



Joint OECD TIP-EARTO Workshop on the Role of RTOs in supporting the Sustainable Transitions

19 November 2021
09.30-12.30 (CET)

Timing	Agenda
09.30 – 10.00	<p>Introduction</p> <ul style="list-style-type: none"> ■ Welcome by Alessandra Colecchia <p>Introduction by:</p> <ul style="list-style-type: none"> ■ Göran Marklund, Chair of the TIP Working Party and Deputy Director General, Vinnova, Sweden ■ Antti Vasara, President & CEO, VTT Technical Research Centre of Finland and President of EARTO <ul style="list-style-type: none"> ■ Presentation by Philippe Larrue on lessons learned from the ongoing OECD-EARTO project
10.00 – 11.00	<p>Panel 1 - The role of RTOs in sustainable transitions: towards new opportunities and new challenges, moderation by Carthage Smith, OECD Global Science Forum</p> <p>Panellists:</p> <ul style="list-style-type: none"> ■ Pia Sandvik, CEO, RISE ■ Juan Farré, CEO, DTI ■ Piotr Dardzinski, President, Łukasiewicz Research Network ■ Matthias Weber, Head of Center, AIT <p><i>Followed by Q&A discussion</i></p>
11.00 – 11.15	<p>Virtual Coffee Break</p>
11.15 – 12.15	<p>Panel 2 - Public policy, funding and governance of RTOs: enabling the transformation, moderation by Caroline Paunov, Working Party on Innovation and Technology Policy</p> <p>Panellists:</p> <ul style="list-style-type: none"> ■ Doris Schroecker, Head of Unit Industrial Research, Innovation & Investment Agendas, DG R&I, European Commission ■ Pirjo Kutinlahti, Ministerial Advisor at Ministry of Employment and the Economy of Finland ■ Laurence Piketty, Deputy CEO, CEA ■ Erik Drop, Director Knowledge Programmes and Government Relations, TNO <p><i>Followed by Q&A discussion</i></p>
12.15 – 12.30	<p>Takeaways for OECD and EARTO</p>



Welcome

Alessandra Colecchia

Head of Science and Technology
Policy Division, OECD



Introduction

Göran Marklund

Chair of the TIP Working Party
and Deputy Director General,
Vinnova, Sweden



Introduction

Antti Vasara

President of EARTO

And President & CEO,

VTT Technical Research Centre of Finland



Presentation on lessons learned from the ongoing OECD-EARTO project

Philippe Larrue,
Policy Analyst, OECD

Connect to Mentimeter: www.menti.com – code: 6271 0998

Mentimeter question:

What distinct role could/do Research & Technology Organisations play in supporting sustainable transitions?
(open question)



NEW CHALLENGES AND OPPORTUNITIES OF RTOS FOR SUPPORTING SOCIO-ECONOMIC RECOVERY, RESILIENCE AND TRANSITIONS

Philippe Larrue, OECD, Science and Technology Policy
division



Why an OECD study on RTOs?

- Widely acknowledged contribution of RTOs to both strengthening competitiveness and solving societal challenges, but lack of systematic evidence, statistics and dedicated studies
- ‘Double diversity’ of RTOs among themselves and within themselves
- A changing context
 - More directional (challenge-led, mission-oriented) policies
 - Continuing accountability pressure and evolution of funding
 - A second crisis in 15 years: COVID-19

Study questions

- How RTOs’ missions have evolved over the last 10 years in the face of the growing call to contribute to solving mounting societal challenges and supporting sustainable transitions?
- How the changes in RTOs’ funding and overall context in the last 10 years have impacted on their ability to deliver on their missions?



Competitiveness and growth at the core of RTOs' *formal* missions

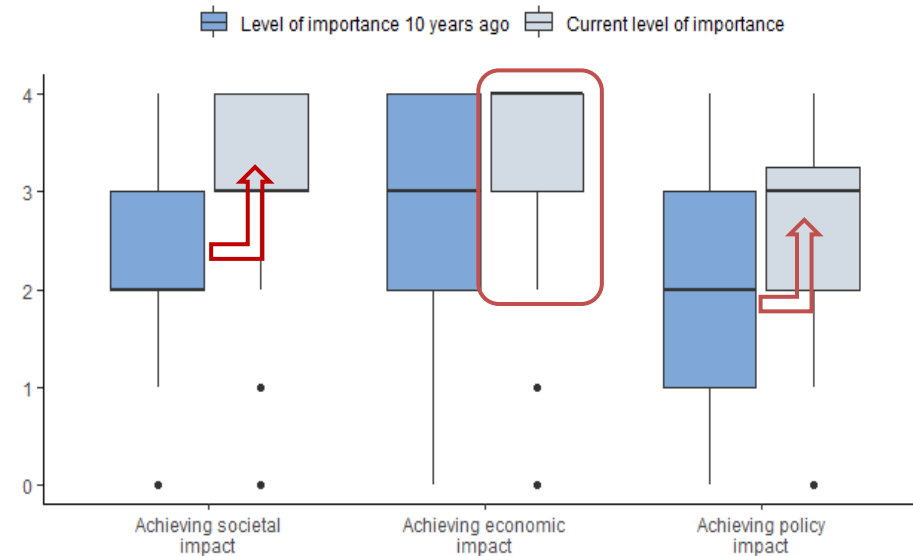
- Formal missions have remained the same and are still relevant to EARTO's definition of RTOs
 - *organisations which core mission is to harness science and technology in the service of innovation for public bodies and industry, to improve the quality of life and build economic competitiveness*
- Achieving economic impact is still considered as the primary objective of RTOs
- Confirmed by the review of official missions:
 - RTOs' main mission remains to support the growth and competitiveness of business companies by fostering technology uptake for innovative product and service solutions



A shift of RTOs' *de facto* mission toward the societal imperative

- The need to respond to societal imperatives represents the most important change in RTOs' mission in the last 10 years
- Increasingly apparent in RTOs' strategic plans
- Accelerated by the COVID-19 crisis: RTOs (also) as 'policy instruments'

Level of priority of RTOs' mission objectives, by mission objectives



Black line = median

From 0: not important at all to 4: very important



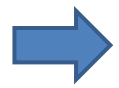
A new role taking shape

- Systemic challenges require not only a broader range of competencies but also the adoption of a different perspective, more holistic, involving different sectors and disciplines
- In principle, RTOs well-equipped to serve as...
 - ...‘system intermediaries’, ‘orchestrators’, ‘transition architects’, ‘innovation system hub’, ‘virtual OEM’, ‘system platforms’, ‘system translator’,...
- RTOs’ ‘comparative advantages’
 - hybrid position in innovation systems, multifaceted missions
 - combination of deep and broad knowledge and capabilities
 - experience with large collaborative EU and national projects
 - increasingly involved in mission-oriented innovation policies



Call for RTOs' transformation

- To play this role RTOs need to strengthen
 - their strategic consistency to be able to create critical mass on some selected priorities
 - their transversality to promote interdisciplinary and intersectoral collaborations, within each RTO and between RTOs and partners
 - their capacity to influence the 'boundary conditions' in which they operate

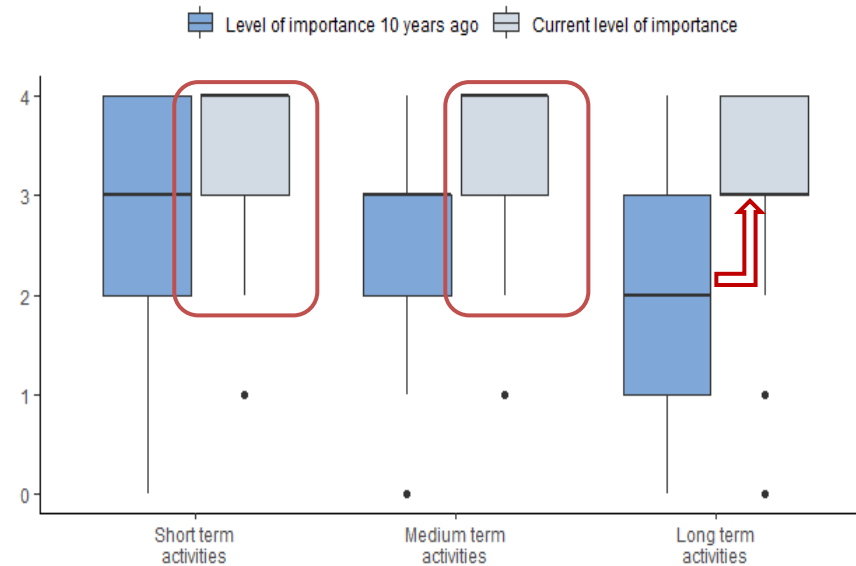


What size, organisation, competencies and funding to play this role most effectively?



The broadening of RTOs' activity portfolios

- A more balanced activity portfolio
 - Mid-term activities now as important as short-term activities
 - Increasing importance of activities with long-term horizons
 - Synergies between the different activities



- Different growth trajectories of RTOs:
 - Sector-focused RTOs, expansion towards adjacent sectors, or activities related to upstream or downstream the value chains
 - Technology-focused RTOs (+ large applied infrastructures), expansion of the range of applications in different sectors



The changing organisational structure of RTOs

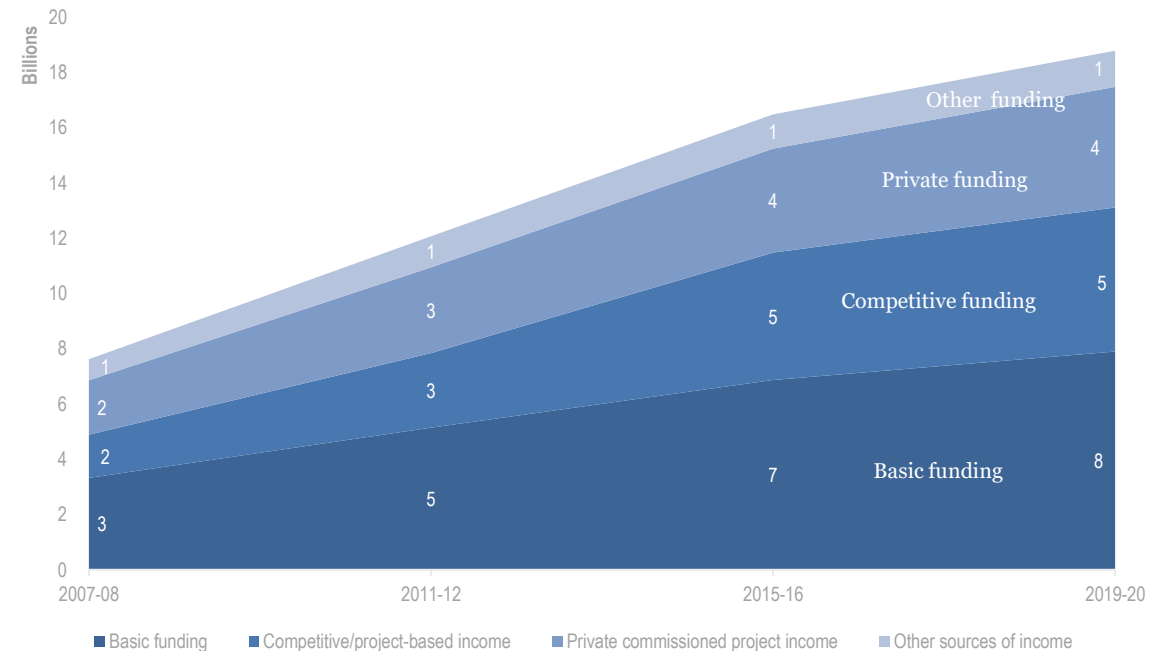
- Changes are already happening
 - a significant increase of collaboration between units and teams within RTOs
 - significant restructuring of some national RTO landscapes
- RTOs are trying different ways to conciliate
 - top-down strategic integration and bottom-up initiatives
 - scale and agility
- New types of (virtual) matrix...
 - business/technology units and ‘virtual’ challenges or missions (with dedicated coordinators and support staff)
- Next step: aligning the internal structure of incentives?
 - little effect on evaluation personnel and internal allocation of funds
 - internal strategic calls for proposal



Diverse and stable funding structure of RTOs

- Growing income in average
- Stable structure of funding in average
- Higher % of public funding (basic and/or competitive) in
 - non-European RTOs
 - larger RTOs
- Large diversity of models hiding behind averages

Structure of RTOs budget, by type of funding (in billion Euro)

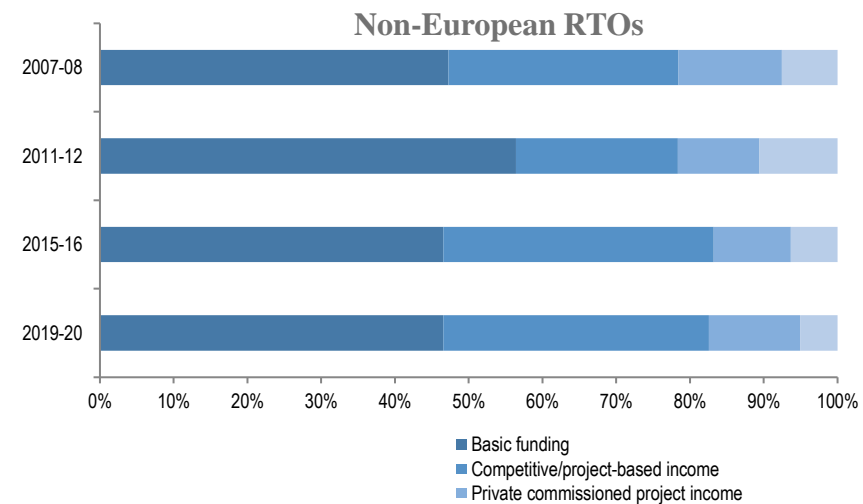
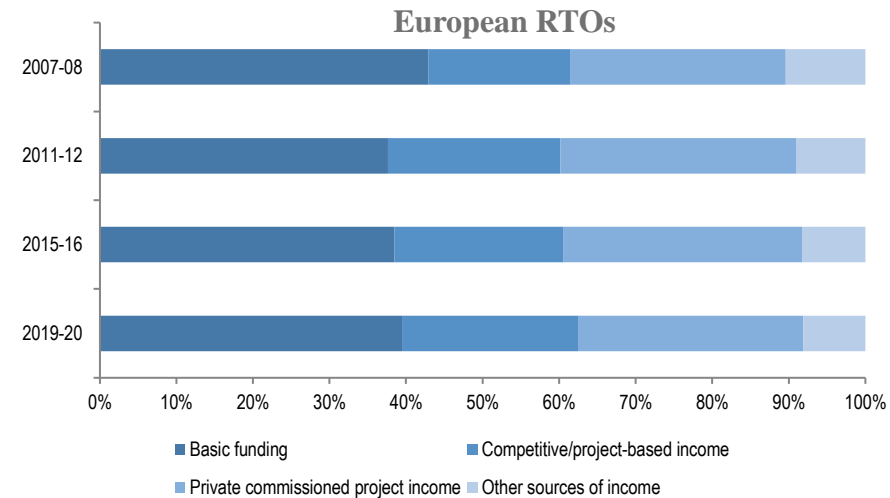




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Evolution of the structure of budget of European RTOs, by type of funding





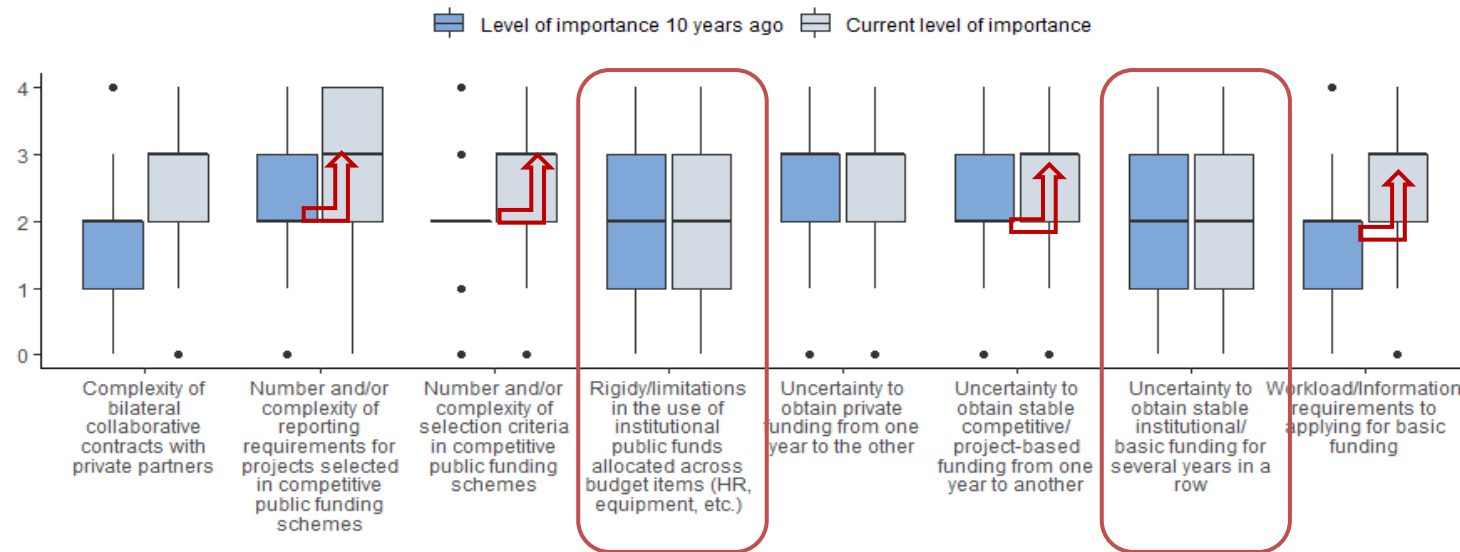
Evolving funding modalities

- Basic funding
 - **multi-annual and conditional** on the achievement of performance targets, no major changes to criteria
 - directions provided remain wide and generic, leaving significant **strategic autonomy** to RTOs
 - strategic earmarking of basic funding is rare
- Competitive funding
 - trend towards **larger projects**, more **challenge-based/mission-oriented** but...
 - ⚠ need attention to balance with other types of ‘open’ funding
 - ⚠ transaction costs
 - ⚠ larger *and fragmented* funding
- Private funding
 - still pressures to increase their share of **external funding**
 - share of **commissioned contracts from public authorities** is increasing
 - several RTOs face a **saturation of industry demand**: need to address the needs of non innovative (technological) SMEs or reach out to new industry partners across borders



Evolving funding modalities

- No major increase of uncertainty or strings attached regarding basic funding
- Competitive funding: becomes more uncertain, and range and complexity of selection criteria increase
- Application/reporting requirements are increasing for all public funding





Many thanks for your attention...

- ...and for your support:
 - surveyed and interviewed RTOs
 - EARTO
 - OECD team (esp. Orestas Strauka)

Please send all comments and reactions to philippe.larrue@oecd.org



Panel 1 - The role of RTOs in sustainable transitions: towards new opportunities and new challenges

Moderation by Carthage Smith
OECD Global Science Forum

“The role of RTOs in sustainable transitions: towards new opportunities and new challenges”

Key questions:

- What specific role could RTOs play in so-called transformative initiatives (mission-oriented policies, etc.) in the future
- How are RTOs preparing for this role?
- What changes in RTOs’ practices, skills and organisational structure do assuming this new role require?
- How RTOs transform themselves to contribute to sustainable transitions?

Connect to Mentimeter: www.menti.com – code: 6271 0998

Mentimeter question: **Mentimeter question: What are the main internal challenges/barriers that hinder the ability of RTOs to fully play this role?**

- a. Lack of the adequate in house capabilities** (limited size, lack of specific skillsets in S&T staff or for enabling functions, lack of state-of-the-art research and technology infrastructures)
- b. Inadequate internal organisation structure** (difficulty in enabling internal collaboration across S&T teams and creating bridges across disciplines, lack of speed)
- c. Difficulty in fostering new collaborations** (across borders, with new types of partners,...)
- d. Inadequate internal incentive system** (for assessing staff, RTO's units, etc.)
- e. Incompatibility with other RTOs' missions** (support to industry, devolved public functions, etc.)
- f. Other** (please specify: -----)



Panel 1 - The role of RTOs in sustainable transitions: towards new opportunities and new challenges

Pia Sandvik
CEO,
RISE

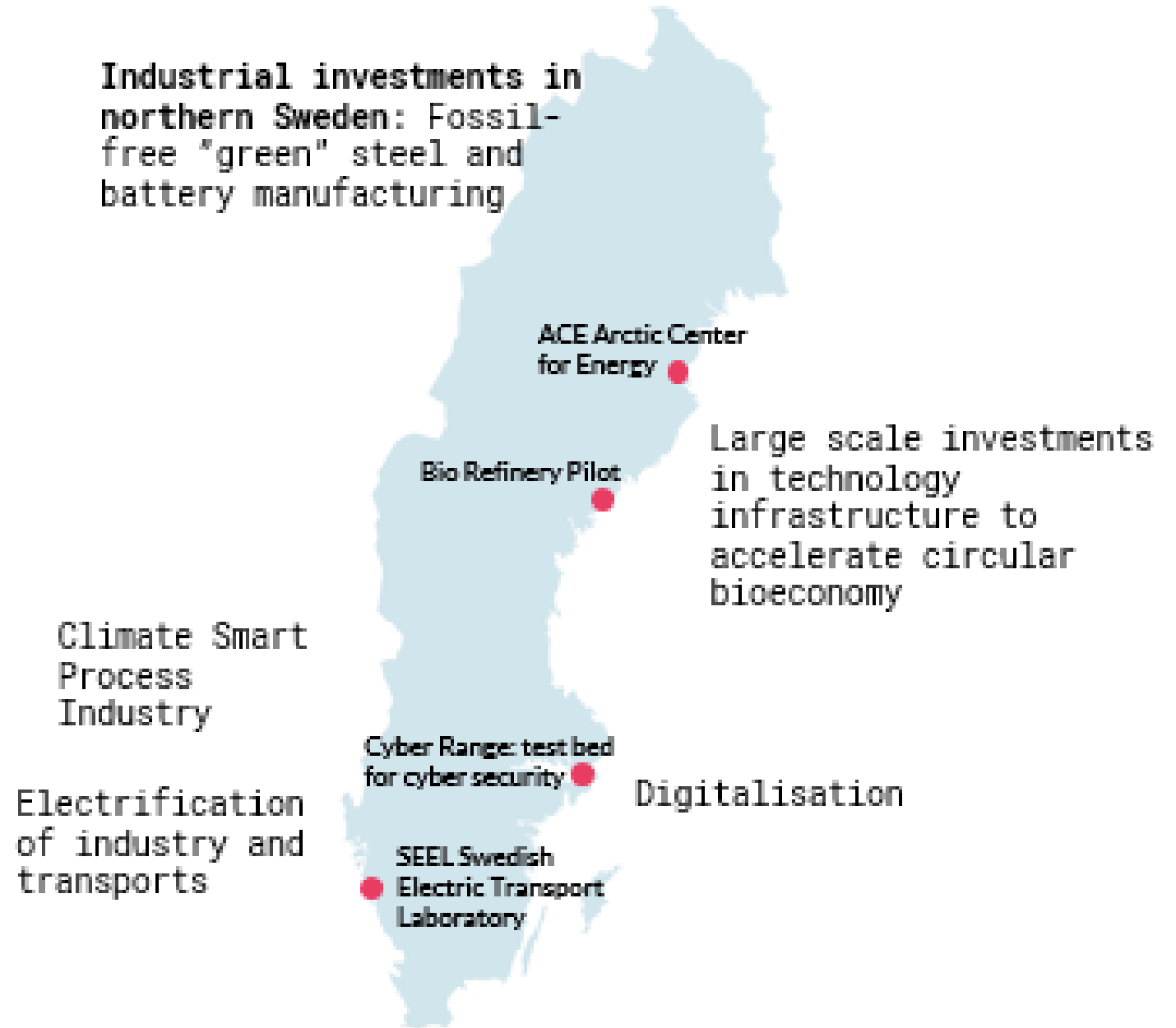


the Role of RTOs in supporting the Sustainable Transitions



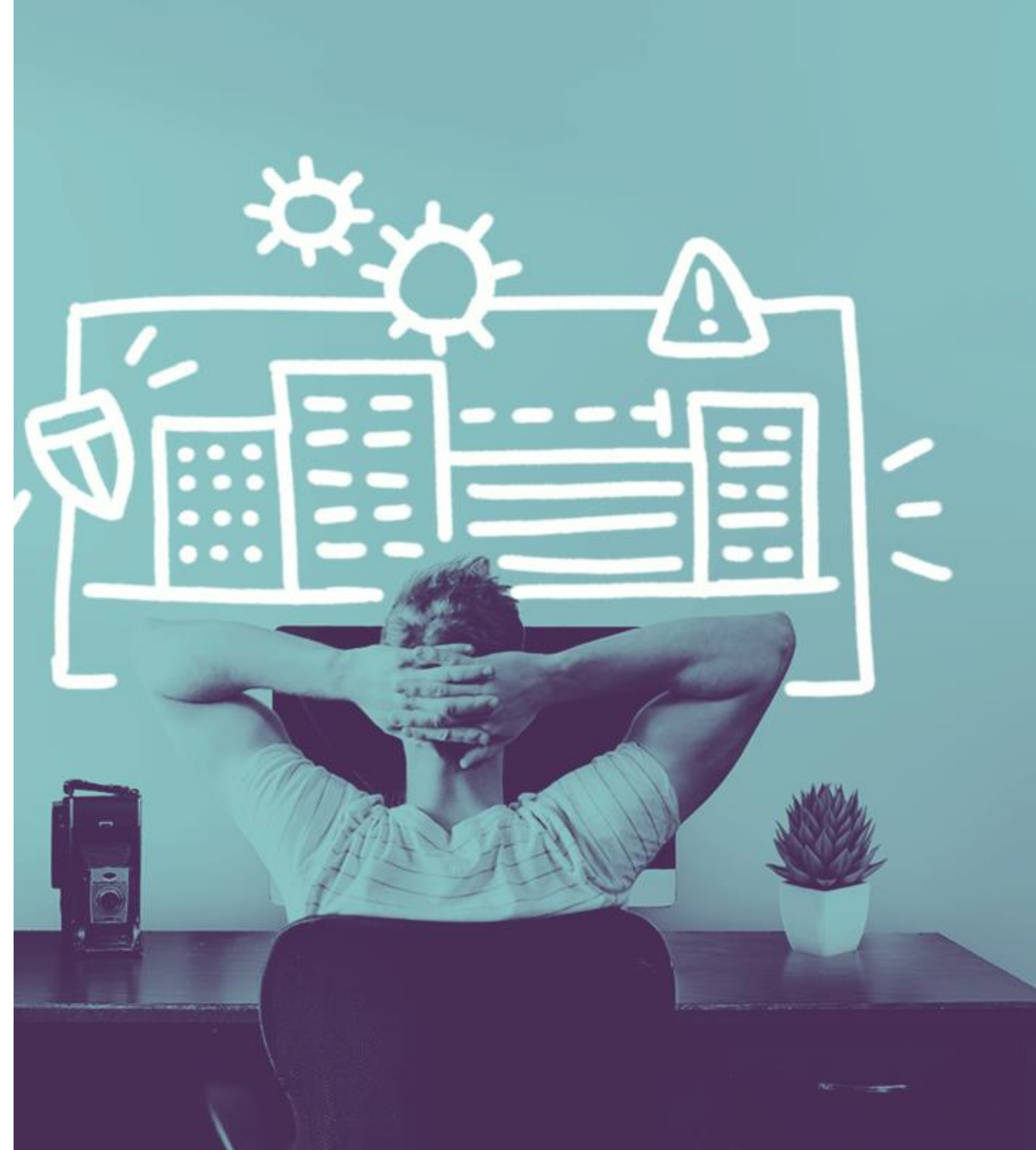
Large scale transformation of industry and society represents unique opportunities

Our role: providing access to test & development facilities



We need to move fast!

- Covid showed that RTOs can contribute to sudden changes in the society and in the business community.
- We should have the same tempo for sustainable transition actions
- Supporting new initiatives and creating new business models that will strengthen the competitiveness of our partners and the surrounding ecosystem.





Panel 1 - The role of RTOs in sustainable transitions: towards new opportunities and new challenges

Juan Farré
CEO,
DTI



The Role of RTOs in supporting Sustainable Transitions

Juan Farré, CEO, DTI

**TECHNOLOGY FOR
A BETTER SOCIETY**



**TEKNOLOGISK
INSTITUT**



Opportunities and challenges

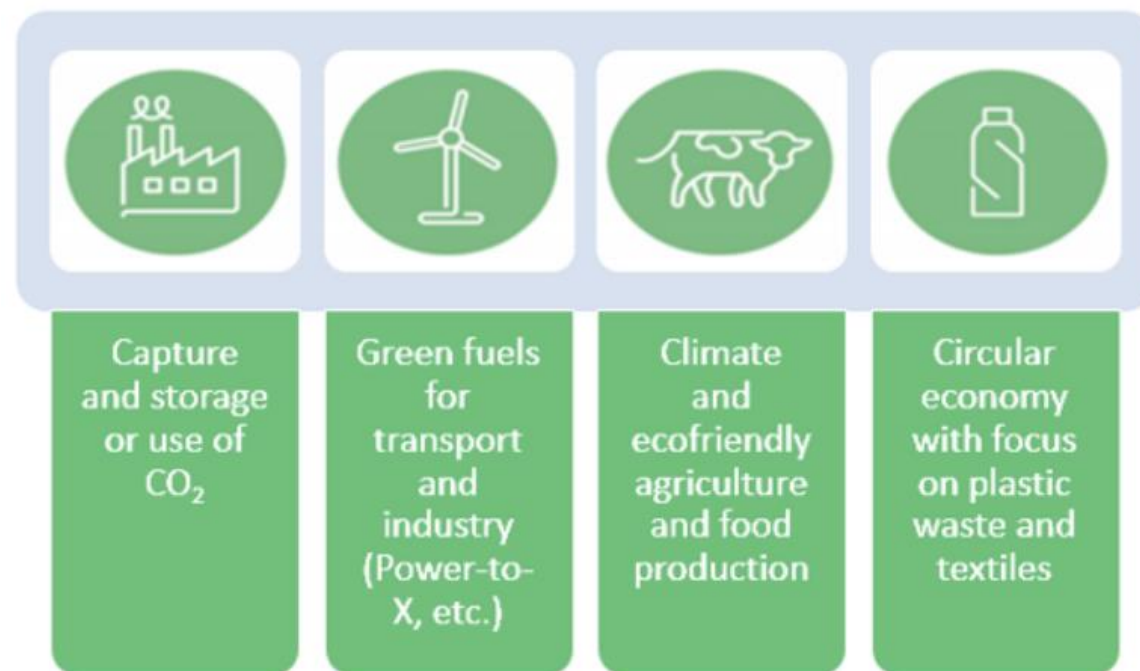
- Urgency: Need for concrete technological solutions to address the sustainable transition
- Build upon: the existing technology infrastructure without damaging the industrial ecosystem
- Risk: Mission-oriented policy can dry out the innovation ecosystem
- Impact: Urgent need to implement solutions in practice

Who takes the integrator role ?



The RTO role: integrating the innovation chain for action

- In Denmark 4 inno-missions (DARPA model)
- DTI placed centrally in the Roadmap and consortia creation
- Transition from one-to-one collaboration to many-to-many partnerships
- Partnerships and network (GTS network in Denmark)
- A new discipline to be mastered
 - Silos
 - Knowledge sharing
 - Ability to show impact
 - More political walking





Panel 1 - The role of RTOs in sustainable transitions: towards new opportunities and new challenges

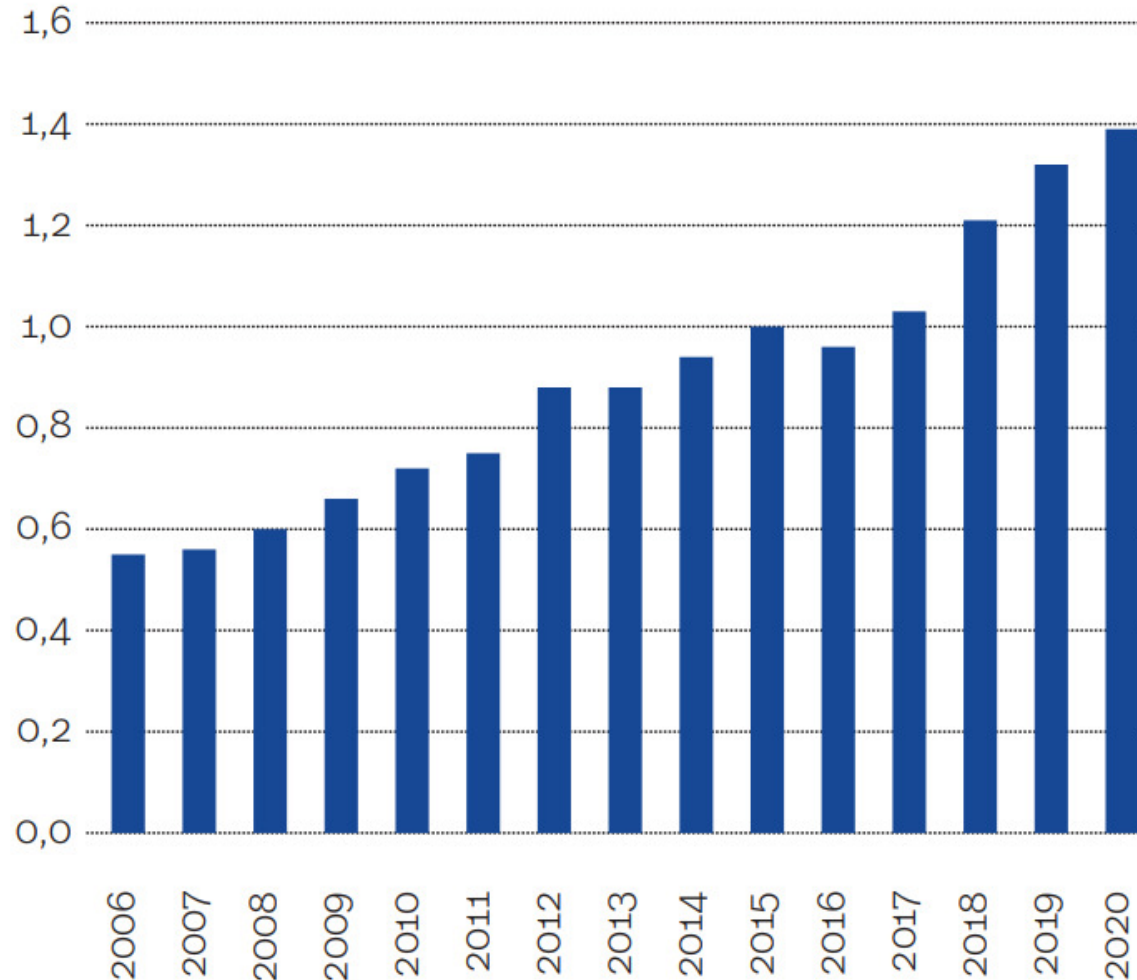
Piotr Dardzinski
President,
Łukasiewicz Research Network



Łukasiewicz Research Network:

This is who we are

Poland among the leaders in the growth of R&D expenditures



40% increase
of GDP spending on R&D
in last 5 years

WHY such a dynamic increase in R&D expenditures?



Tax reliefs for R&D activities

Act of 15 February 1992 on Corporate
Income Tax (Journal of Laws 2021, items
1800)

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Industrial PhDs

1700* PhDs conducted
with enterprises

Act of 20 July 2018 The Law on Higher
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WHY such a dynamic increase in R&D expenditures?



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Łukasiewicz Research Network

Act of 21 February 2019 on The
Łukasiewicz Research Network



Synergy effect in the Lukasiewicz



We are Europe's and a fast
research network

Leading R&D market player
in Central & Eastern Europe



**We are a modern
R&D network**

We operate 440 labs
across the country



**We operates top class
research infrastructure**

3762 key items of R&D
equipment, 497 of these unique
in Poland



Push&pull strategy: **PULL**



We **analyse** your needs



We create a portfolio of **recommended solutions**



We sign **the contract**



Business meeting

2
Years

284
Companies

945
Challenges

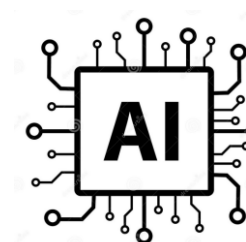
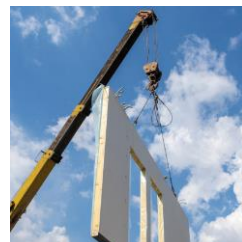
Push&pull strategy: **PUSH** (7 Łukasiewicz's Programmes)

2021:

- **Electric Car - IZERA**
- **Gallium Nitride for High Power and High Frequency Electronics**
- **Modular Constructions**

2022:

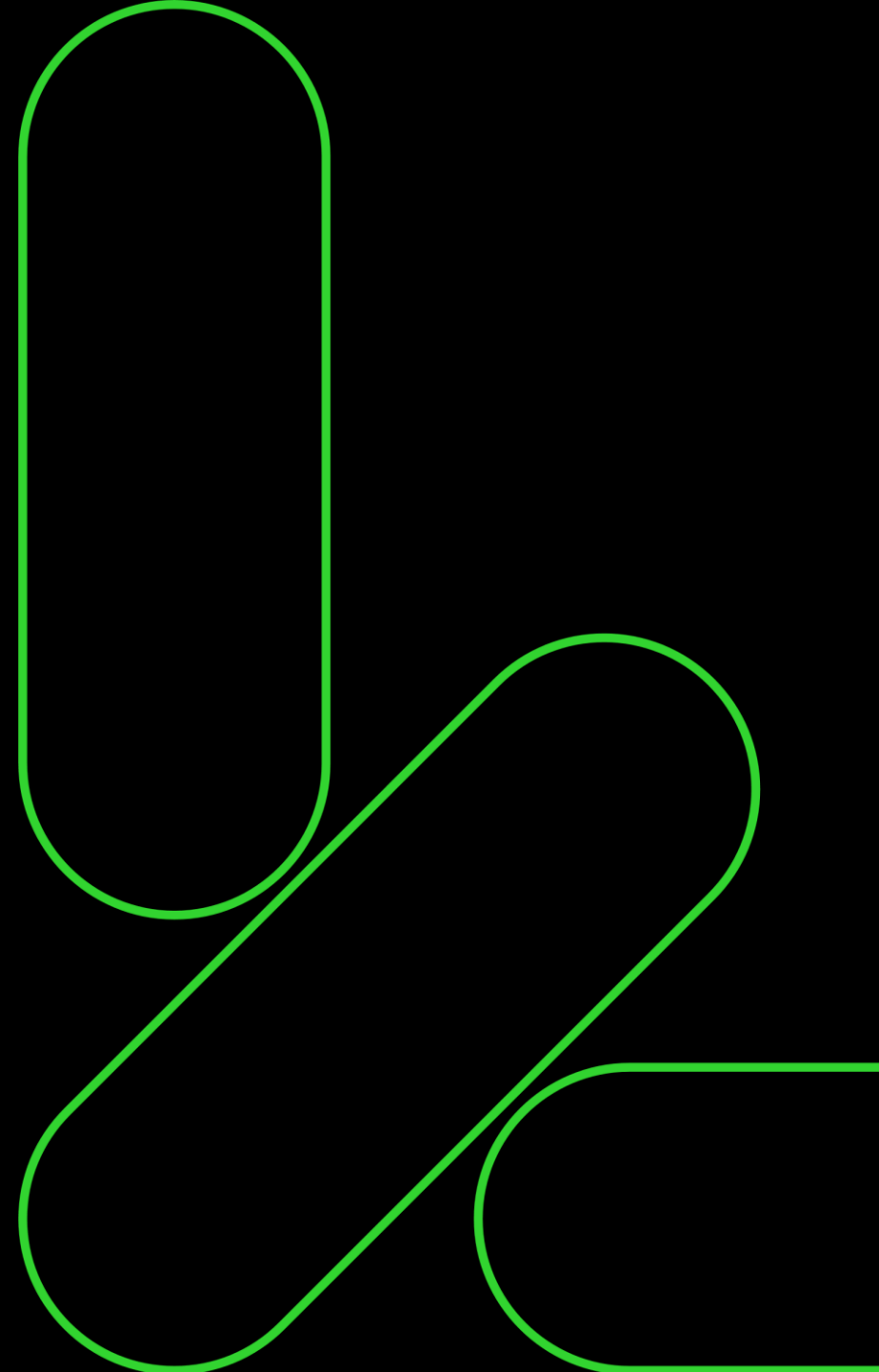
- **Hydrogen Economy**
- **Offshore Wind Energy**
- **Drone Platform**
- **Artificial Intelligence**



Thank you!

**Contact with us for more
information:**

badania@lukasiewicz.gov.pl





Panel 1 - The role of RTOs in sustainable transitions: towards new opportunities and new challenges

Matthias Weber
Head of Center,
AIT



Panel 1 - The role of RTOs in sustainable transitions: towards new opportunities and new challenges

Q&A discussion

Please use the chat section to provide input and/or ask questions to the speakers



**Enjoy your
Virtual Coffee Break!**



Panel 2 - Public policy, funding and governance of RTOs: enabling the transformation

Moderation by Caroline Paunov
Working Party on Innovation
and Technology Policy

Public policy, funding and governance of RTOs: enabling the transformation

Key questions:

- What type of government intervention would be appropriate to support RTOs in this endeavour?
- What are most effective funding and governance arrangements between RTOs and public authorities?

Connect to Mentimeter: www.menti.com – code: 6271 0998

Mentimeter question: **What are the main policy challenges/barriers that hinder the ability of RTOs to fully play this role?**

- a. Inadequate level and/or multi-annual stability of basic funding (difficulty to invest in long-term development of new capabilities)
- b. 'Strings attached' to basic public funding (reporting requirements, evaluation,...)
- c. Inadequate competitive funding schemes (funding levels, selection criteria and application process, project size,...)
- d. Inadequate policies that (unintentionally) create regulatory barriers to RTOs (IPR rules, State Aid implementation,...)
- e. Insufficient strategic and operational autonomy given to RTOs (setting strategic priorities, developing new capabilities, recruitment, etc.)
- f. Other (please specify: -----)



Panel 2 - Public policy, funding and governance of RTOs: enabling the transformation

Doris Schroecker

Head of Unit Industrial Research,
Innovation & Investment Agendas,
EC DG R&I



Panel 2 - Public policy, funding and governance of RTOs: enabling the transformation

Pirjo Kutinlahti

Ministerial Advisor at Ministry of
Employment and the Economy,
Finland

What Role for Research & Technology Organisations in Supporting Sustainable Transitions?

Pirjo Kutinlahti, PhD, Chief Specialist

TIP-EARTO Virtual workshop on 19th Nov 2021



Ministry of Economic Affairs
and Employment of Finland

The Role of RTOs in supporting sustainable transitions



1. Systemic changes and sustainable transitions require mission-driven ecosystem approach

Why the ecosystem lens?

- System changes are complex which need cross-sectoral and multi-level collaboration and policy-mix interventions
 - Ecosystems as networks rather than (value) chains: complex links across firms, sectors and institutions.
 - Ecosystems include both private and public activities.
 - Ecosystems evolve continuously over time

2. Focus on Innovation Testbeds

Complementary ecosystem types have different goals and characteristics

RTOs

Knowledge ecosystems



Build on on the same knowledge base, incremental or disruptive development.



Dissemination of cutting-edge research many markets, accelerating the market growth. More focused business ecosystems may emerge

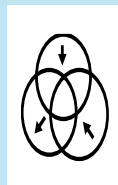


The value network / actor map remains relatively stable but is able to link to (global) research networks and ecosystems.

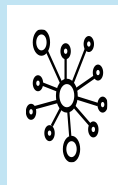
Innovation ecosystems



Development based on the challenges of society, interconnecting broadly different industries.

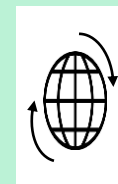


New markets emerging at the interface of the industries and the markets may vanish. More focused/closed business ecosystems may emerge.



The value network / actor map is extensive, it is constantly being evaluated and new actors are being engaged.

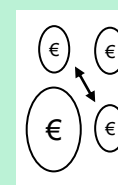
Business ecosystems



Rapid scaling to new markets and global markets.



Focus on business development and renewal needs (profitability, growth and sustainability).



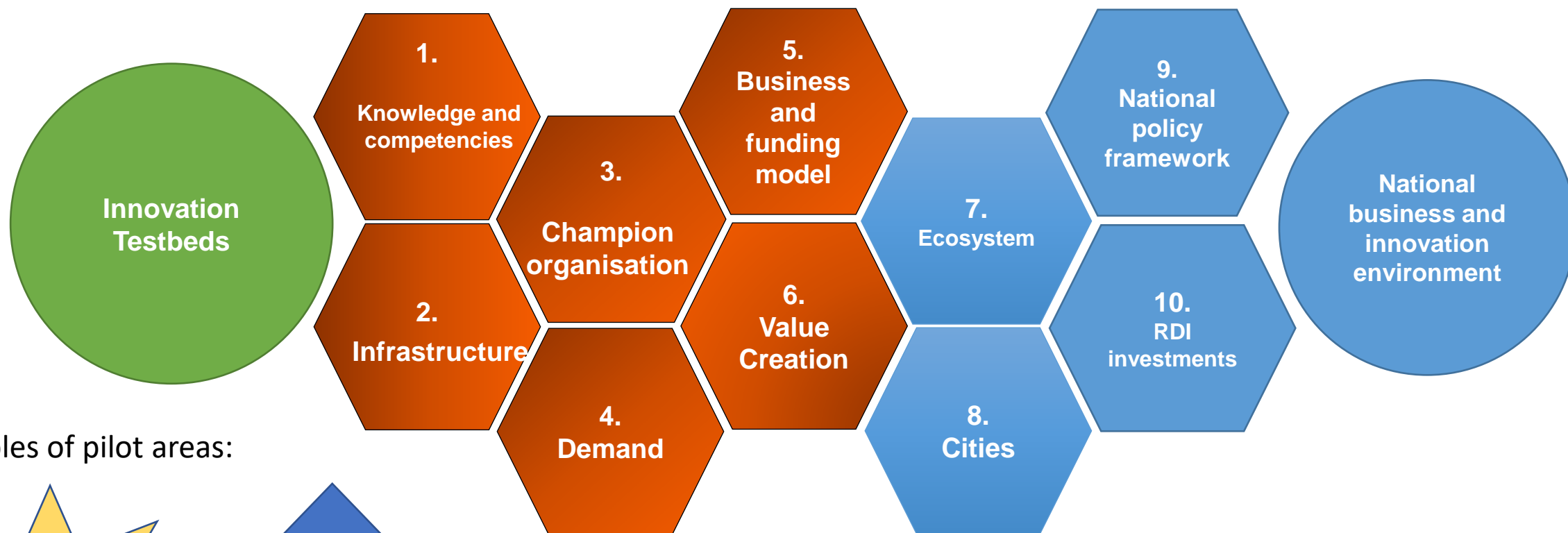
Partnerships and value sharing models identified, within the ecosystem alternative / competing more closed networks co-exist.

Innovation testbeds have a key role in developing and testing new sustainable solutions in real conditions

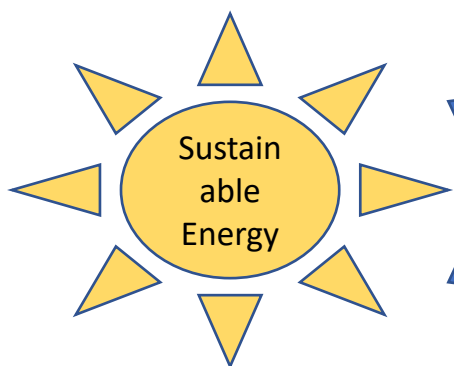


- Testbeds are needed to develop, test and scale-up new products, processes and services under real life conditions or close to real conditions.
- RTOs can provide a backbone of Testbeds in Europe. Open-access testbeds are key role in helping companies to deliver and scale-up solutions to benefit of society.
- RTOs not only provide physical facility and test environment, but also technological and scientific expertise and they can act as nodes in RDI networks between universities, companies and other stakeholders.

Success Factors of Innovation Testbeds



Examples of pilot areas:



Source: Ongoing VTT study on success factor of developing and innovation testbeds by Kirsi Hyytinen and Tapio Virkkunen

Policy implications



- It is important to enhance ecosystem capabilities of RTOs as well as boost joint investments in key technological and innovation infrastructures to solve societal challenges and promote sustainable innovations.
- Open-access innovation infrastructures and testbeds should be more visible in both national and EU innovation policy agenda
 - National (eg. Finnish Recovery and Resilient Plan) and EU-level funding schemes to establishment and maintenance of testbeds
 - Encourage European RTOs to exploit synergies from intensified testbed collaboration



Thank you!



Panel 2 - Public policy, funding and governance of RTOs: enabling the transformation

Laurence Piketty
Deputy CEO,
CEA



DE LA RECHERCHE À L'INDUSTRIE

Joint OECD-EARTO workshop

Public policy, funding and governance of RTOs: enabling the transformation

November 19 2021

► Definition of policies and programme objectives enabling major transitions

- *Mission oriented* R&D and innovation national and EU programmes
- RTO can contribute to the *definition of national/EU programmes and roadmap* : technology and technico-economic expertise - CEA has a statutory advisory mission to the gouvernement

► Governance and intervention model

- Include *RTOs in EU or national governance bodies* : European industrial alliances, « Programmes et Equipements Prioritaires de Recherche (PEPR) » or « contrats stratégiques de filière » in France...
- Strike the right balance between a core of direct *basic direct funding, competitive funding and industrial partnerships*
- Promote an *adequate intellectual property policy*

► Funding principles

- Acknowledge the *critical role of technology infrastructures and experimental platforms* as drivers of innovation ecosystems : public support necessary for construction and operation costs
- Instruments should *reward or request cooperation between public and private sector in R&D*
- Funding mechanisms should *cover total costs* (direct and indirect), not only additional costs



Panel 2 - Public policy, funding and governance of RTOs: enabling the transformation

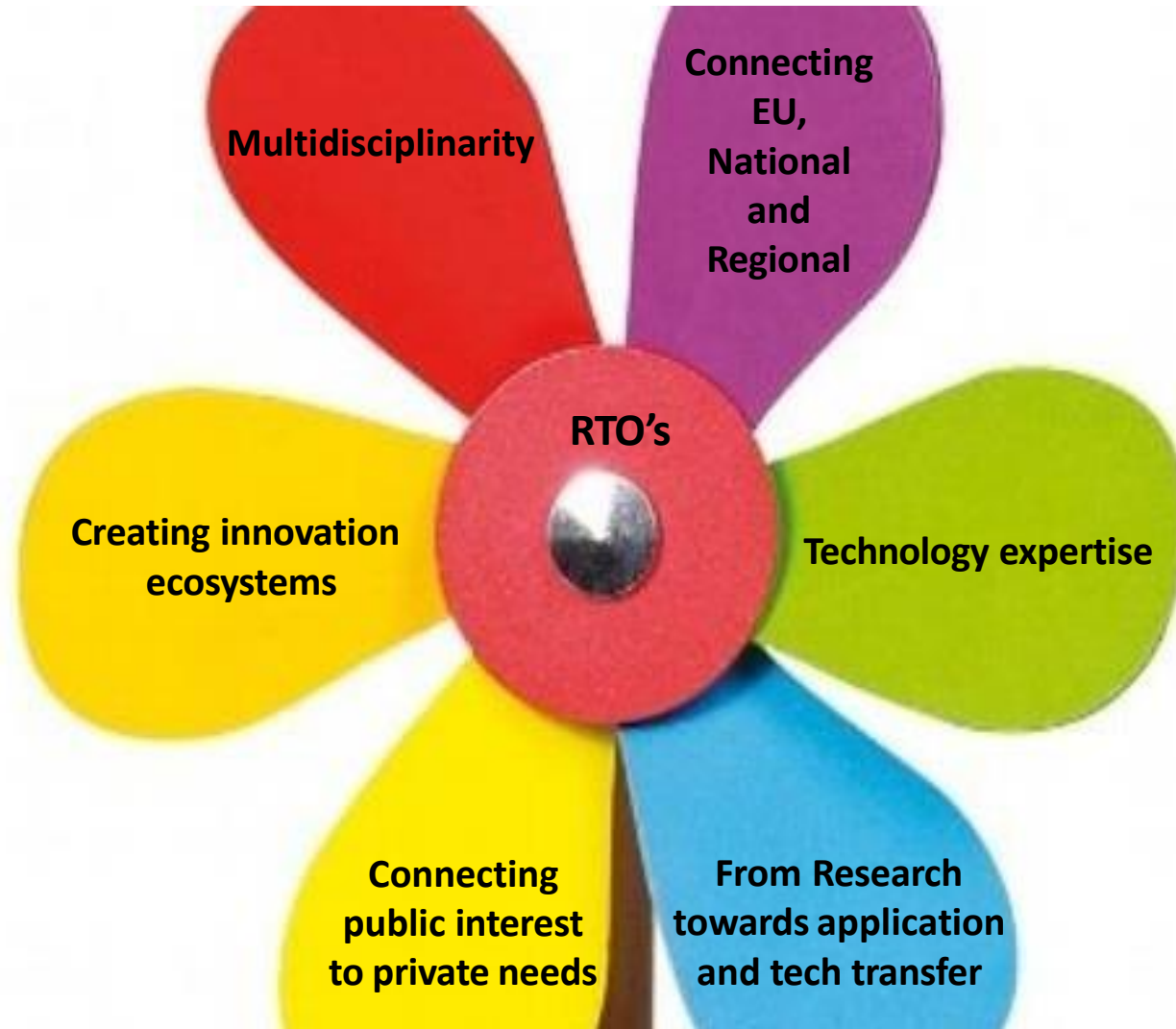
Erik Drop

Director Knowledge Programmes
and Government Relations,
TNO

› **ROLE OF RTOS IN SUPPORTING THE SUSTAINABLE TRANSITIONS**
ERIK DROP, TNO



ROLE OF RTO'S



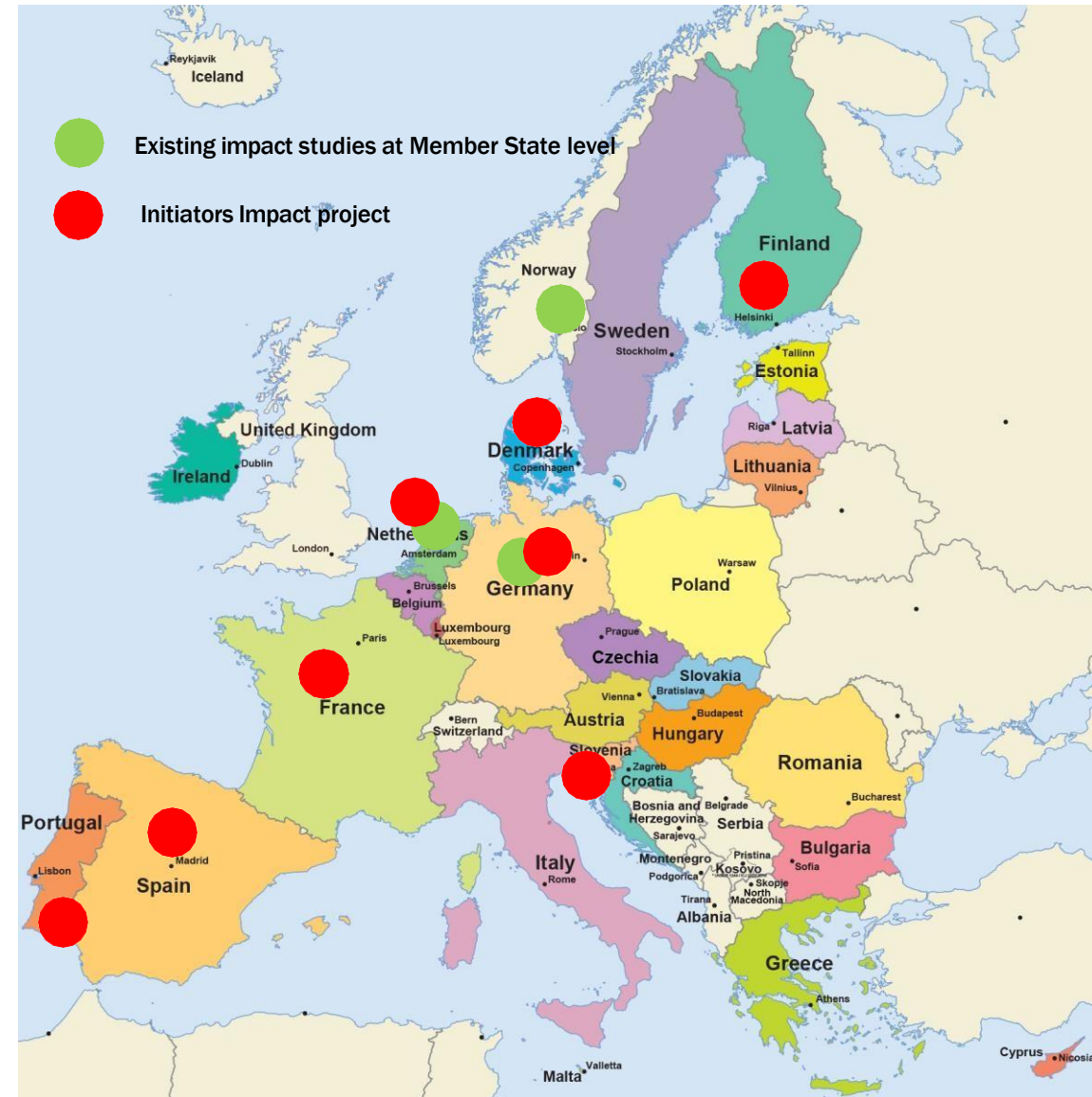
ECONOMICAL IMPACT OF RTOS

IMPACT STUDY ON EU LEVEL

Use results of economical impact study (by several European RTOs) as input for:

- ex-post Horizon 2020 (2023)
- mid-term review Horizon Europe (2024)
- and towards future Framework Programs.

→ Anticipated result: unambiguous methodology for Impact assessment available to all Innovation actors in Europe





Panel 2 - Public policy, funding and governance of RTOs: enabling the transformation

Q&A discussion



Takeaways for OECD and EARTO



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Thank you!