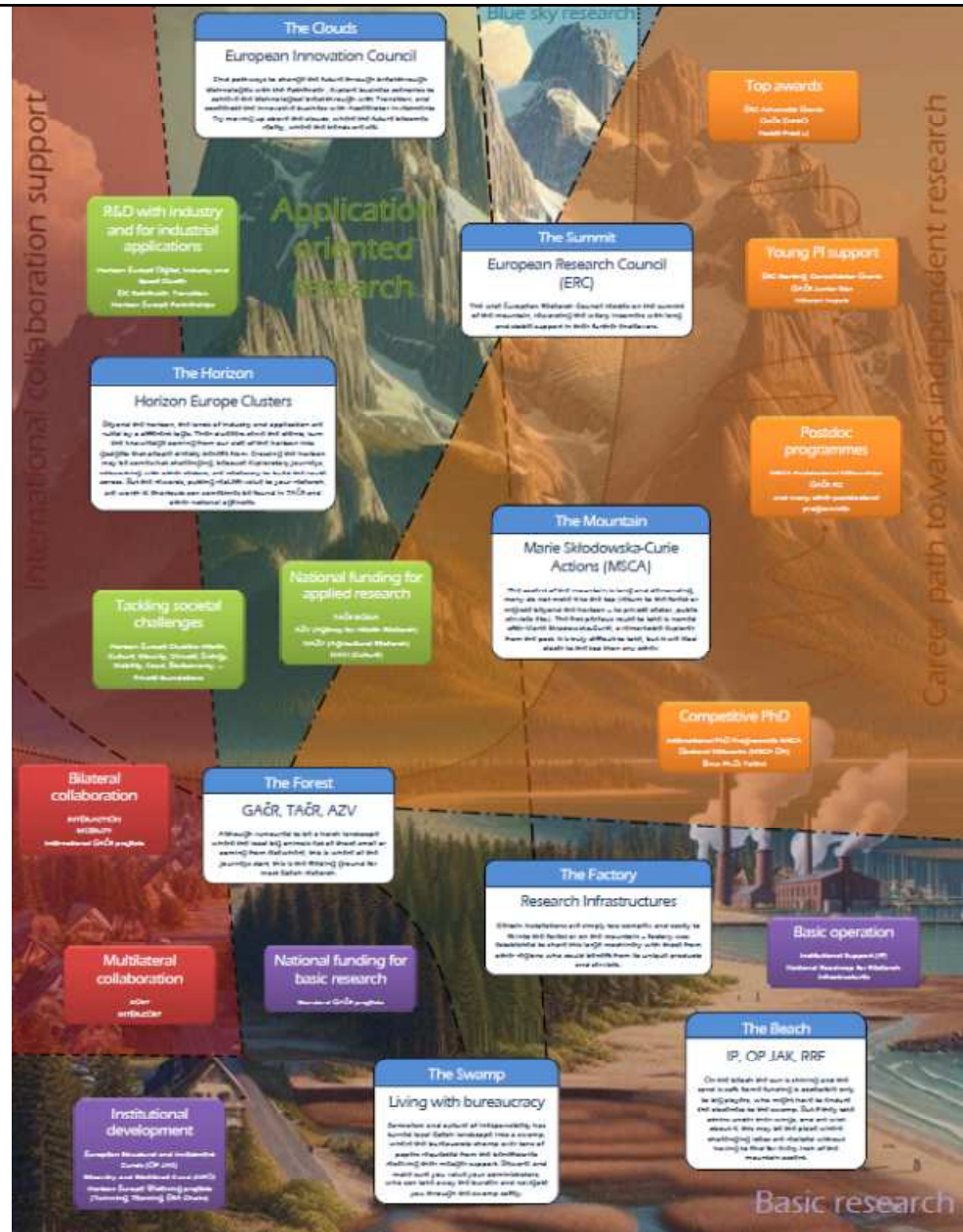# MUNI

Funding Landscapes

Ladislav Čoček
Research Office, Rectorate
12 November 2024

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Funding Landscapes

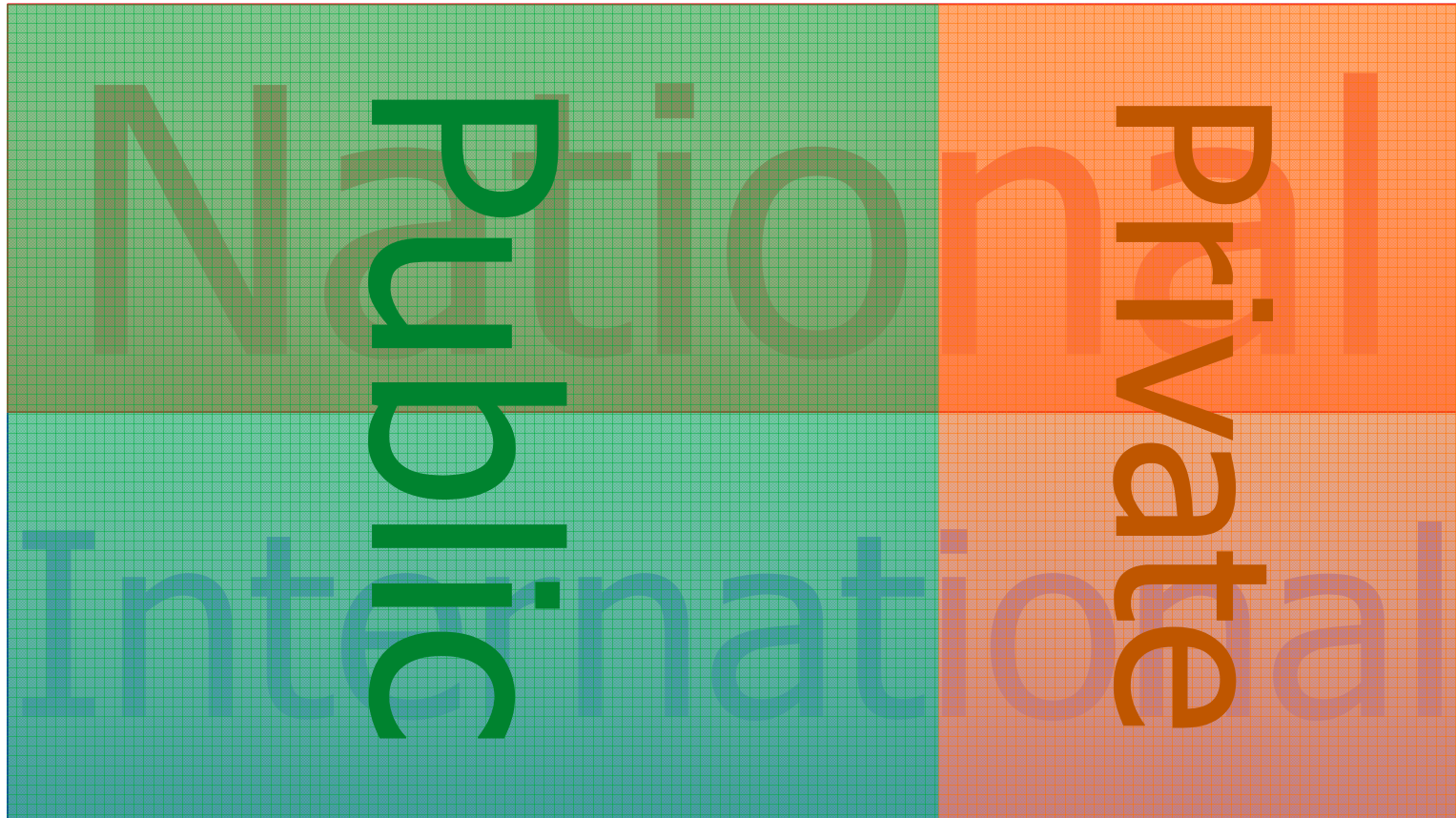# Funding Landscapes
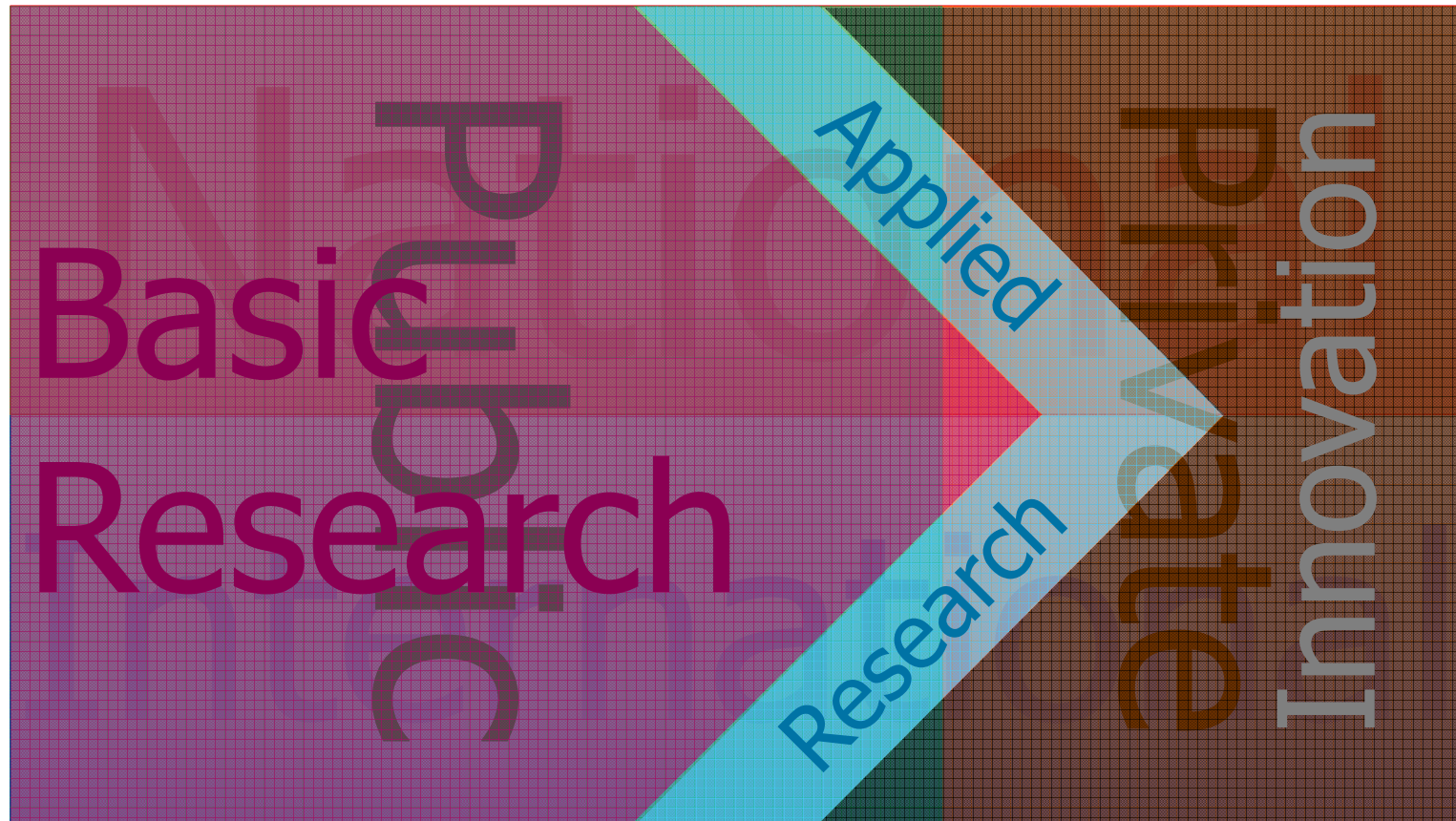
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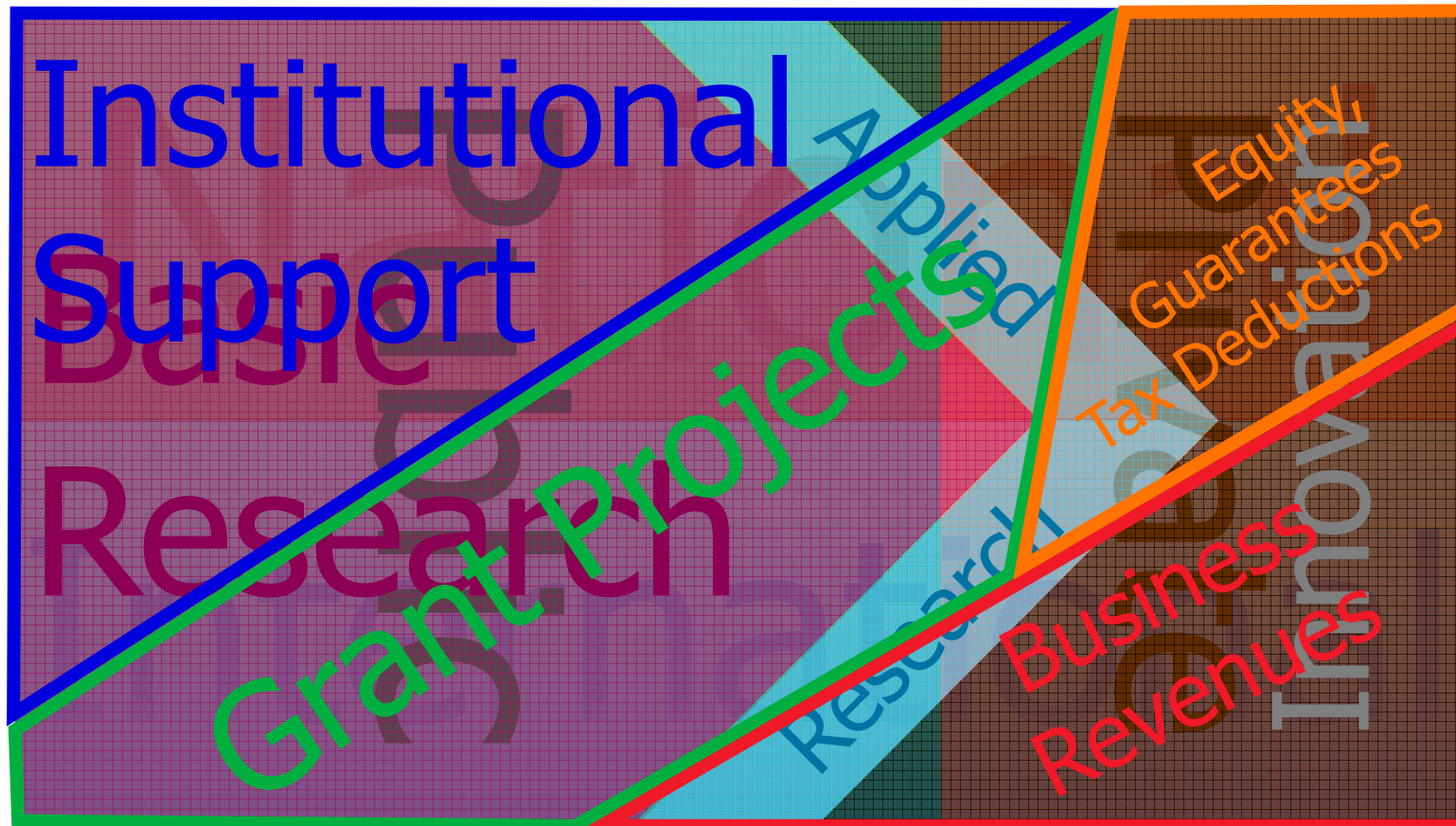
Research funding

National

International

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Research funding

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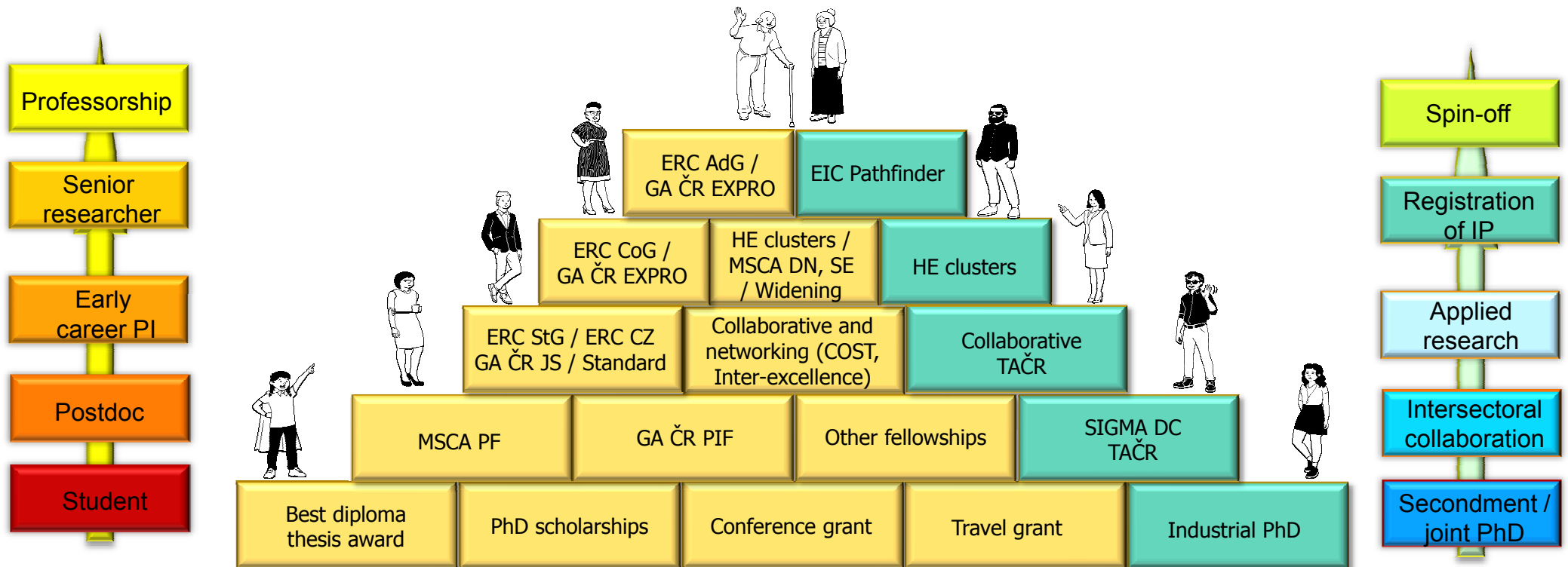
Research funding

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Research funding

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Scientific Career and Funding

The journey to (non-)academic success

Left column (bottom to top):
- Student
- Postdoc
- Early career PI
- Senior researcher
- Professorship

Pyramid levels:

Bottom row:
- Best diploma thesis award
- PhD scholarships
- Conference grant
- Travel grant
- Industrial PhD

Second row:
- MSCA PF
- GA ČR PIF
- Other fellowships
- SIGMA DC TAČR

Third row:
- ERC StG / ERC CZ GA ČR JS / Standard
- Collaborative and networking (COST, Inter-excellence)
- Collaborative TAČR

Fourth row:
- ERC CoG / GA ČR EXPRO
- HE clusters / MSCA DN, SE / Widening
- HE clusters

Top row:
- ERC AdG / GA ČR EXPRO
- EIC Pathfinder

Right column (bottom to top):
- Secondment / joint PhD
- Intersectoral collaboration
- Applied research
- Registration of IP
- Spin-off

National funding

GAČR (Czech Science Foundation)

– basic research in all disciplines

– **Standard:** 3-years, national panels, incremental research

– **International:** with partner agencies; Lead Agency; WEAVE

– **EXPRO:** 5-years, international panels, frontier research

– **JUNIOR STAR:** 5-years, international panels, independence

– **POSTDOC INDIVIDUAL FELLOWSHIP:** <4 years after PhD
  – PIF outgoing: 2(+1)-years, national panels, postdoc abroad
  – PIF incoming: 3-years, national panels, incoming from abroad

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TAČR (Technology Agency of CZ)

T A
Č R

- applied research & technological development in all disciplines

- primary applicant / beneficiary: company

- co-financing

- diverse portfolio of programmes

- active in international collaboration

- taking over „ministry" applied programmes

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TAČR programmes

- SIGMA
  - DC1: Pre-application research (via CTT)
  - DC2: Early-stage researchers
  - DC4: International collaboration

- TREND
  - Technology leadership
  - Newcomers

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Ministry (departmental) programmes

– supporting departmental strategies

– Ministry of Education, Youth and Sports (MEYS)
    – in charge of institutional funding of universities
    – international collaboration based on bilateral and multilateral agreements:
    – Mobility projects
    – **INTER-EXCELLENCE** (2) programme

– Ministry of Culture: **NAKI**

– Ministry of Health: **AZV**

– Ministry of Interior: **OPSEC**

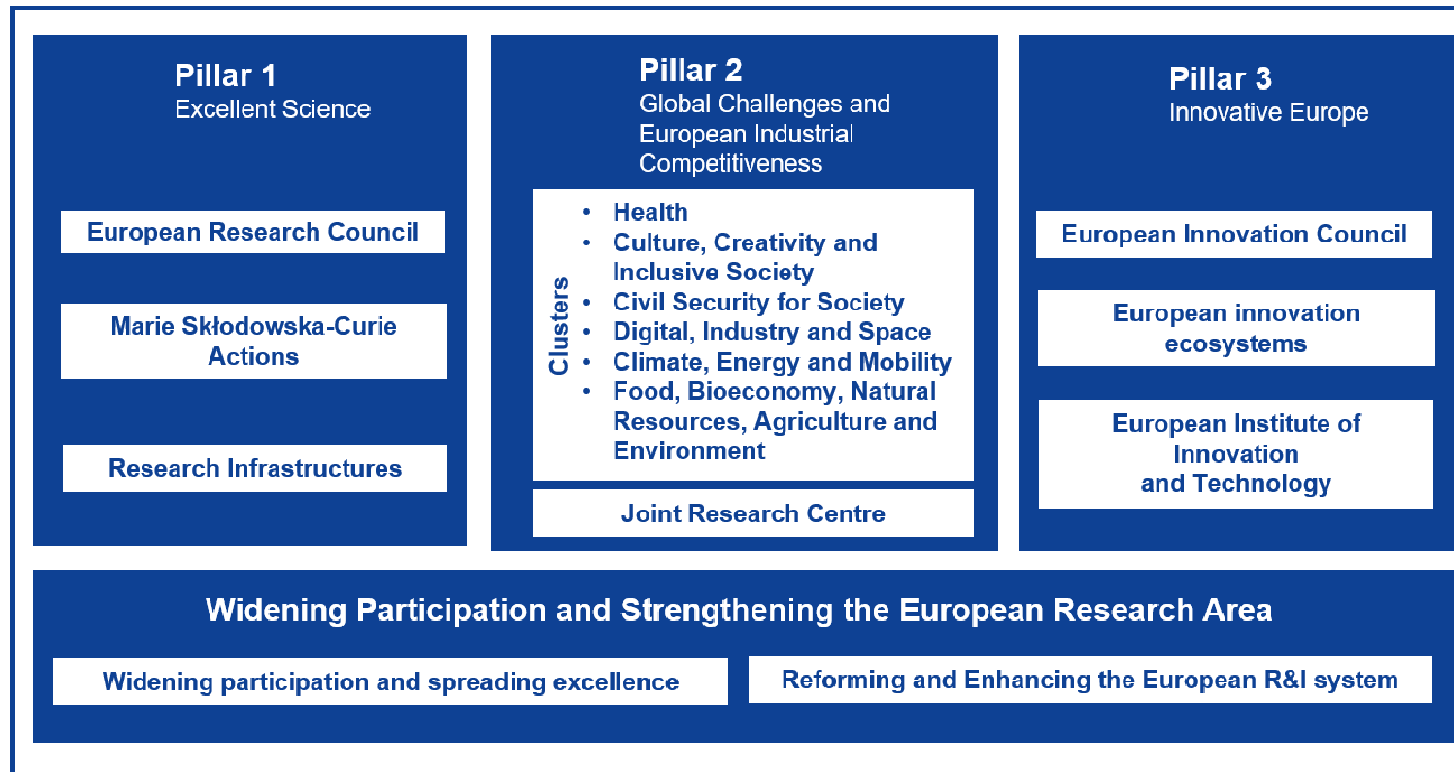– some absorbed by TAČR (e.g. environment, transport, industry)
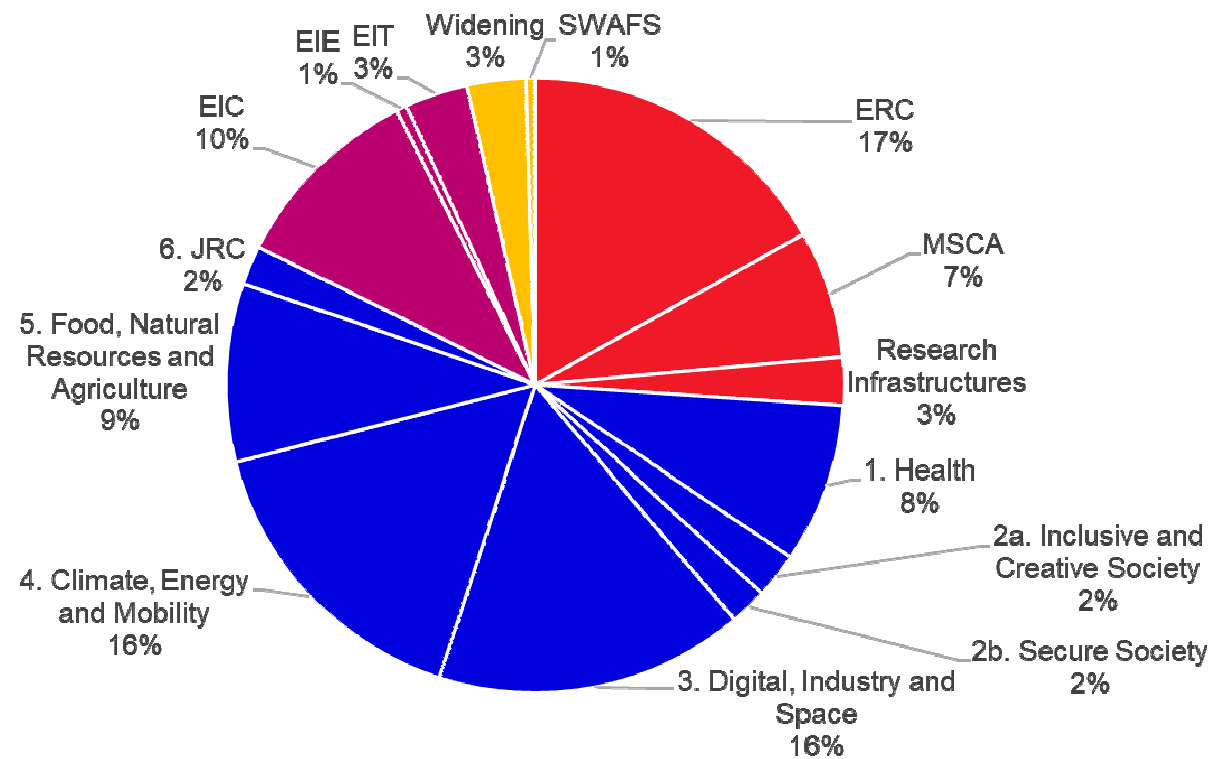
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Horizon Europe

(European Union)

Horizon Europe: structure

2021-2027

Pillar 1
Excellent Science

- European Research Council
- Marie Skłodowska-Curie Actions
- Research Infrastructures

Pillar 2
Global Challenges and European Industrial Competitiveness

Clusters
- Health
- Culture, Creativity and Inclusive Society
- Civil Security for Society
- Digital, Industry and Space
- Climate, Energy and Mobility
- Food, Bioeconomy, Natural Resources, Agriculture and Environment

Joint Research Centre

Pillar 3
Innovative Europe

- European Innovation Council
- European innovation ecosystems
- European Institute of Innovation and Technology

Widening Participation and Strengthening the European Research Area

- Widening participation and spreading excellence
- Reforming and Enhancing the European R&I system

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Horizon Europe: budget

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Horizon Europe: Pillar 1

- European Research Council (ERC)
  - Supporting breakthrough research based on excellence only (of the PI and the project)

- Marie Skłodowska-Curie Actions (MSCA)
  - Mobility of researchers in various career stages
  - Individual and collaborative projects

- Research Infrastructures
  - Strategic support of large infrastructures and their networks
  - Clearly targeted calls – need to have a significant role in the community to be able to participate

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European Research Council (ERC)

- **Years after PhD:** 2-7 Starting; 8-12 Consolidator; 13+ Advanced

- Duration 5 years – **1,5-2,5 million** EUR + 1 million EUR top-up

- Projects driven by **single Principal Investigator (PI)**

- Breakthrough research; evaluation criterion: **Excellence**

- **Synergy grants:** 2-4 PIs, 10 (+4) million EUR, 6 years

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Support to ERC applicants

TRAINING

- Grants Week - Kick-starting a research career with Horizon Europe - 20.11. 2024, UKB
- ERC Grant Applications: Strategies, Pitfalls, and Best Practices for Researchers and Project Managers - 5. 2. 2025, UKB

INDIVIDUAL SUPPORT

- Assistance with preparation of B1, B2 and A parts of the proposal (ethics,…)
- Selection of evaluation panel
- Contact with ERC experts (ERC holders, evaluators etc.)
- Organisation of mock interviews

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Expert group for ERC

- Workshops for ERC applicants – interactive training, set of three online meetings focused on:

Day 1 – feedback on 5 min the presentation of project idea and applicant's CV and track record

Day 2 – evaluation of successful proposal from the scientific domain of applicant´s preference

Day 3 – individual presentations of B1 and discussion with members of Expert Group and other ERC evaluators

- Mock interviews - for applicants in 2nd stage of evaluation

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MSCA Postdoctoral Fellowships (PF)

– **Individual:** driven by **Fellow** and **Supervisor**

– **Mobility requirement:** 2 of 3 last years outside of hosting country

– **Training action:** target is **career development**, not just research

– **European:** 1-2 years hosting in EU (or associated)

– **Global:** 1-2 years out of EU (or associated) + 1 year back in EU

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Support to MSCA PF applicants

TRAINING
- Grants Week - Kick-starting a research career with Horizon Europe - 20.11. 2024, UKB
- Seminars for Supervisors – February
- Workshops for MSCA applicants - March-May

REVISIONS
- for proposals prepared in tight collaborations with Supervisor and Faculty

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MSCA Doctoral Networks

- Network of **PhD supervisors**

- Recruitment of up to **15 PhD students for 3 years**

- **3i:** International (mobility of PhD students required); Interdisciplinary; Intersectoral (secondments out of academia, hosting by non-academic institutions)

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Horizon Europe: Pillar 2

– Thematic „Clusters":

  – Health
  – Culture, Creativity and Inclusive Society
  – Civil Security for Society
  – Digital, Industry and Space
  – Climate, Energy and Mobility
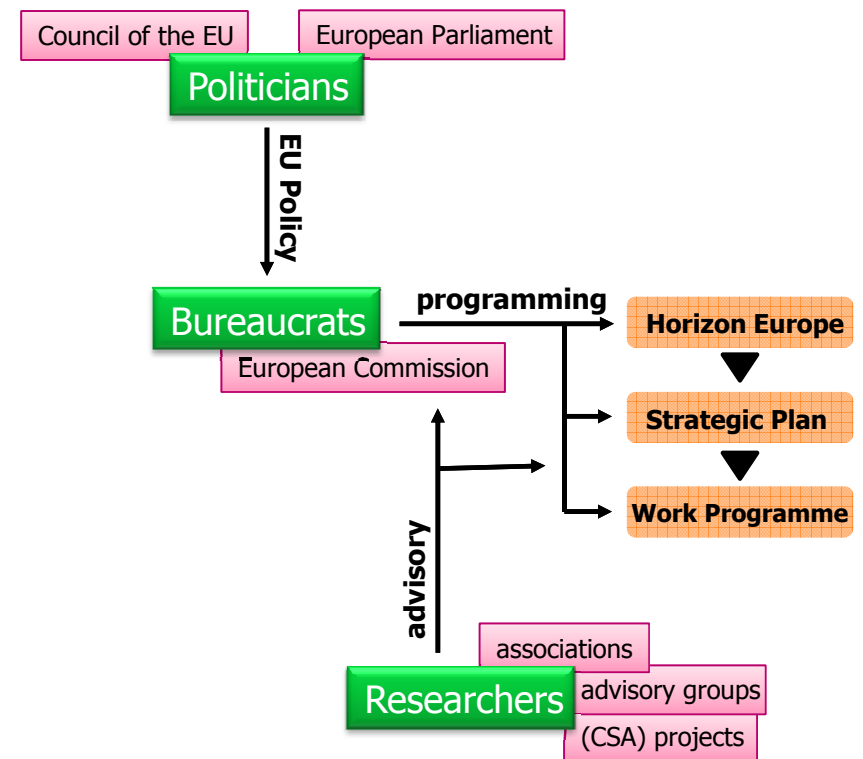 – Food, Bioeconomy, Natural Resources, Agriculture and Environment

– Collaborative projects

– Top-down defined topics

– Open calls – for MUNI employees; or on F&T Portal

Destination 5. Unlocking the full potential of new tools, technologies and digital solutions for a healthy society

Destination - Increased Cybersecurity

Destination 3: World-leading Data and Computing Technologies

Destination 4: Digital & Emerging Technologies for Competitiveness and Fit for the Green Deal

Destination 6: A human-centred and ethical development of digital and industrial technologies

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Where do the topics come from?

- Main priorities defined for 2021-2027

- Strategic plan – destinations for 2021-2024 / 2025-2027

- Work Programme – topics for 2021-2022 / 2023-2025 / 2026-2027

- **Who wrote the topic?**

- Search for clues: associations, projects, advisory groups, CSAs, forecasting

- CZ represented in Programme Committee (can propose or adjust topics; but needs support from other representations)

Council of the EU   European Parliament

Politicians

EU Policy

Bureaucrats   programming   Horizon Europe

European Commission

Strategic Plan

advisory   Work Programme

associations
advisory groups
Researchers   (CSA) projects

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Reading the topics

HORIZON-CL3-2024-CS-01-02: Post-quantum cryptography transition

conditions

Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 4.00 and 6.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 23.40 million.
Type of Action	Research and Innovation Actions
Eligibility	The conditions are described in General Annex B. The following exceptions apply:

In order to achieve the expected outcomes, and safeguard the Union's strategic assets, interests, autonomy, and security, participation in this topic is limited to legal entities established in Member States, Associated Countries and OECD countries. Proposals including legal entities which are not established in these countries will be ineligible.

The following exceptions apply: subject to restrictions for the protection of European communication networks. |

Expected Outcome: Projects' results are expected to contribute to some or all of the following outcomes:

- Increasing the maturity of current post-quantum cryptographic algorithms and contribution to further standardisation;
- Easy-to-use tools for the large-scale implementation of post-quantum cryptographic algorithms, based on state-of-the-art standards;
- Secure and efficient transition from pre- to post-quantum encryption through tools implementing a hybrid approach combining recognised pre-quantum public key algorithms and additional post-quantum algorithms;
- Phase-in of post-quantum algorithms or protocols to new or existing applications;

- Demonstrators and good-practice implementations of post-quantum cryptographic algorithms on varied hardware and
- Application-oriented recommendations for the implementation of post-quantum cryptography a...

Scope: The advent of large-scale quantum computers will compromise much of modern cryptography, which is instrumental in ensuring cybersecurity and privacy of the digital transition. Any cryptographic primitive based on the integer factorization and/or the discrete logarithm problems will be vulnerable to large-scale quantum-powered attacks. The digital data/products/systems that derive their security ultimately from the abovementioned primitives will be compromised and must be upgraded - including their replacement when needed- to quantum-resistant cryptography. The massive scale of this foreseen upgrade shows that preparations are needed today in order to widely implement the relevant mitigations in the future. Many companies and governments cannot afford to have their protected communications/data decrypted in the future, even if that future still seems distant. There is a need to advance swiftly in the transition to quantum-resistant cryptography.

Post-quantum resistant cryptographic algorithms should be deployable in a dynamic manner in order to quickly react to new quantum computer developments. Recommendations for post-quantum cryptography have already been published, but have to be maintained up-to-date, Proposals received under this topic should contribute to developing coordinated European recommendations for the transition to post-quantum cryptography across the EU.
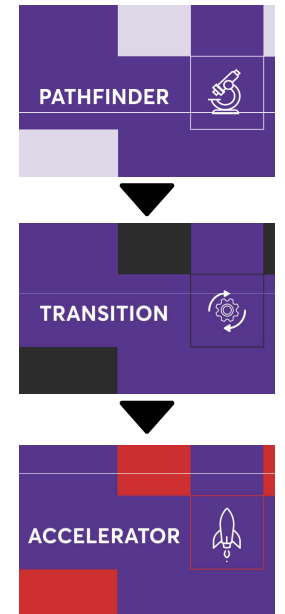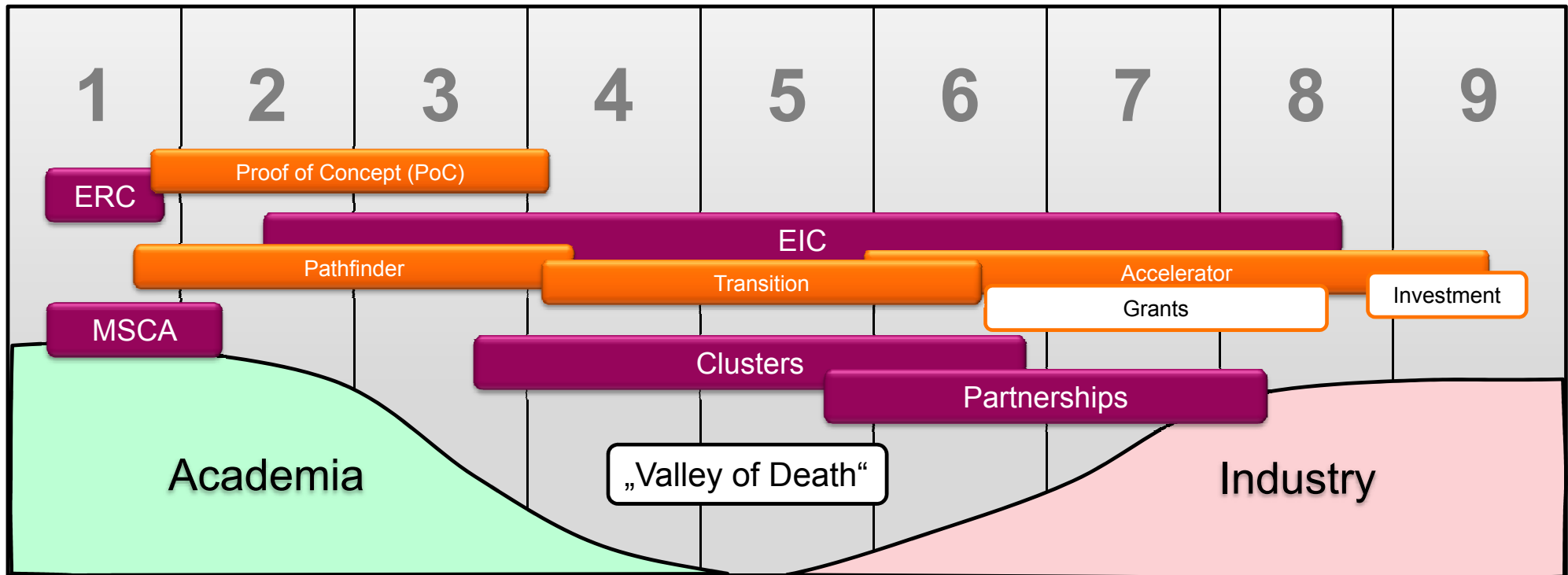
The identification and analysis of potential regulatory aspects and barriers for the developed technologies/solutions is encouraged, where relevant.

Callout annotations:
- code & title
- project budget (indicating consortium size)
- call budget (indicating number of proposals to be financed)
- scope = background, goals and activities
- type of action (research vs. innovation vs. „chlebíčky")
- expected outcome RESULTS/IMPACT

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European Innovation Council (EIC)

- **Pathfinder** – radically new technology, science-to-technology breakthrough, high-risk high-gain

- **Transition** – preparing investment-ready business plan

- **Accelerator** – patient capital to deep tech SMEs

- open & challenge calls

- grants (reimbursement of costs) & investments (equity, guarantee)

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Horizon Europe: TRLs

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Funding & Tenders Portal

Horizon Europe – information source

– Current calls available here:

 – https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-search

– One portal for submission of proposals, administration and reporting of running projects, and also selection of evaluators (EXPERT AREA)

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