challenges and European ind. comp.
- Innovative Europe
- Widening Part and ERA



€53.5 billion

Figure 8 – H2020 and ESIF funds committed (as of 31.12.2021)



Source: ECA, based on Commission data.

# Was the intervention efficient?

## *Attractiveness vs oversubscription*

To fund all high-quality proposals submitted to all actions of H2020, the European Commission should increase the H2020 budget by EUR 183 billion.

The total administrative budget should increase by EUR 5.5 billion to fund all these extra proposals.

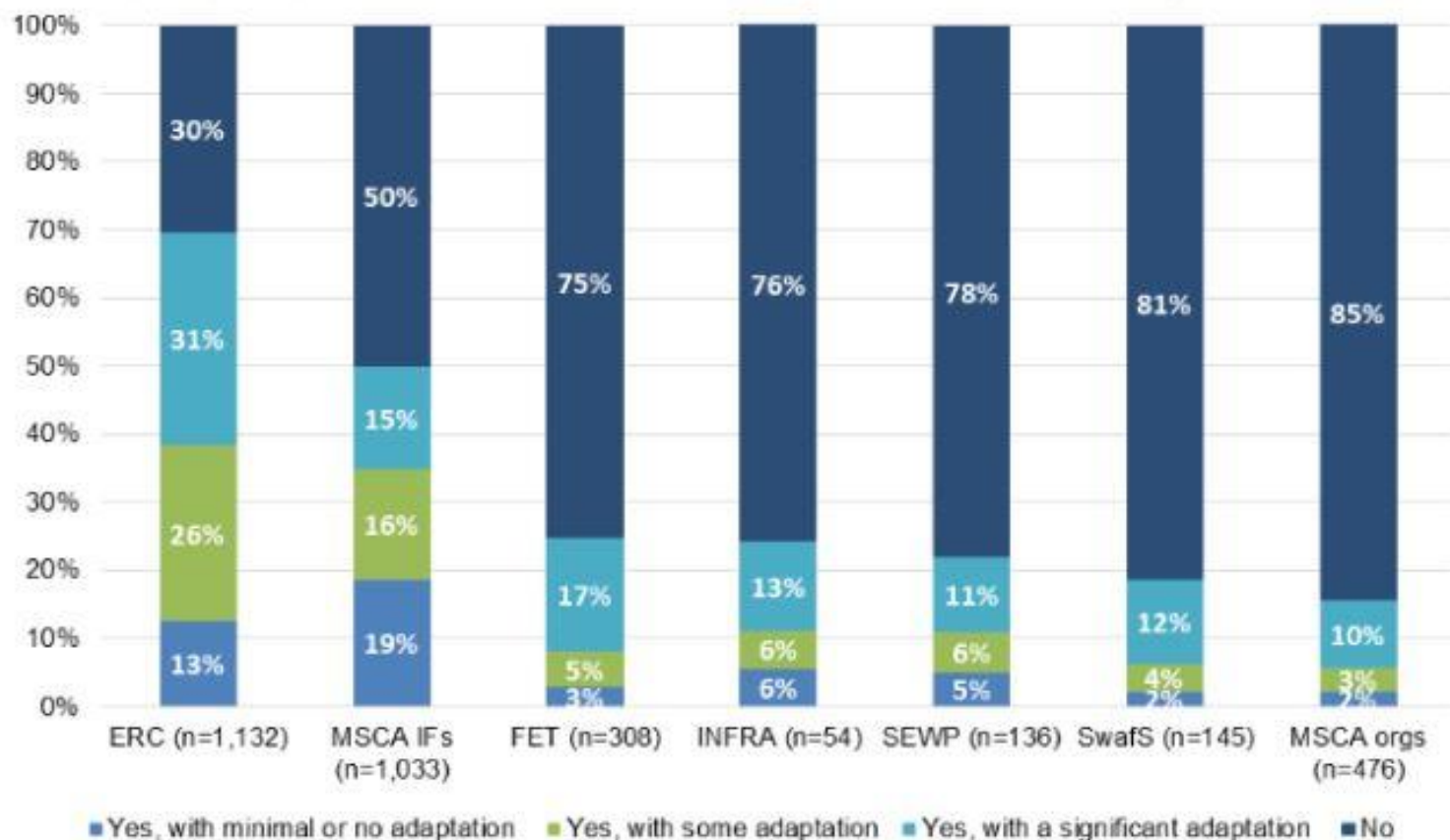
	Number of eligible proposals	Success rate	Success rate above threshold	Funding that would be needed for unsuccessful above-threshold proposals (In EUR Million)	Estimated administrative cost for unsuccessful high-quality proposals (in EUR million)
European Research Council	57 216	12.9%	31.0%	29 564	771.3
Future and Emerging Technologies	7 123	8.9%	19.0%	8 766	375.1
Research Infrastructures	947	33.5%	44.6%	1 760	52
Marie Skłodowska Curie Actions	78 763	14.4%	18.0%	38 029	845
Spreading Excellence and Widening Participation	2 925	15.9%	23.9%	1 589	48
Science with and for Society	1 933	13.2%	25.1%	1 677	47
<b>Total H2020</b>	<b>299 423</b>	<b>11.5%</b>	<b>24.0%</b>	<b>183 463</b>	<b>5 503</b>



# What was the intervention's EU added value?

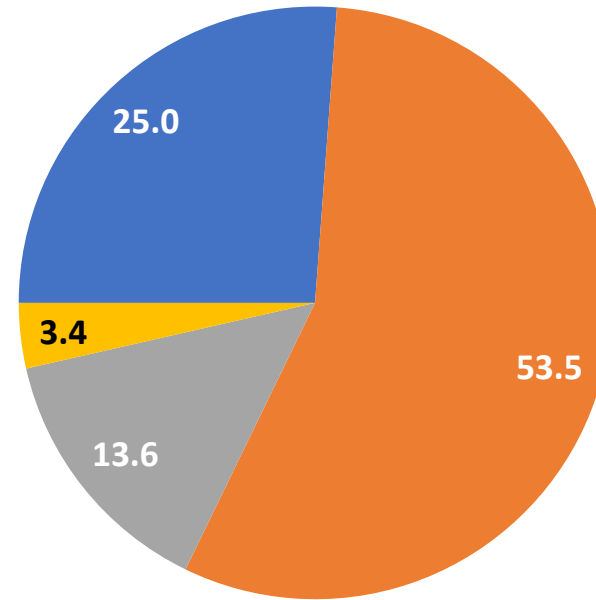
## *Additionality of funding*

“Did you implement the project or the activities proposed in your application after not being successful in the application to Horizon 2020 funds?” (Survey answers from unsuccessful applicants from organisations to MSCA, FET, INFRA, SEWP and SwafS and unsuccessful applicants to MSCA IF and ERC).

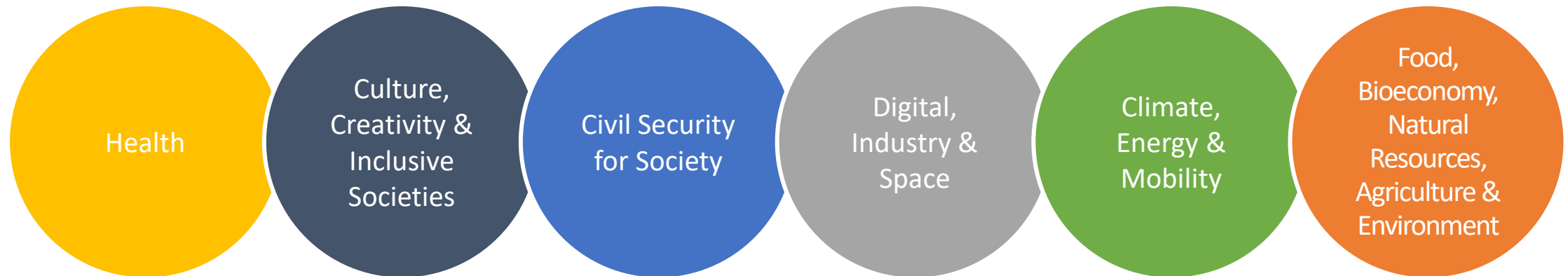


# Horizon Europe 95 bn

## GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS



- Excellent Science
- Global challenges and European ind. comp.
- Innovative Europe
- Widening Part and ERA



€53.5 billion

# THE PORTFOLIO OF 49 EUROPEAN PARTNERSHIPS

**67%**

of Horizon Europe partnership collective resources<sup>3</sup> are planned to be allocated to R&I contributing to the Green Deal objectives, a 38% increase compared to H2020

## PILLAR II - Global challenges & European industrial competitiveness

## PILLAR III - Innovative Europe

Cluster 1: Health	Cluster 4: Digital, industry and space	Cluster 5: Climate, energy and mobility	Cluster 6: Food, bioeconomy, natural resources, agriculture and environment	EIT: The European Institute of Innovation and Technology	European innovation ecosystems
Innovative Health Initiative	Key Digital Technologies	Clean Hydrogen	Circular Bio-based Europe	EIT InnoEnergy	Innovative SMEs
Global Health EDCTP3	Smart Networks and Services	Clean Aviation	Biodiversa+	Climate-KIC	
Transformation of Health Care Systems	High Performance Computing	Single European Sky ATM Research 3	Blue Economy	EIT Digital	
Risk Assessment of Chemicals	European Metrology (Art. 185)	Europe's Rail	Water4All	EIT Food	
ERA for Health	AI-Data-Robotics	Connected, Cooperative and Automated Mobility	Animal Health and Welfare	EIT Health	
Rare Diseases	Photonics	Batteries	Accelerating Farming Systems Transitions	EIT Raw materials	
One-Health Antimicrobial Resistance	Made in Europe	Zero-emission Waterborne Transport	Agriculture of data	EIT Manufacturing	
Personalised Medicine	Clean Steel – Low-Carbon Steelmaking	Zero-emission Road Transport	Safe and Sustainable Food Systems	EIT Urban Mobility	
Pandemic Preparedness	Processes4Planet	Built4People		Cultural and Creative Sectors and Industries	
	Globally Competitive Space Systems	Clean Energy Transition			
		Driving Urban Transitions			
					<b>CROSS-PILLARS II and III</b>
					European Open Science Cloud

■ Institutionalised partnerships (Art 185/7, EIT KICs)

■ Co-programmed

■ Co-funded

□ Not covered in the BMR 2022 due to a later start date

# The 5 EU Missions:



**cancer:** improve the lives of more than 3 million people

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make 150 regions and communities **climate resilient**

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restore our **ocean and waters**

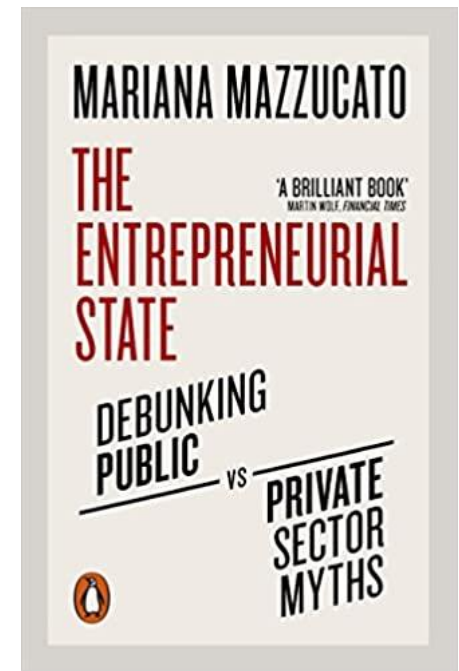


achieve 100 **climate-neutral and smart cities**

---



create 100 living labs and lighthouses to lead the transition towards **healthy soils**



## Work as an expert

The European Union Institutions appoint external experts to assist in the evaluation of grant applications, projects and tenders, and to provide opinions and advice in specific cases.



In particular, experts assist in:

- **Evaluation** of proposals, prize applications and tenders
- **Monitoring** of actions, grant agreements, public procurement contracts

In addition, experts provide opinion and advise on:

- **Preparation, implementation and evaluation of EU programmes and design of policies.**

In order to select experts, the European Union Institutions publish regularly calls for expression of interest (see list below) detailing the selection criteria, the required expertise, the description of the tasks, their duration and the conditions of remuneration.

**Interested? Please join the database of external experts!**

[Register as expert](#)

**As new expert**, you will be first requested to create your EU login account and register your profile.

**Registered experts** can update the profile via the My Expert Area after [login](#).

Tänuđ kuulamast ja  
kaasa l oomast, ka edaspidi!

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