

# Reimbursable Advisory Services Agreement on Research Modernization in Romania: Improving the Quality and Relevance of the Research Sector (P179979)

DELIVERABLE 1: PRESENTATION ON THE SUMMARY OF THEORY OF CHANGE WORKSHOPS.

APRIL 2023



MINISTERUL CERCETĂRII, INOVĂRII ȘI DIGITALIZĂRII



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# **EXECUTIVE SUMMARY**

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**SUMMARY OF THEORY OF CHANGE WORKSHOPS  
TO SUPPORT R&I REFORMS & INVESTMENTS**

# EXECUTIVE SUMMARY (1/4)

## ABOUT THE DELIVERABLE OF ACTIVITY 2.1

- This document represents Deliverable 1 of Activity 2.1, part of the Romanian Ministry of Research, Innovation and Digitization (MCID) and World Bank (WB) project *Research Modernization in Romania: Improving the Quality and Relevance of the Research Sector* (P179979). It summarizes the activities and findings of a series of **12 workshops** which were delivered in 2022 and early 2023 for participants from the MCID, aimed at creating, examining, and improving the **Logic Models or Theories of Change (ToC)** for six investments and four reforms proposed as part of the National Resilience & Recovery Plan (NRRP) - as well as building the capacity for ToC application to future instruments and reforms.
- The NRRP is a package of reforms and investments, supported by an estimated €14.2 billion in grants and €14.9 billion in loans for Romania from the European Commission, and intended to be completed by August 2026. Within this, some **€260 M is focused on the national research, development and innovation (RDI) system**, and this was the focus of the workshops. Although the **NRRP is a ‘one-off’ package**, it coincides with the transition from National Plan III to National Plan IV, and so presents a substantial opportunity for much-needed reform of Romania’s RDI system. However, for this to be effective, the NRRP must be coordinated with the Operational Programs and national funding.
- The RDI-related portfolio of the NRRP comprises 4 reform packages (R2, R3, R4 & R5) and 6 investment packages (I5, I6, I7, I8, I9 & I10). However, in financial terms, **Investment 8 dominates the portfolio** and consumes over 70% of the entire budget. Investment 8 aims at the development of a program to attract highly specialized RDI human resources from abroad.
- Some reforms and investments were **still in the design phase** when we held workshops, whilst others were already launched. As a consequence, it was regrettably not possible to change the design of all instruments. However, even in the case of instruments which had already been launched, workshops nevertheless revealed information which would be useful for future solicitations, as well as for their subsequent monitoring and evaluation.
- **Note that this output refers only to the NRRP:** where gaps in support appear, we have commented on these, but it is possible that some of these gaps are addressed by other programs or reforms outside the NRRP.

# EXECUTIVE SUMMARY (2/4)

## HIGH PRIORITY RECOMMENDATIONS FOR DESIGN OF INTERVENTIONS

Recommendation	Institutions involved (besides MCID)	Priority	Required Resources	Related PSF OPEN recommendations
<ul style="list-style-type: none"> <li>• <b>Ensure cross-institutional collaboration</b>, in order to overcome institutional silos and ensure that reforms are properly implemented</li> </ul>	<ul style="list-style-type: none"> <li>• All ministries: in particular, Education, Finance, Health, Energy, Investments &amp; European Projects, Economy, Entrepreneurship and Tourism, and Agriculture,</li> <li>• Regional Development Agencies</li> <li>• Key implementing bodies (e.g., UEFISCDI).</li> </ul>	Very High	Low (staff time mostly)	<ul style="list-style-type: none"> <li>• PSF 1.2</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Consider shift to multi-year budgeting</b>, in order to reduce uncertainty amongst research organizations, thereby encouraging investment and talent retention</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Finance</li> </ul>	Very High	Low (staff time & training mostly)	<ul style="list-style-type: none"> <li>• PSF 2.1</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Improve Monitoring &amp; Evaluation, via resources and better KPIs</b>, in order to ensure that the learnings from the NRRP and other programs properly inform future policy</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Education (for data gathering within universities)</li> <li>• Ministry of Investments and European Programs</li> </ul>	High	Low (staff time & training mostly)	<ul style="list-style-type: none"> <li>• PSF 3</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Introduce Logic Modelling</b> for interventions during design stage of interventions for institutional capacities development; to have a better analysis of existing systemic failures and potential links between actions and down-stream outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Education</li> <li>• Ministry of Investments and European Programs</li> </ul>	High	Low (staff time & training mostly)	<ul style="list-style-type: none"> <li>• PSF 3</li> </ul>

# EXECUTIVE SUMMARY (3/4)

## HIGH PRIORITY RECOMMENDATIONS FOR IMPLEMENTATION

Recommendation	Institutions involved (besides MCID)	Priority	Required Resources	Related PSF OPEN recommendations
<ul style="list-style-type: none"> <li>Plan for post-NRRP funding of some initiatives, such as the Competence Centers, in order to maintain momentum; this will require connection with the Operational programs and national strategy</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Finance</li> <li>Ministry of Investments &amp; European Projects</li> </ul>	High	Medium	<ul style="list-style-type: none"> <li>PSF 10.2</li> </ul>
<ul style="list-style-type: none"> <li>Devote resource to reforms in order to enable successful implementation</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Finance</li> <li>Ministry of Investments and European Projects;</li> <li>Ministry of Education may need to devote some human resource (e.g., for R5)</li> </ul>	High	Substantial	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<ul style="list-style-type: none"> <li>Test demand and/ or pilot of future initiatives, in order to determine their likely scale and the required budget</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Education (for university-related pilots &amp; data gathering)</li> </ul>	Low	Low (medium if run pilots)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<ul style="list-style-type: none"> <li>Disseminate cross-border initiatives internationally, in order to ensure sufficient awareness amongst target beneficiaries</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Education</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>PSF 9.4</li> </ul>
<ul style="list-style-type: none"> <li>Clearly explain the purpose of reforms and investments to beneficiaries, including desired spillovers, as intended mechanisms of action which were not made explicit in the applicant guide, but doing so could potentially improve effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Finance</li> <li>Ministry of Investments &amp; European Projects</li> <li>Regional Development Agencies</li> <li>Key implementing bodies (e.g., UEFISCDI).</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>PSF 1</li> </ul>

# EXECUTIVE SUMMARY (4/4)

## RECOMMENDATIONS PERTAINING SPECIFIC REFORMS OR INVESTMENTS

Recommendation	Institutions involved (besides MCID)	Priority	Resources	Related PSF OPEN recommendations
<ul style="list-style-type: none"> <li>• <b>Increase focus on technology transfer</b> in order to ensure the economic impact of research is realized</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Education</li> <li>• Ministry of Economy</li> <li>• Ministry of Entrepreneurship and Tourism</li> </ul>	High	Medium	<ul style="list-style-type: none"> <li>• PSF 8</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Increase focus on private sector initiatives</b> in order to ensure RDI system is oriented towards end-users and economic impact</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Economy</li> <li>• Ministry Investments &amp; European Projects</li> <li>• Ministry of Entrepreneurship and Tourism</li> </ul>	High	Substantial	<ul style="list-style-type: none"> <li>• PSF 8</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Revive incentives for sharing of research infrastructure</b>, in order to ensure that existing assets are properly used and available to the private sector</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Education</li> <li>• Ministry of Economy;</li> <li>• possibly also Ministries of Finance, Health, Energy, Agriculture</li> </ul>	Medium	Medium	<ul style="list-style-type: none"> <li>• PSF 7</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Foster a culture of innovation and industry collaboration</b>, in order to encourage translation and innovation</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Education (for running conferences/events/pilots)</li> </ul>	Medium	Low	<ul style="list-style-type: none"> <li>• PSF 8</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Ensure the 'human factors' of talent are considered consistently</b>, in order to increase the success of talent-related investments</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Education (re. university HR and onboarding)</li> <li>• Ministry of Foreign Affairs (re. visas)</li> </ul>	Low	Medium (if expand grants)	<ul style="list-style-type: none"> <li>• PSF6-PSF9</li> </ul>



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# 1. CONTEXT OF THE ACTIVITY 2.1

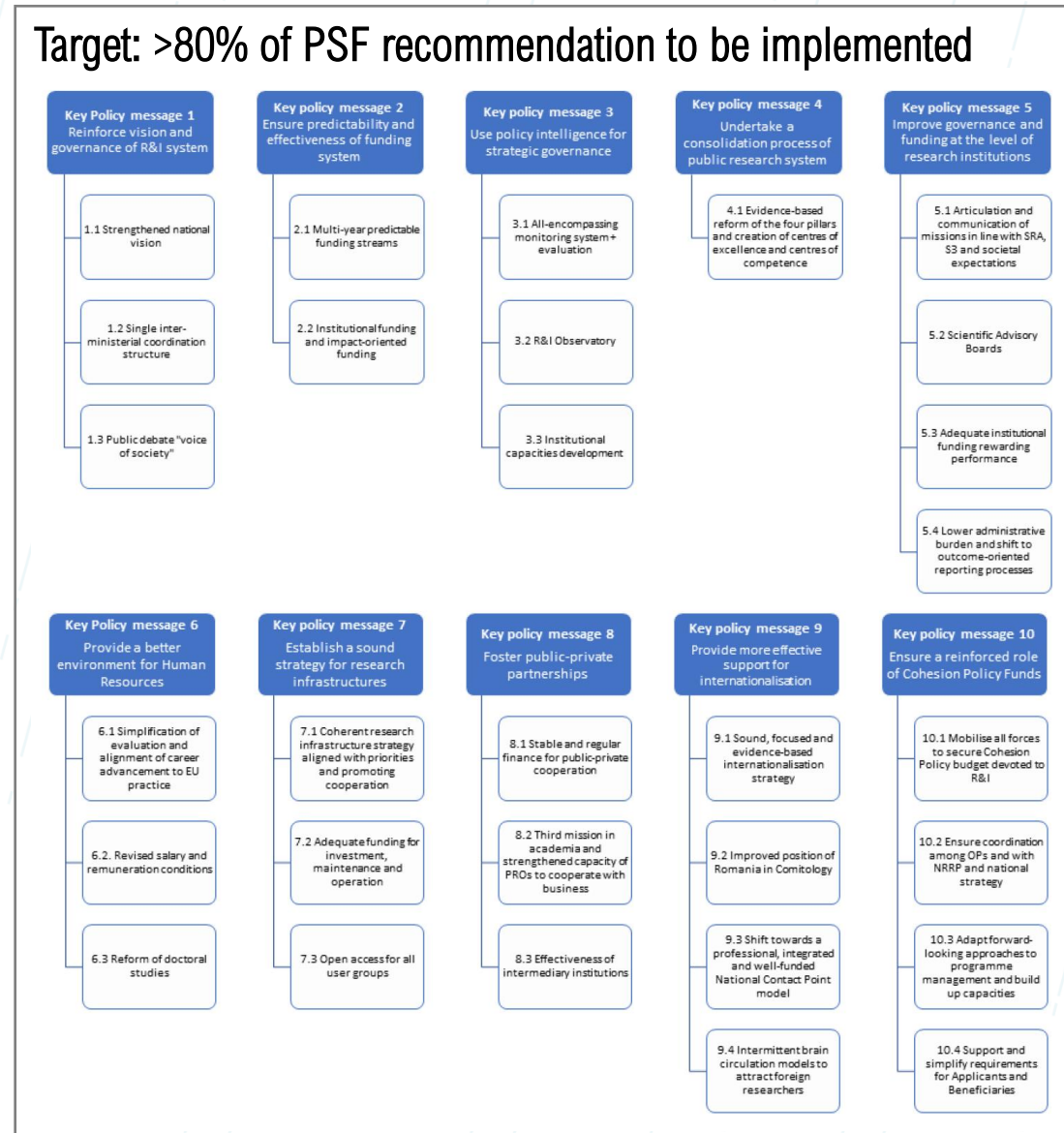
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1a. About the National Resilience and Recovery Program (NRRP)

1b. About Theories of Change & Actions undertaken by WB

# 1A. ABOUT THE NRRP & PSF RECOMMENDATIONS

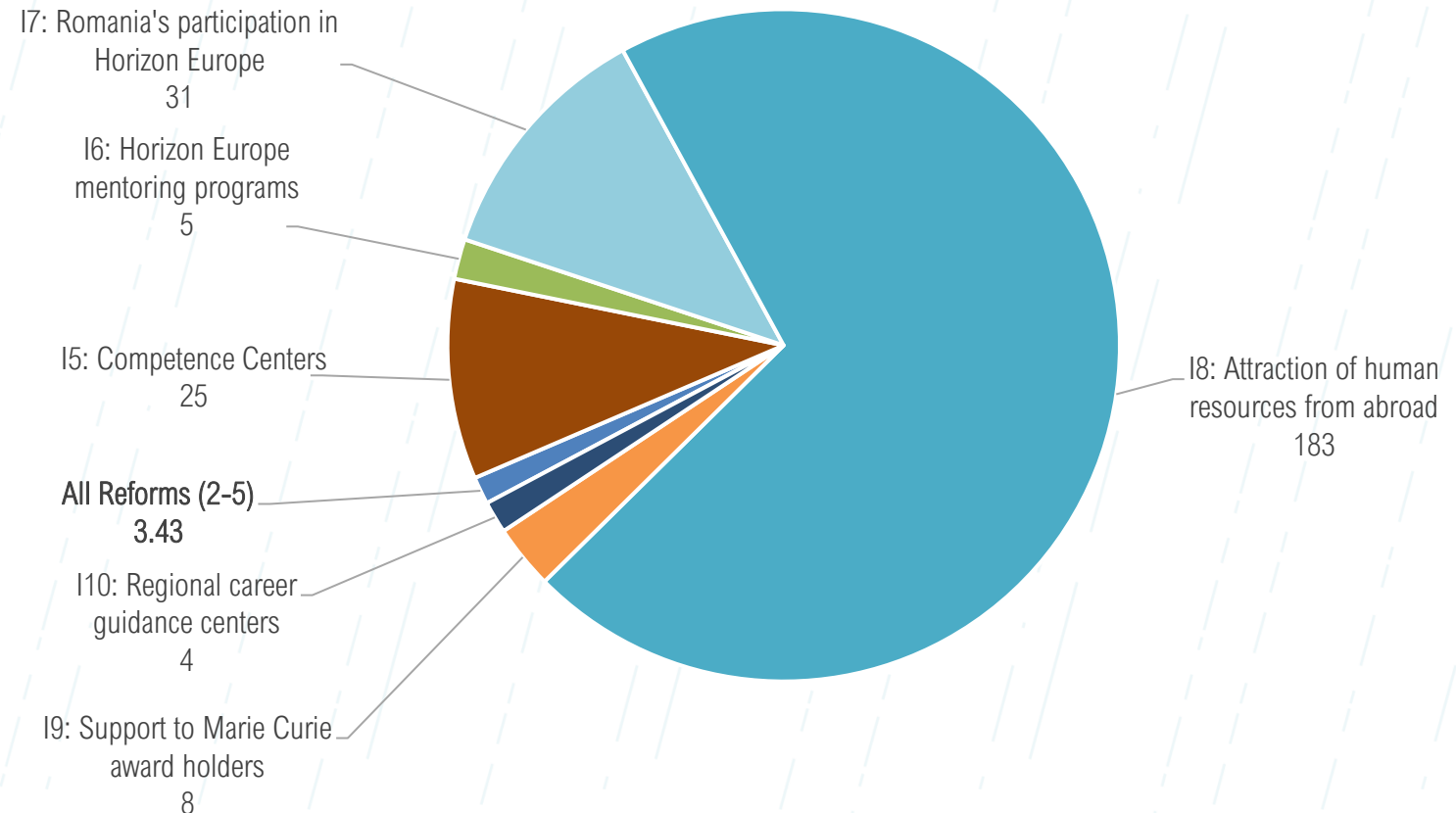
- As a full EU member, **Romania has been one of the largest recipient of the Cohesion Policy Funds.**
- Following governmental changes, the **institutional framework for RDI** has been modified multiple times.
- Despite efforts, Romania bottoms the European Innovation Scoreboard, and it has failed to reach its 2007 target of raising GERD to 1% of GDP.
- In 2021, the Romanian Government requested support of the EC for an independent review of the Romanian R&I system, focusing on the public sector. This was provided by the **EC's Policy Support Facility (PSF)**, which made **30 key recommendations** (see graphs on the right).
- In September 2021, the National Resilience & Recovery Plan (NRRP) was published. This is a plan, funded by the European Union's Recovery and Resilience Facility, to help Romania's economy recover from the pandemic.
- As part of the NRRP, Romania **committed to implement 80%** of the PSF Report Recommendations for R&I sector under NRRP (published June 2022).



# 1A. NRRP BUDGET ALLOCATIONS IS DOMINATED BY INVESTMENT 8 - ATTRACTION OF TALENT FROM ABROAD

- The portfolio of RDI-related measures within the NRRP comprises **4 reform packages** (which typically have little associated budget) and **6 investment packages** (which all have some associated funding).
- **The reforms and investments cover a range of activities**, including training and retaining human talent, promoting links between industry and academia, encouraging the merging of lower-quality research organizations with better performing ones, and various system-wide reforms intended to provide better information and governance.
- In financial terms, the **portfolio is dominated by Investment 8** - *The development of a program to attract highly specialized RDI human resources from abroad* - which consumes over 70% of the budget.

NRRP reforms & investments by budget (million euro)



# 1A. ABOUT THE NRRP: SUMMARY OF REFORMS

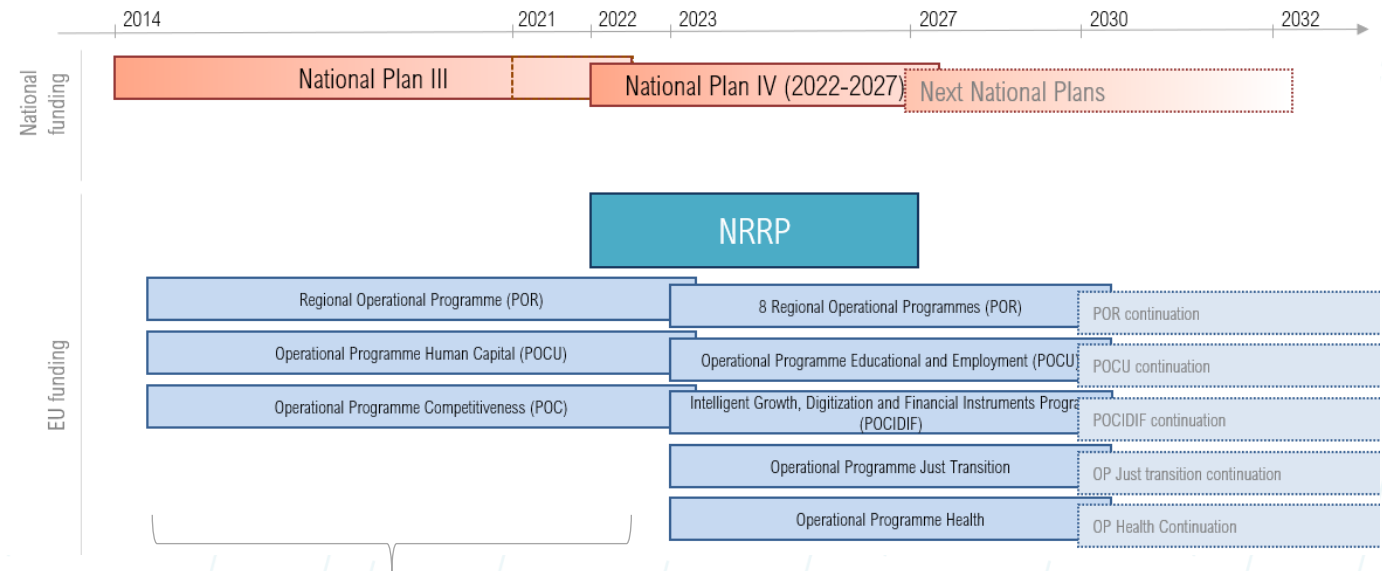
NRRP Reforms on Research Sector Modernization	Status (03/ 2023)	Budget
<b>Reform 2: Streamline governance of research, development and innovation</b> <ul style="list-style-type: none"><li>Regulatory modification to allow the creation of a new body with a decisional role for RDI &amp; Smart specialization (RIS3).</li></ul>	<ul style="list-style-type: none"><li>in progress</li></ul>	3.43 €M
<b>Reform 3: Reform of the research career</b> <ul style="list-style-type: none"><li>Detailing KPIs to evaluate performance of Romanian researchers and to detail standards for 'good conduct in scientific research' for better access to funding and scholarships.</li></ul>	<ul style="list-style-type: none"><li>in progress</li></ul>	
<b>Reform 4: Enhance cooperation between business and research</b> <ul style="list-style-type: none"><li>40% of publicly funded RDI to have at least one business entity active, including SMEs and start-ups, as a partner in projects funded by MCID and its agencies.</li></ul>	<ul style="list-style-type: none"><li>in progress</li></ul>	
<b>Reform 5: Support to integrate the RDI organizations in Romania in the ERA</b> <ul style="list-style-type: none"><li>The new legislative framework to include: a periodic external evaluation of all R&amp;D institutes in Romania, provision of access to financial and non-financial support for RDI organizations, digitalization of procedures, evaluation of large public RDI projects by internationally recognized researchers, as are large deliverable (greater than 0.5 €M). The RIS3 Strategy to ensure a greater participation of business in RDI projects in strategic European value chains, by including SMEs and start-ups.</li></ul>	<ul style="list-style-type: none"><li>the law was adopted</li><li>work in progress to define the criteria for RDI entities assessment</li></ul>	

# 1A. ABOUT THE NRRP: SUMMARY OF INVESTMENTS

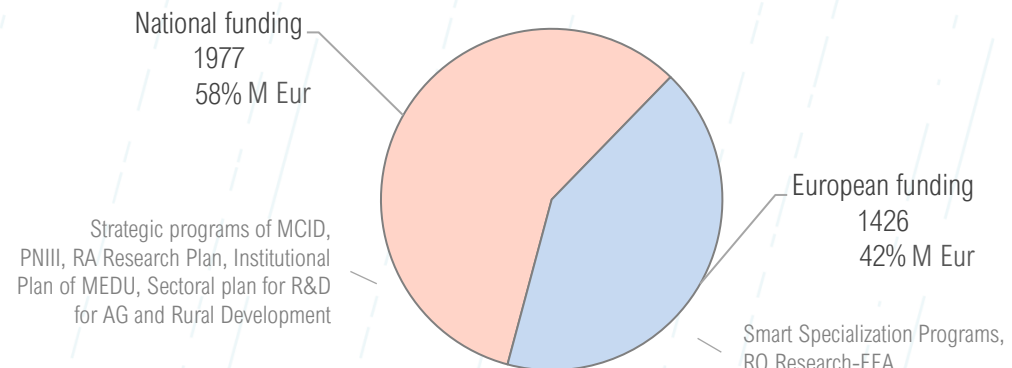
NRRP Investments on Research Sector Modernization	Status (03/ 2023)	Budget
<p><b>Investment 5: Establishment and operationalization of Competence Centers</b></p> <ul style="list-style-type: none"> <li>Organization of 5 Competence Centers - with at least 10 RDI partners (5 public and 5 private, i.e., SMEs). These are to receive a max. of 5 €/project. Each Center should submit at least 3 applications above the threshold to Horizon Europe EU Missions by 2026.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation phase,</li> <li>6 contracts signed</li> </ul>	25€M
<p><b>Investment 6: Development of Horizon Europe mentoring programs</b></p> <ul style="list-style-type: none"> <li>500 vouchers to be granted by MCID to applicants submitting a project proposal in calls for application under the Horizon Europe program. The vouchers can be used for writing project proposals, staff exchange, participation in brokerage events, the use of <a href="#">ELI-NP</a>.</li> </ul>	<ul style="list-style-type: none"> <li>in progress</li> </ul>	5€M
<p><b>Investment 7: Strengthening excellence and supporting Romania's participation in partnerships and missions in Horizon Europe</b></p> <ul style="list-style-type: none"> <li>Launch of a competitive call complementing research projects that are already contracted in the context of a European RDI Partnerships, especially those focused on green and digital themes.</li> </ul>	<ul style="list-style-type: none"> <li>in progress</li> </ul>	31€M
<p><b>Investment 8: Development of a program to attract highly specialized human resources from abroad in RDI activities</b></p> <ul style="list-style-type: none"> <li>Financing of 100 projects led by top international researchers. These researchers shall increase the research capacity of the Romanian RDI organizations and increase the institutional performance of the host organizations. The researchers are to supervise the work of research teams, incl. doctoral candidates and post-doctoral researchers.</li> </ul>	<ul style="list-style-type: none"> <li>submission phase finalized,</li> <li>projects assessment</li> </ul>	183€M
<p><b>Investment 9: Support for the holders of certificates of excellence received in the Marie Skłodowska Curie Individual Fellowship Award</b></p> <ul style="list-style-type: none"> <li>Awarding 50 Marie Skłodowska Curie recipients of Seal of Excellence with grants to carry out Horizon 2020 and Horizon Europe research projects.</li> </ul>	<ul style="list-style-type: none"> <li>in progress</li> </ul>	8€M
<p><b>Investment 10: Establishment and financial support of a national network of eight regional career guidance centers as part of the ERA Talent Platform</b></p> <ul style="list-style-type: none"> <li>A competitive call for selecting a network of 8 public universities which will host and operationalize 8 centers for research career orientation. These centers should address the needs of the scientific community and they should provide career guidance to researchers. This investment should create direct synergies with Investment 8; for the network to become one single entry point for research career, and to provide services aimed at promoting Romanian research results in society, raising awareness about science benefits and attracting young people to research careers.</li> </ul>	<ul style="list-style-type: none"> <li>submission phase finalized,</li> <li>projects assessment</li> </ul>	4€M

# 1A. NRRP INSTRUMENTS NEED TO ALIGN WITH THE NEW POLICY MIX, COORDINATING WITH PN4 AND OPERATIONAL PROGRAMS

- A bottom-up analysis of the **policy mix of the previous programming period 2014-2020** (analyzed as 2016-2021) found **76 RDI instruments adding up to 3.4 bln Eur** in disbursed funding.\*
- The policy mix included instruments from both the national and European funding; most of which will be renewed for the new cycle.
- The NRRP itself is a ‘one-off’ funding program, due to be completed by August 2026. However, implementation of the NRRP coincides with the start of the new 4th National Plan, and **will overlap substantially with the next 7-year Programming Period of EU-funded Operational Programs.**
- In the WB’s view, therefore, the **NRRP should not be seen as a ‘one-off boost’** but rather as an important opportunity to drive much-needed change to the whole Romanian RDI system. Making these changes sustainable beyond the implementation period will require **coordination with other Operational Programs and national strategy, as recommended in PSF 10.2.**



Source of funding for RDI instruments of previous Policy Mix, 2016-2021



\* upcoming WB publication

# 1B. TOC WORKSHOPS INTRODUCE THEORIES OF CHANGE TECHNIQUE TO INCREASE INTERNAL CAPACITY

Under the Reimbursable Advisory Service (RAS) *Research Modernization in Romania: Improving the Quality and Relevance of the Research Sector (P179979)*, the World Bank Group (WB) committed to support the Romanian Ministry of Research, Innovation and Digitization (MCID) in developing the investments and reforms proposed under the NRRP.

An important component of this was creating, examining, and improving the descriptions of *Theories of Change (ToC)* (also known as Logic Models) of the reforms and instruments. The TOCs refer to the **hypothesized ways in which desired changes are expected to arise from given interventions**. Previous analysis of existing interventions in Romania, has found that ToCs are consistently one of the weakest features.<sup>1</sup> This impacts multiple elements of instruments' design, implementation and subsequent monitoring & evaluation. For this reason, this Activity was intended to strengthen MCID's internal capacity for logic modelling, as well as using the technique to identify specific gaps or areas for potential improvement within the reforms & investments proposed under the National Resilience & Recovery Plan.

To achieve these aims, the WB team:

- Conducted **12 workshops** (in person and remote) with participants from Ministry of Research, Innovation & Digitization. The sequence and methodological summary of these workshops are described in Appendix B.
- Developed individual ToC for Reforms 2, 3, 4, 5 and Investments 5, 6 & 7, 8, 9, 10, identifying specific gaps or failure mechanisms which should be filled in order to make the intervention more effective and/or decrease the risk of failure. What is important to notice, although individual logic models are described in the following section, **the value of ToC exercises lies largely in the process of their development**, in terms of gaining a shared understanding of how an instrument should work - not just the final output.
- Developed a ToC for the overall NRRP portfolio, including a **unifying end-goal** to which all instruments should be directed.
- **Mapped** the PSF OPEN recommendations on to specific reforms & investments.

1. See, e.g., Cruz, Marcio; Kapil, Natasha; Astudillo Estevez, Pablo Andres; Haley, Christopher; Lu, Zoe Cordelia; Can, Arslan., 2022. Starting Up Romania : Entrepreneurship Ecosystem Diagnostic. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/37564> License: CC BY 3.0 IGO, as well as upcoming functional analysis of the research and innovation instruments (expected in July 2023).



# 1B. OBJECTIVES OF THE WORKSHOPS

The overall objectives of the workshops were multiple:

	Primary goals	Capacity-building goals
Short-term	<ul style="list-style-type: none"><li>To assist in the implementation and fine-tuning of reforms &amp; investments (incl. identifying assumptions and potential failure mechanisms, and highlighting ways to improve the subsequent M&amp;E, i.e., by identifying other outcomes to be tracked over the lifetime of the NRRP).</li></ul>	<ul style="list-style-type: none"><li>To check for internal consistency amongst the NRRP portfolio.</li></ul>
Medium-term	<ul style="list-style-type: none"><li>To assist in identifying gaps in RDI support, to inform future calls of the NRRP instruments, or subsequent reforms &amp; investments (e.g., by highlighting gaps in private sector initiatives and a need for technology transfer capacity-building).</li></ul>	<ul style="list-style-type: none"><li>To provide foundations for monitoring and evaluation frameworks of NRRP programs.</li></ul>
Long-term	<ul style="list-style-type: none"><li>To ensure better alignment of the NRRP with the long-term objectives of the National Plan IV and operational programs.</li></ul>	<ul style="list-style-type: none"><li>To aid capacity-building and support the processes for R&amp;I policy development.</li></ul>



## 2. RESULTS

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2a. ToC for NRRP portfolio

2b. ToCs for Individual reforms & investments

# 2A. TOC FOR OVERALL PORTFOLIO

## About NRRP:

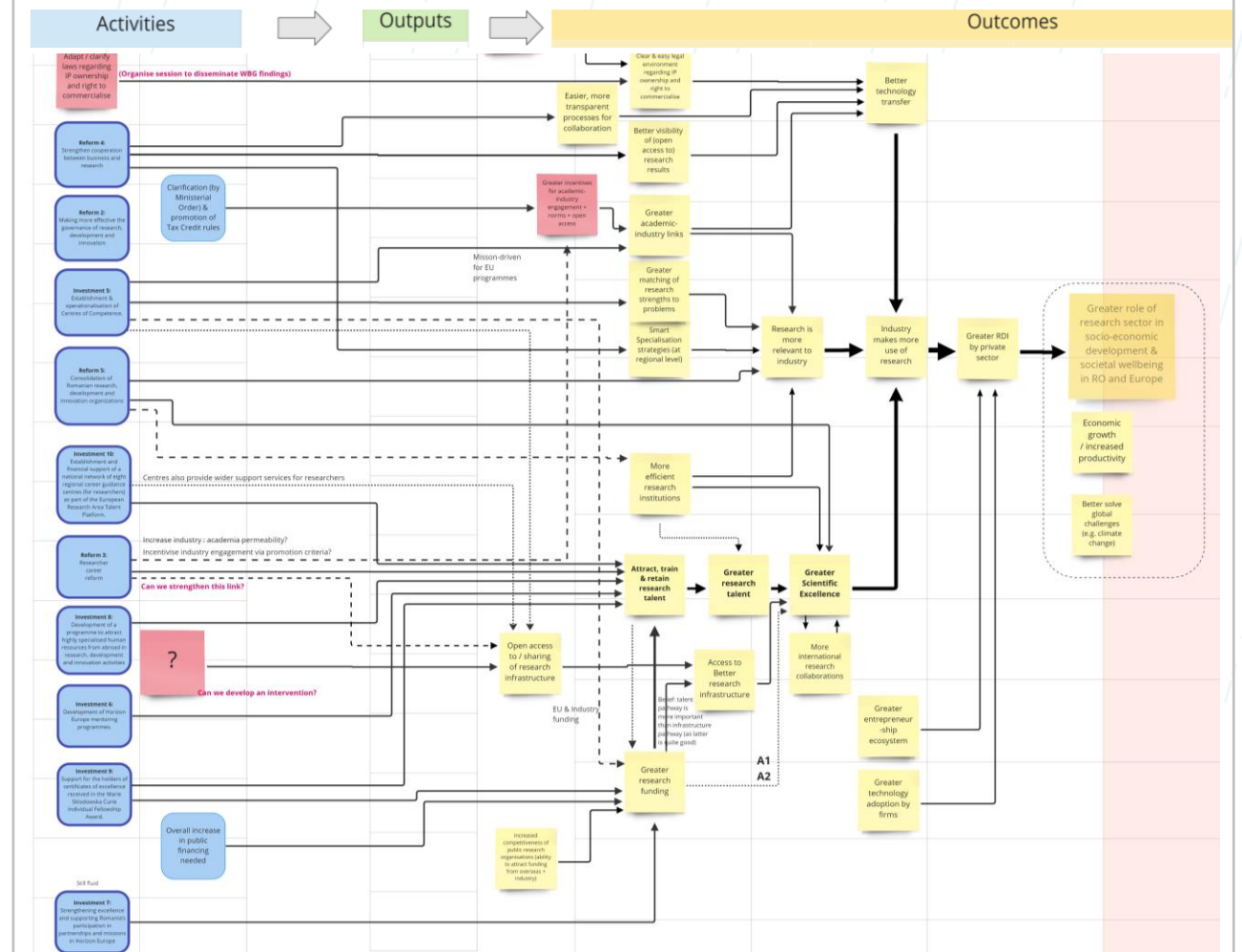
### Portfolio as a whole

- **Objective:** to ensure a greater role of research sector in socio-economic development & societal wellbeing in Romania and Europe.
- **Description:** Package of 4 reforms and 6 investments.
- **Budget & Status:** 260€M, in progress.

## Key takeaways:

- The portfolio attempts to deliver its goal through **improving the quality** of Romanian research outputs, as well as making the research more **industrially-relevant**, and (to some extent) improving processes for **industrial collaboration**, as well as improvements to overall system **governance** and **efficiency**.
- The main emphasis of the portfolio is on the first component: making **research outputs higher quality**.
- The main driver of this, in turn, is through **human capacity development**, especially attracting talent from abroad.

## Snapshot of the Miro board developed during the workshop:



## 2A. TOC FOR OVERALL PORTFOLIO

### Overview of findings from the workshop:

- The overall logic of the package of reforms relies upon **improving research excellence, improving its relevance to industry, and improving the processes of industry collaboration with the research sector**, in order to drive a greater role for the research sector in socio-economic development.
- However, the focus is unevenly distributed between these goals: most pathways (as well as the majority of funds) are devoted to improving research excellence. **Few reforms are focused on the private sector or technology transfer.** (Reform 4 addresses this to an extent, but the main beneficiaries remain public sector research organizations.) We are unaware whether there are other programs outside the NRRP which will fill this gap; if not, then this is potentially a missed opportunity to stimulate more market demand for research and innovation.
- Within the theme of research excellence, the **major focus of the portfolio appears to be human capital development**, especially attracting talent from abroad.
- Integration with Operational Programs and national programs is unclear, thus also meaning that the **sustainability of actions beyond the NRRP is unclear.**
- Several mechanisms depend on **political will and cross-departmental ‘buy-in’**. This was considered a likely **‘failure mode’** for many of the reforms and investments, especially R2, and should be explicitly addressed at Cabinet level.
- Several reforms (especially R2, R3, R5, I6, I7, I9, I10) **require collaboration / participation of universities**, raising questions about MCID’s ability to control or coordinate this.
- Since being dropped from R5, **sharing of research infrastructure is no longer directly addressed by any reform or investment** (with the exception of the incentives for the Extreme Light Infrastructure, in I6); this seems to be a potentially significant omission from the overall package of reforms and should be addressed by OPs or national programs.
- Consideration of **personal factors** (that is, acknowledging researchers as people, often with families) was sometimes **inconsistent**. For example, expenses relating to relocating family are explicitly considered in I9, but less clear in I8.
- Examining the overall package of reforms, **no obvious instances of tension** between reforms were identified (i.e., making opposite assumptions, or incentivizing opposing behavior).
- There are very **few performance indicators** to indicate down-stream impact and outcomes (as opposed merely to outputs) of the NRRP portfolio.

# 2B. TOC FOR REFORM 2 – GOVERNANCE

## About Reform 2:

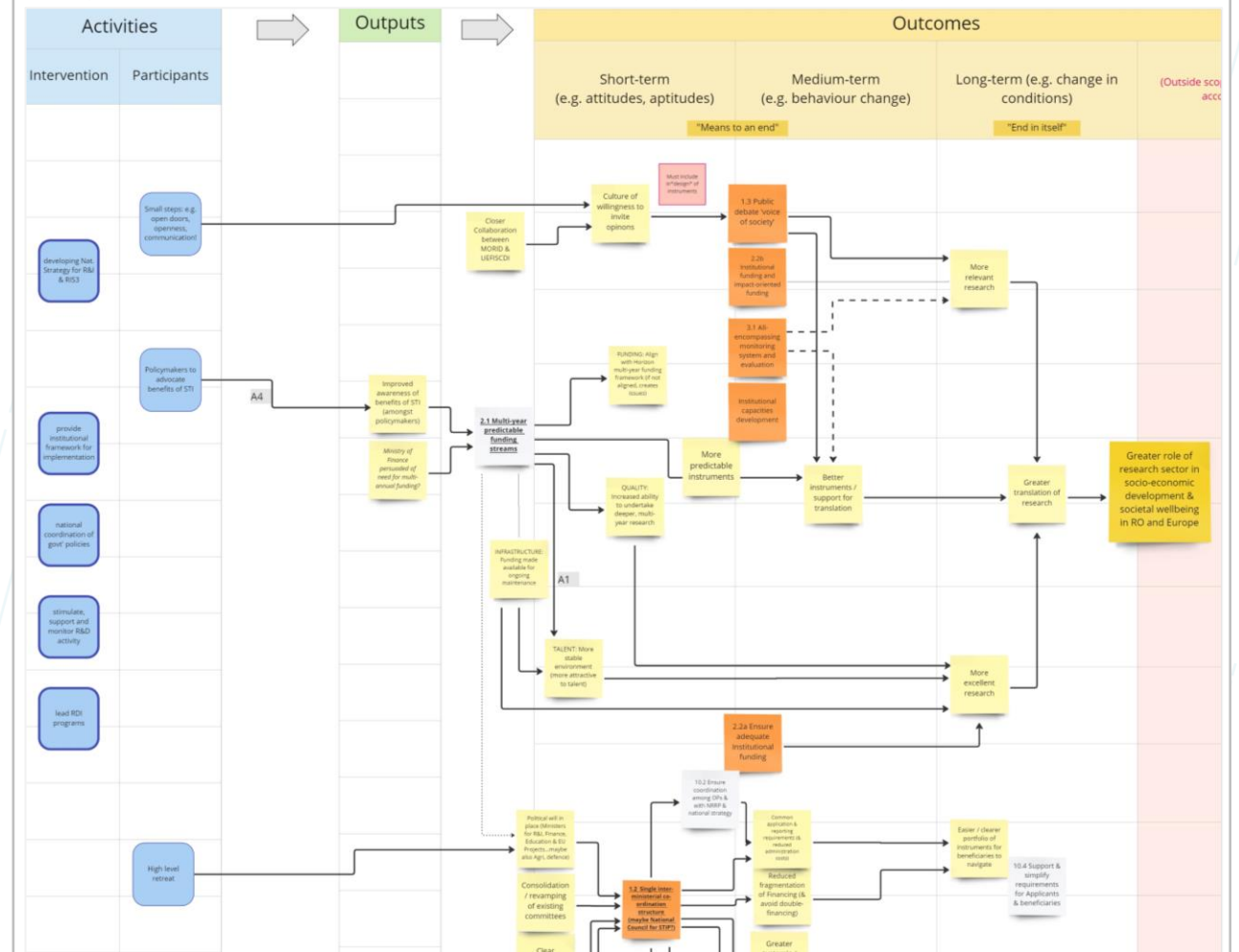
Streamline governance of research, development and innovation

- **Objective:** to clarify and streamline the governance of the research, development, and innovation system in Romania.
- **Description:** Regulatory modification to allow the creation of a new body with a decisional role for Research, Development and Innovation & Smart Specialization Strategy.
- **Budget & Status:** 3.43 €M, in progress

## Key takeaways:

- One of the more **complex** Reforms, in terms of logic modelling, but critical for the realization of several of the PSF Recommendations such as 3.1 (an all-encompassing monitoring & evaluation system) and 3.3 (strengthening institutional capacities).
- The **success** of introducing a Single Ministerial Coordination Structure **depends on the political buy-in at Cabinet / Prime Ministerial level** and could not be created by MCID alone.
- The reform depends on the **cooperation from Ministries of Finance, Ministry of Education, MIPE, and UEFISCDI.**

## Snapshot of the Miro board developed during the workshop:



## 2B. TOC FOR REFORM 2 – GOVERNANCE

### About Reform 2:

Streamline governance of research, development and innovation

- **Objective:** to clarify and streamline the governance of the research, development and innovation system in Romania.
- **Description:** Regulatory modification to allow the creation of a new body with a decisional role for Research, Development and Innovation & Smart Specialization Strategy.
- **Budget & Status:** part of 3.43 €M, in progress.

### Overview of findings from the workshop

- One of the more **complex** Reforms, in terms of logic modelling, but critical for the realization of several of the PSF Recommendations.
- The workshop **identified multiple potential failure modes** for the Reform, often relating to the **cooperation** (or otherwise) of entities outside MCID. A perceived lack of political will, or understanding of the importance of STI, amongst other Ministries was highlighted as a key concern or constraint.
- Specifically, the **importance of a Single Ministerial Coordination Structure was highlighted**, but it was recognized that this required political buy-in at Cabinet / Prime Ministerial level and could not be created by MCID alone.
- There was some discussion about whether the National Council for R&I Policy might fill the role of the Single Ministerial Coordination Structure and whether that Council was operating as intended.
- Similarly, other aspects of Reform 2 depend upon **cooperation from UEFISCDI and/or the Ministry of Education**.
- **The Ministry of Finance** also has a critical role to play in establishing the multi-year, predictable funding stream recommended by the PSF; an outline logic for the benefits of multi-annual funding was described but may need further development.
- The workshops also identified the importance of **cultural change within research organizations** (and amongst policymakers, too) as either a major enabler or obstacle to reform. Some of the change lies in actively promoting taking 'ownership' of the work and believe that their work will really make a difference. This was particularly the case for PSF Recommendations 1.1 ('Strengthen national vision') and 1.3 (Public debate / 'voice of society').
- There were concerns that **a new reporting system** (including the 'R&I Observatory) must operate **in a timely fashion** (so as to present up-to-date data to policymakers) and must **simplify** reporting rather than adding an additional bureaucratic process. It was noted that there are problems with existing information flow between MCID and UEFISCDI.

# 2B. TOC FOR REFORM 3 – RESEARCH CAREER

## About Reform 3:

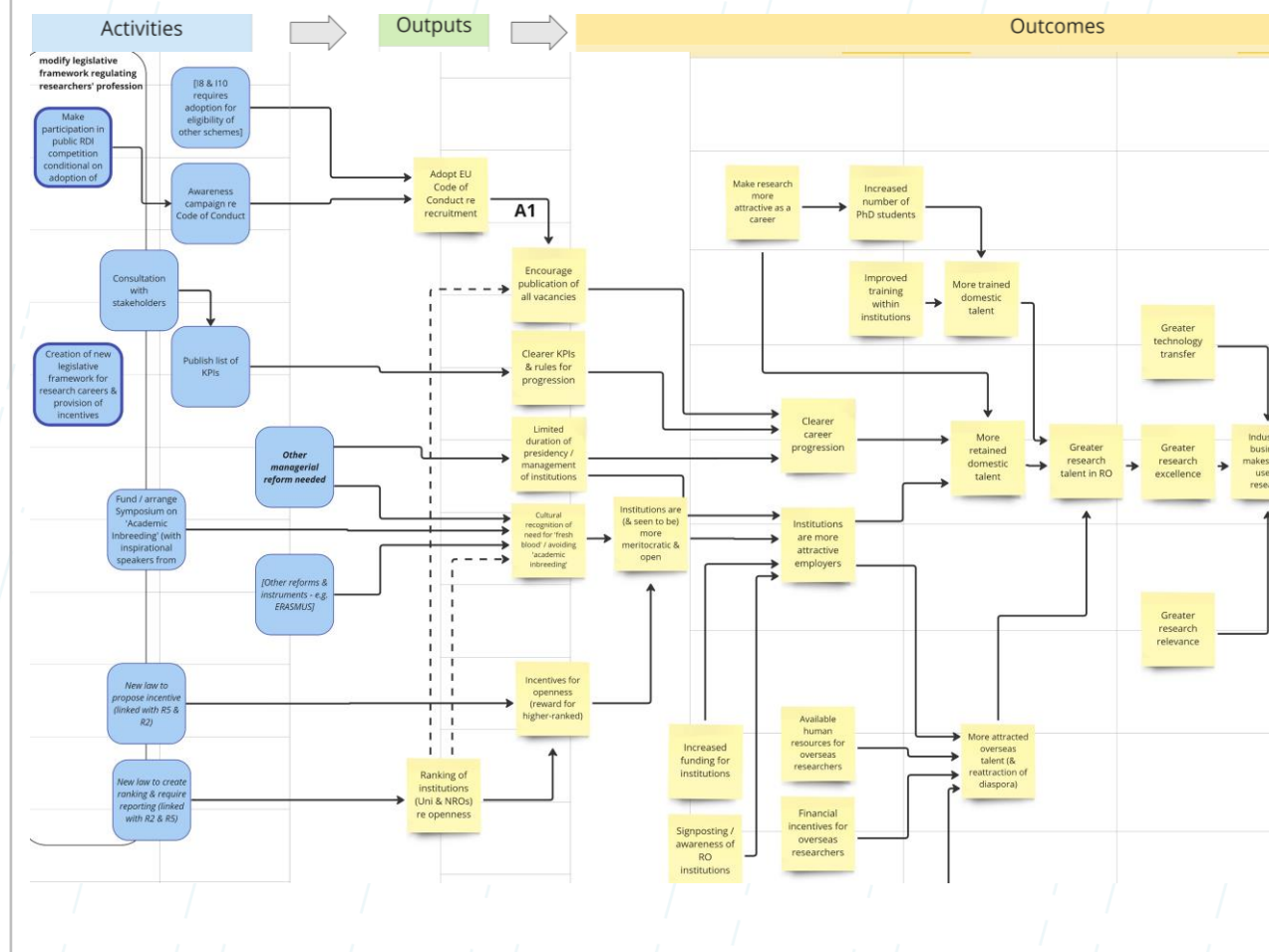
### Reform of research career

- **Objective:** to increase the attractiveness of the research career and the performance of researchers.
- **Description:** Detailing KPIs to evaluate performance of Romanian researchers and to detail standards for 'good conduct in scientific research' for better access to funding and scholarships.
- **Budget & Status:** part of 3.43 €M, in progress.

## Key takeaways:

- The workshop identified a few needs that need to be addressed to support the reform 3, for example, interventions to tackle **managerial reform and improvement** in research organizations, as well as researchers' career paths and organization of symposia and conferences to address a culture change to avoid academic in-breeding.
- Adoption of the **EU Code of Conduct** for recruitment would not necessarily happen automatically but would **require an awareness campaign** and potentially also subsequent monitoring to track implementation.
- **Reform 3 can link and enhance the Reforms 2** (governance of RDI) and **Reform 5** (integration of RDI organizations in the ERA), in order to create overarching incentives for greater openness of institutions.

## Snapshot of the Miro board developed during the workshop:



## 2B. TOC FOR REFORM 3 – RESEARCH CAREER

### About Reform 3:

#### Reform of research career

- **Objective:** to increase the attractiveness of the research career and the performance of researchers.
- **Description:** detailing KPIs to evaluate performance of Romanian researchers and to detail standards for 'good conduct in scientific research' for better access to funding and scholarships.
- **Budget & Status:** part of 3.43 €M, in progress.

### Overview of findings from the workshop

- The workshops identified numerous **constraints** for this reform, including autonomy of the Council of University rectors, which may make it more difficult to implement this reform in Universities compared with research institutions (over which MCID has more direct control).
- In particular, the workshop identified the **importance of cultural change** within universities & research organizations, with particular regard to understanding the damaging effects of so-called 'academic inbreeding' (i.e., preferencing internal promotion over outsiders, who may bring fresh ideas.)
- However, this is not directly addressed in R3 but could potentially be tackled through small additional funding: e.g., to organize an international symposium on 'academic inbreeding' and learn how the problem was solved in other countries.
- It was noted that adoption of the **EU Code of Conduct** for recruitment would not necessarily happen automatically but would require an awareness campaign and potentially also subsequent monitoring to track implementation.
- There is a possible opportunity to **link R3 with R2 and R5**, in order to create overarching incentives for greater openness of institutions.
- The workshops identified a need for interventions to tackle **managerial reform and improvement** in research organizations, as well as researchers' career paths; this is currently not addressed in R3.



# 2B. TOC FOR REFORM 4 - RESEARCH AND BUSINESS

## About Reform 4:

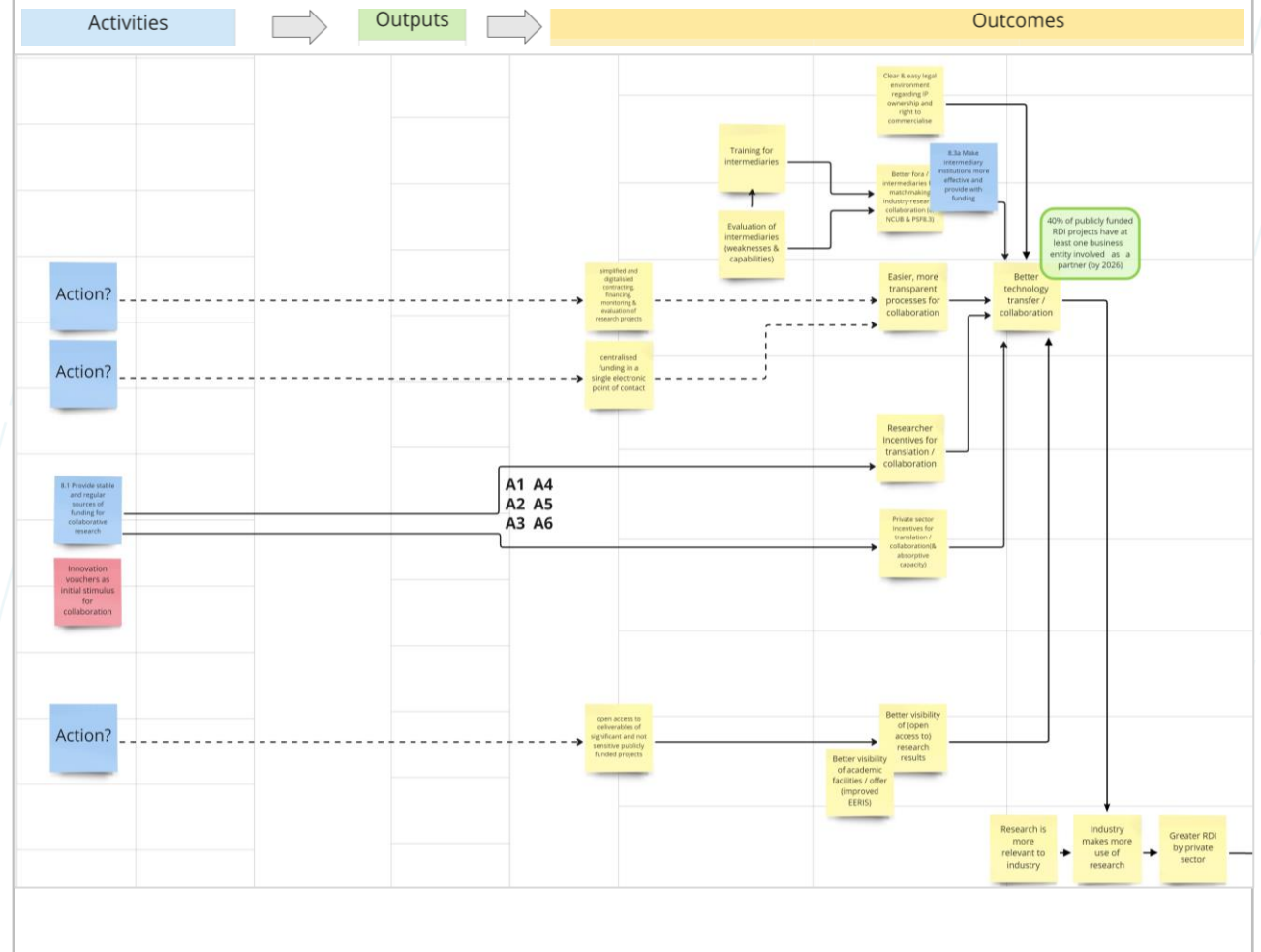
Enhanced cooperation between business and research

- **Objective:** to increase the cooperation between businesses and research, development and innovation public research organizations and to create a favorable environment for public and private investments in the sector.
- **Description:** 40% of publicly funded RDI to have at least one business entity active, including SMEs and start-ups, as a partner in projects funded by MCID and its agencies.
- **Budget & Status:** part of 3.43 €M, in progress.

## Key takeaways:

- Reform 4 is the principal reform addressing **research commercialization & valorization**, but it address few of the actual problems.
- Reform 4 **does not yet address the capabilities of organizations** to undertake or support technology transfer (e.g., provision of training of staff) nor on the role of intermediaries that accelerate the commercialization activities (e.g., TTOs).
- There is a lack of knowledge (mainly among researchers) concerning **industry's needs and constraints**, together with a lack of mechanisms to encourage contact; addressing these may generate more impact in the long term.

## Snapshot of the Miro board developed during the workshop:



## 2B. TOC FOR REFORM 4 - RESEARCH AND BUSINESS

### About Reform 4:

Enhanced cooperation between business and research

- **Objective:** to increase the cooperation between businesses and research, development and innovation public research organizations and to create a favorable environment for public and private investments in the sector.
- **Description:** 40% of publicly funded RDI to have at least one business entity active, including SMEs and start-ups, as a partner in projects funded by MCID and its agencies.
- **Budget & Status:** part of 3.43 €M, in progress.

### Overview of findings from the workshop

- R4 is the principal reform which addresses **the processes of research commercialization or valorization**, but it only addresses a small number of the issues which inhibit technology transfer, many of which are discussed in the PNIV and OPs.
- In particular, R4 focuses on **simplifying various processes** (e.g., contracting, M&E) and providing a **mechanism to incentivize deeper collaboration**. However, the workshop suggested a need for additional actions (such as innovation vouchers) as an initial stimulus for collaboration.
- **R4 does not address the capabilities of organizations** to undertake technology transfer, nor the role of potential *intermediaries* (e.g., technology transfer offices and industry bodies). Other research suggests that there are significant blockages in the technology transfer system which this reform does not tackle.
- It was unclear to what extent **private firms** have a role in defining projects. Given the relative weight of the NRRP towards the public sector, it would be advantageous to target private sector beneficiaries more explicitly.
- The workshop also identified a widespread reported **lack of knowledge** (mainly among researchers but also, to an extent, among policymakers) concerning industry's needs and constraints. This seems to be indicative of a widespread lack of connection between the sectors, which could potentially be reduced through more fora and events. At present there is no provision for these in R4.

# 2B. TOC FOR REFORM 5: INTEGRATION OF THE RDI ORGANIZATIONS IN ROMANIA INTO THE ERA

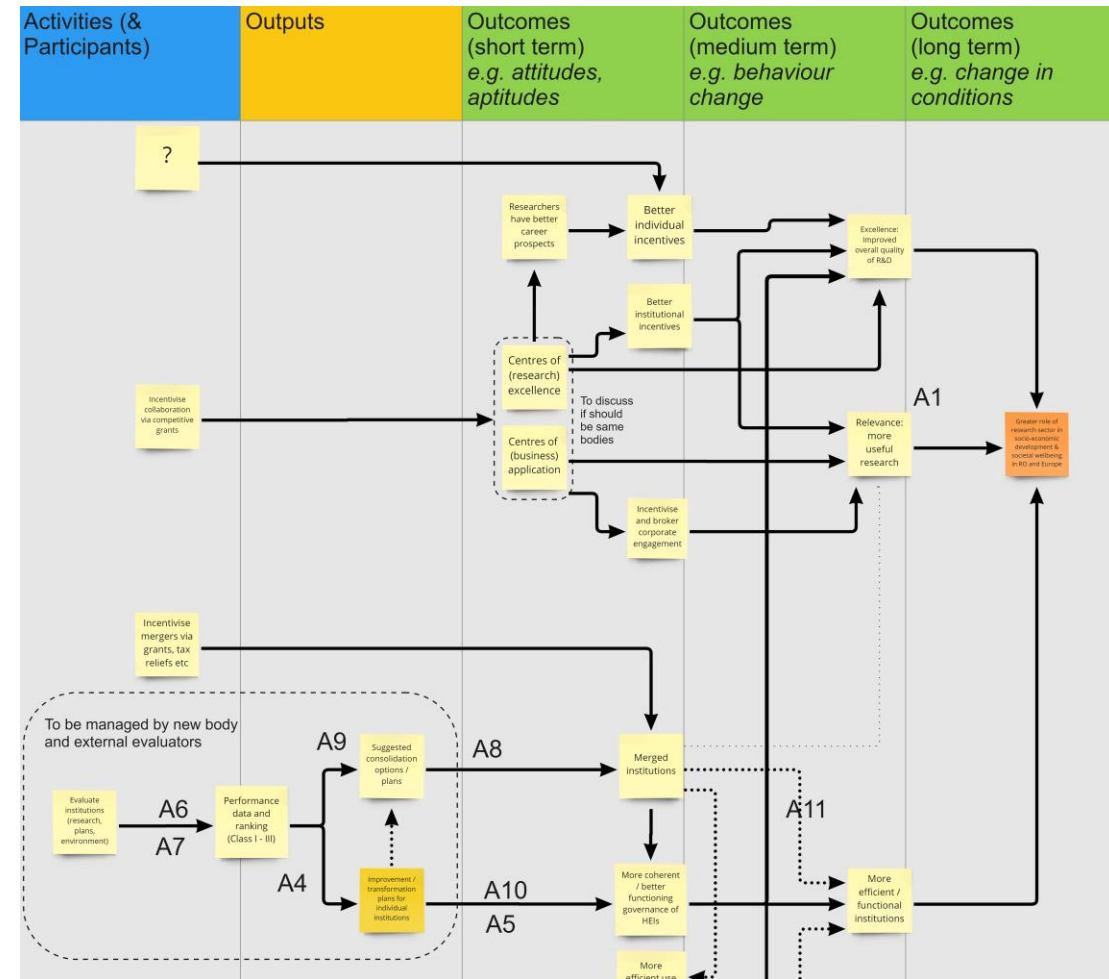
## About Reform 5: Support to integrate the RDI organizations in Romania into the European Research Area

- **Objective:** to increase the performance and consolidation of the public research, development and innovation organizations in Romanian and their integration into the European Research Area.
- **Description:** the new legislative framework includes a periodic external evaluation of all R&D institutes in Romania, provision of access to non-/ financial support for RDI organizations, digitalization of procedures, evaluation of large public RDI projects and deliverables (over 0.5 €M) by internationally recognized researchers.
- **Budget & Status:** part of 3.43 €M; the law was adopted; work in progress to define the criteria for RDI entities assessment.

## Key takeaways:

- The reform focuses on **ranking institutions** and encouraging the **merging** of under-performing institutions with higher-quality ones.
- There are potential **failure modes** such as academics leaving as a result of mergers, or higher-rated institutions being 'pulled down' by lower-rated ones; a pilot program would help test these.
- There may be benefit in evaluating managerial capabilities of institutions, and also allowing Class I & II institutions to **'opt-in'** to the transformation process.
- The composition of the review team is important and will require resource.

## Snapshot of the Miro board developed during the workshop:



# 2B. TOC FOR REFORM 5: INTEGRATION OF THE RDI ORGANIZATIONS IN ROMANIA INTO THE ERA

## About Reform 5:

Support to integrate the RDI organizations in Romania into the European Research Area

- **Objective:** to increase the performance and consolidation of the public research, development and innovation organizations in Romanian and their integration into the European Research Area.
- **Description:** The new legislative framework includes a periodic external evaluation of all R&D institutes in Romania, provision of access to non-/financial support for RDI organizations, digitalization of procedures, evaluation of large public RDI projects and deliverables (greater than 0.5 €M) by internationally recognized researchers.
- **Budget & Status:** part of 3.43 €M; the law was adopted; work in progress to define the criteria for RDI entities assessment.

## Overview of findings from the workshop

- The main focus of the reform is **ranking** research institutions and encouraging the **merging** of under-performing ones with higher-performing ones.
- The logic assumes that this process will 'pull up' lower-ranked institutions rather than 'pull-down' higher ones, and that academics will not leave; there may be benefit in a pilot to test these assumptions to ensure that they do not **jeopardize the reform**.
- There may be benefit in **Class I & II institutions 'opting-in' to the transformation process** rather than offering transformation plans only to weak institutions; this would also reduce the stigma associated with transformation plans.
- The **composition of review team** will be important and should encompass a number of international experts to ensure exposure to international good practice.
- **Managerial capabilities of institutions** have an impact on quality and should be specifically examined as part of the evaluation process.
- We understand that actions to encourage greater use (by either the private and public sectors) of **research infrastructure has not been included** in the final version of the reform.
- If not included in other reforms, there may be a missed opportunity to enable wider value creation from existing infrastructure, such as generating income for host institutions and by forging wider links between these institutions and other organizations.
- It could be remedied through incentives to encourage signposting of facilities and clearer (maybe standardized) procedures for access by researchers from other institutions, as well as insurance for institutions.

# 2B. TOC FOR INVESTMENT 5 – COMPETENCE CENTERS

## About Investment 5:

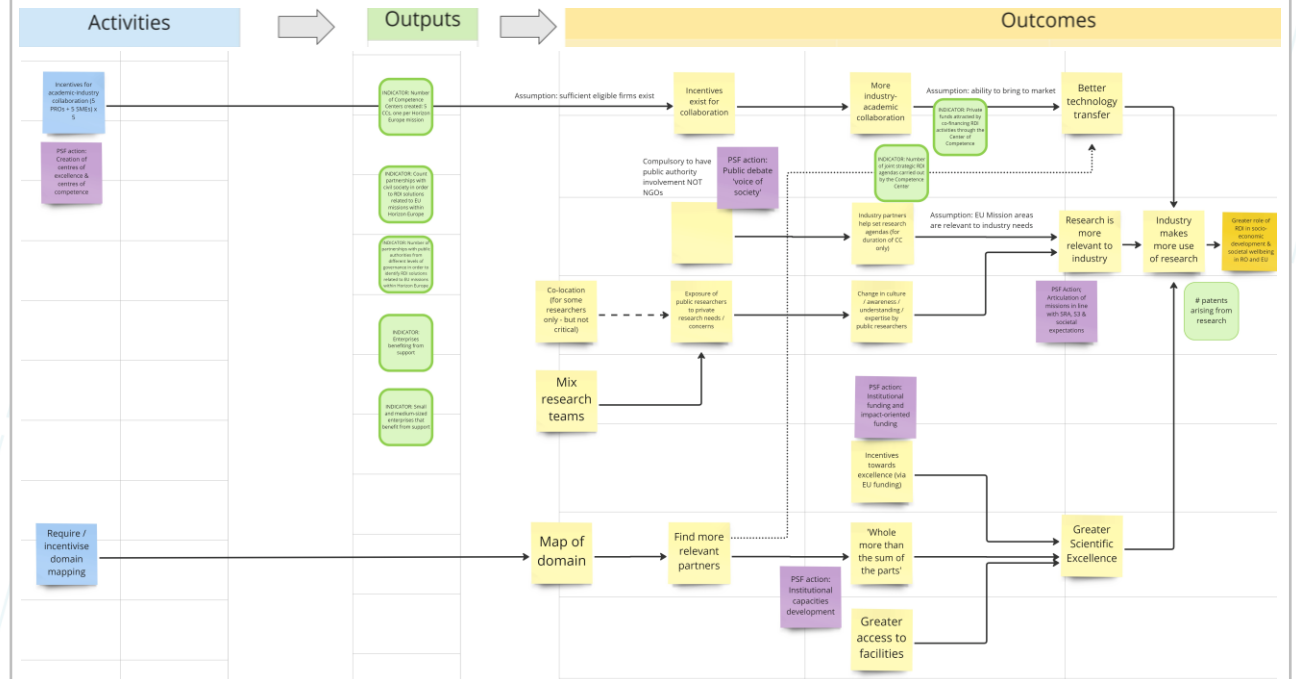
### Establishment and operation of Centers of Competence

- **Objective:** to tackle the thematic fragmentation of research, development and innovation organizations by supporting the implementation of Horizon Europe missions at national level.
- **Description:** Organization of 5 Competence Centers -with at least 10 RDI partners (5 public and 5 private, i.e., SMEs) that will receive a max. of 5 €/M/project. Each Center should submit at least 3 applications above the threshold to Horizon Europe EU Missions.
- **Budget & Status:** 25 €/M, Implementation phase, 6 contracts signed.

## Key takeaways:

- The **sustainability** of the Centers beyond the NRRP is **unclear**; linking with operational programs and increasing private sector involvement may help this.
- The workshop identified **critical assumptions** that may affect the success of this investment, e.g., that there are sufficient eligible firms for the collaborations.
- To gauge impact of the centers, the KPIs need to be updated to reflect their **outcomes**.
- There is a critical need to **expose public researchers to the needs and concerns of private industry**; this point needs to be made explicit in the calls.

## Snapshot of the Miro board developed during the workshop:



## 2B. TOC FOR INVESTMENT 5 – COMPETENCE CENTERS

### About Investment 5:

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- **Budget & Status:** 25 €/M, Implementation phase, 6 contracts signed.

### Overview of findings from the workshop

- The **sustainability** of the Competence Centers, beyond the lifetime of the NRRP, is unclear; this might potentially be resolved through links with the national or Operational Programs and/or corporate sponsorship; the latter, however, might require greater industry control over the centers.
- There are some **critical assumptions** which might affect the success of this reform, including that sufficient eligible firms exist for the numbers of planned collaborations, and that there will be sufficient flexibility for firms within the mission areas to be of industrial interest to them
- There is a need for **key performance indicators** (KPIs) which were more **outcome-focused**, as opposed to output-focused - (e.g., the number of patents, new products or new services reaching market as a result of collaborative research); without these it will be difficult to tell whether the centers are generating impact.
- **Exposing public researchers to the needs & concerns of private industry** was seen as a critical pathway, in helping the former develop research which is more industrially-relevant. Whilst this is an implicit part of the Centers of Competence, it would be valuable to make explicit how this exposure is intended to arise (e.g., is this via colocation, mixed research teams, joint seminars, etc).
- There is a potential **overlap or connection between I5 and I7** (Financing of Excellence enhancement projects in Competence Centers), which should be made explicit - that is, the relevant calls should recognize the existence of each other, have similar eligibility criteria, avoid double-spending, etc.

# 2B. TOC FOR INVESTMENTS 6&7-HORIZON EUROPE

## About Investments 6 & 7:

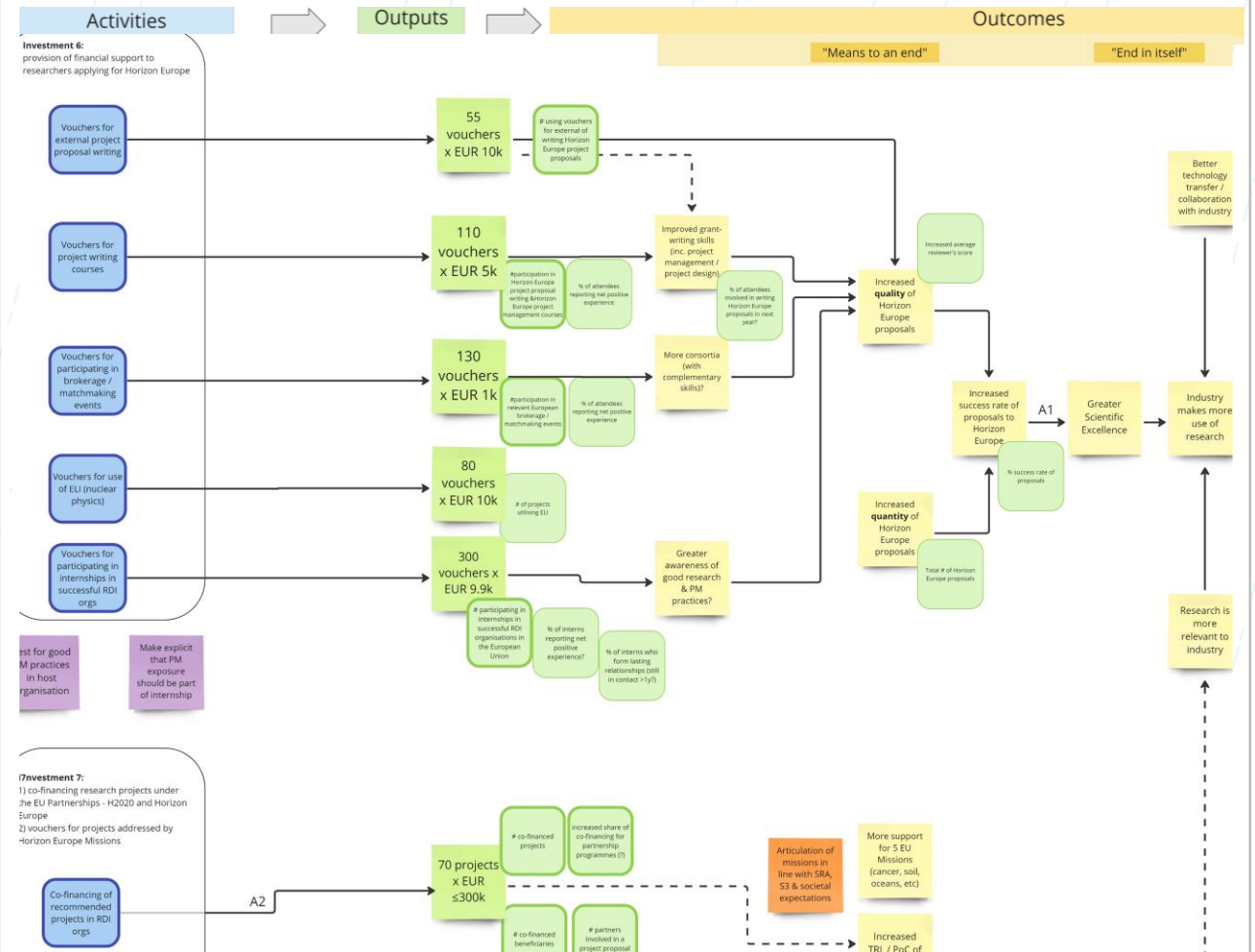
Development of Horizon Europe mentoring programs & Strengthening excellence and supporting Romania's participation in partnerships and missions in Horizon Europe

- **Objectives:** to increase the success rates of applications for Horizon Europe program.
- **Description:** I6: 500 vouchers to be granted by MCID to applicants submitting a project proposal in calls for application under the Horizon Europe program. The vouchers can be used for writing project proposals, staff exchange, participation in brokerage events, the use of [ELI-NP](#).  
I7: Launch of a competitive call complementing research projects that are already contracted in the context of a European RDI Partnerships, especially those focused on green and digital themes.
- **Budget & Status:** 5€M and 31€M, in progress.

## Key takeaways:

- **Monitoring** should be improved and made more **outcome-orientated** by adding KPIs and related to outcomes rather than outputs, e.g., success rate of Horizon Europe proposals submitted by participants of the mentoring programs vs others. Including **evaluation** approaches at a design stage will help to understand e.g. the effectiveness of outreach mechanisms.
- Explain the desired outcomes to stakeholders, in order to encourage them to address these and generate more impact.
- **Actively test industrial relevance** by involving industrial partners for better alignment. (I7 requires a later stage TRL).

## Snapshot of the Miro board developed during the workshop:



## 2B. TOC FOR INVESTMENTS 6&7-HORIZON EUROPE

### About Investments 6 & 7:

Development of Horizon Europe mentoring programs &  
Strengthening excellence and supporting Romania's participation in partnerships and missions in Horizon Europe

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I7: Launch of a competitive call complementing research projects that are already contracted in the context of a European RDI Partnerships, especially those focused on green and digital themes.
- **Budget & Status:** 5€M and 31€M, in progress.

### Overview of findings from the workshop

- These investments include multiple actions which work in slightly different ways. Some (e.g., outsourcing proposal writing) may not be optimal in building capacity.
- **M&E needs greater attention:** To evaluate the effectiveness of the investment overall, it will also be necessary to monitor the overall number of Horizon Europe proposals submitted, and the success rate. To evaluate individual pathways, there is a **need for multiple new KPIs related to outcomes** rather than just outputs.  
For example, as well as measuring the number of attendees for proposal-writing courses, it would be helpful to measure how many of these attendees were subsequently involved in writing proposals (and the success rate of these, in comparison with those who did not attend the courses). Similarly, it would be helpful not only to measure numbers of internships, but the percentage reporting positive experiences, and the percentage reporting lasting network connections, etc.
- It is particularly important **to understand whether there is any long-term impact of vouchers to outsource proposal writing, and whether any actions could be undertaken to increase this.** This might, for example, include working sessions between the writers and the academics (where the former explain the core elements of a high-quality proposal, so that there is an explicit capacity-building element).
- The logic modelling also identified **some conditions that were implicit, but which would potentially make the intervention more effective if they were explicit.** For example, it was assumed that internships within high-performing organizations would necessarily increase interns' exposure to good project management practices. However, making this intention explicit in the applicant guide would significantly increase the likelihood of host practices being included.
- The **relative size of some of the elements of I6 should be reconsidered.** In particular, it was unclear that participating in project-writing courses would entail costs of the magnitude that were assumed; reconsideration of the size might allow more vouchers to be issued for the same overall budget
- I7 was assumed to lead to greater research relevance by taking technologies to a later TRL; however, **the mechanisms for checking industrial relevance were weak.** Industrial relevance should not be assumed but should be actively tested through closer involvement of industrial partners in order to ensure that the research remains aligned with their needs.



# 2B. TOC FOR INVESTMENT 8 – FOREIGN TALENT

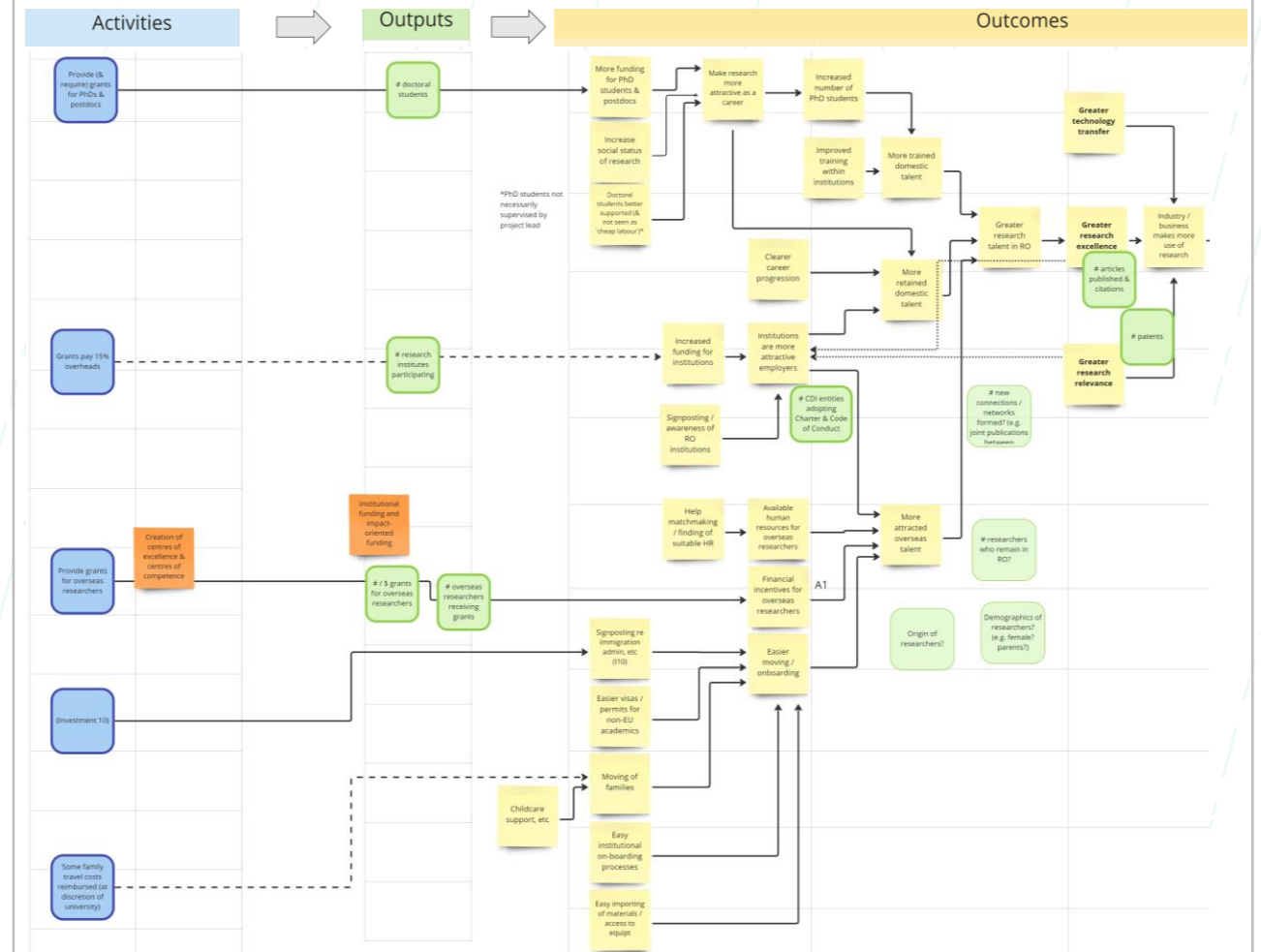
**About Investment 8:** Development of a program to attract highly specialized human resources from abroad in research, development and innovation activities

- **Objective:** to increase the research capacity of the RDI organization
- **Description:** Financing of 100 projects led by top international researchers. These researchers shall increase the research capacity of the Romanian RDI organizations and increase the institutional performance of the host organizations. The researchers are to supervise the work of research teams, incl. doctoral candidates and post-doctoral researchers.
- **Budget & Status:** 183€M, submission phase finalized, projects assessment.

## Key takeaways:

- One potential **failure mode** for this investment is the **awareness of target beneficiaries**; sufficient resource for advertising the scheme abroad should be mobilized.
- More focus should fall on the **'human factors'** which may inhibit relocation of researchers, such as moving costs, childcare, ease of institutional on-boarding process, etc.
- The spillover benefits of importing researchers with overseas experience (e.g., knowledge of different management practices) should be encouraged, e.g., by holding seminars for incoming cohorts of researchers and their host institutions.

## Snapshot of the Miro board developed during the workshop:



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- **Budget & Status:** 183€M, submission phase finalized, projects assessment.

### Overview of findings from the workshop

- I8 is the largest-budget investment, and is focused on attracting human capital, especially from overseas.
- **Numerous 'human factors' could limit the effectiveness of I8 if ignored.** e.g., the costs of childcare and travel costs for families may be a barrier. We recommend that these are explicitly treated as eligible costs. (At present, some family travel costs may be reimbursed at discretion of host).
- **Ease of onboarding into host institutions may be another barrier.** At present, I8 provides little guidance for host institutions regarding factors such as assistance in finding childcare, immigration visas, translation services, importing materials & equipment, etc. There may be benefit in explicitly connecting with I10 in order to provide this support.
- It was assumed that relevant researchers would be aware of the scheme, but this may be a flawed assumption. **Interventions targeting overseas beneficiaries should be particularly conscious of the need for advertising abroad**, and allocate appropriate costs for this at the Ministry level; resources at the Institutional level for match-making / head-hunting may also be beneficial.
- Relatedly, there is a **need for additional KPIs to monitor the effectiveness of the instrument.** e.g., From where are most applications or expressions of interest received? How many researchers remain in Romania once the program ends? If they return, do they continue to maintain networks and publish joint papers?
- **The longer-term spillover benefits of having highly specialized researchers from abroad were not fully considered**, nor were mechanisms put in place to maximize these. For example, highly experienced researchers may bring not only scientific expertise (leading to publications and prestige) but also management practices (leading to wider organizational improvements); the sharing of this should be explicitly considered and encouraged, e.g., via seminars involving all of the incoming cohort and their host institutions.

# 2B. TOC FOR INVESTMENT 9 - HOLDERS OF MC AWARDS

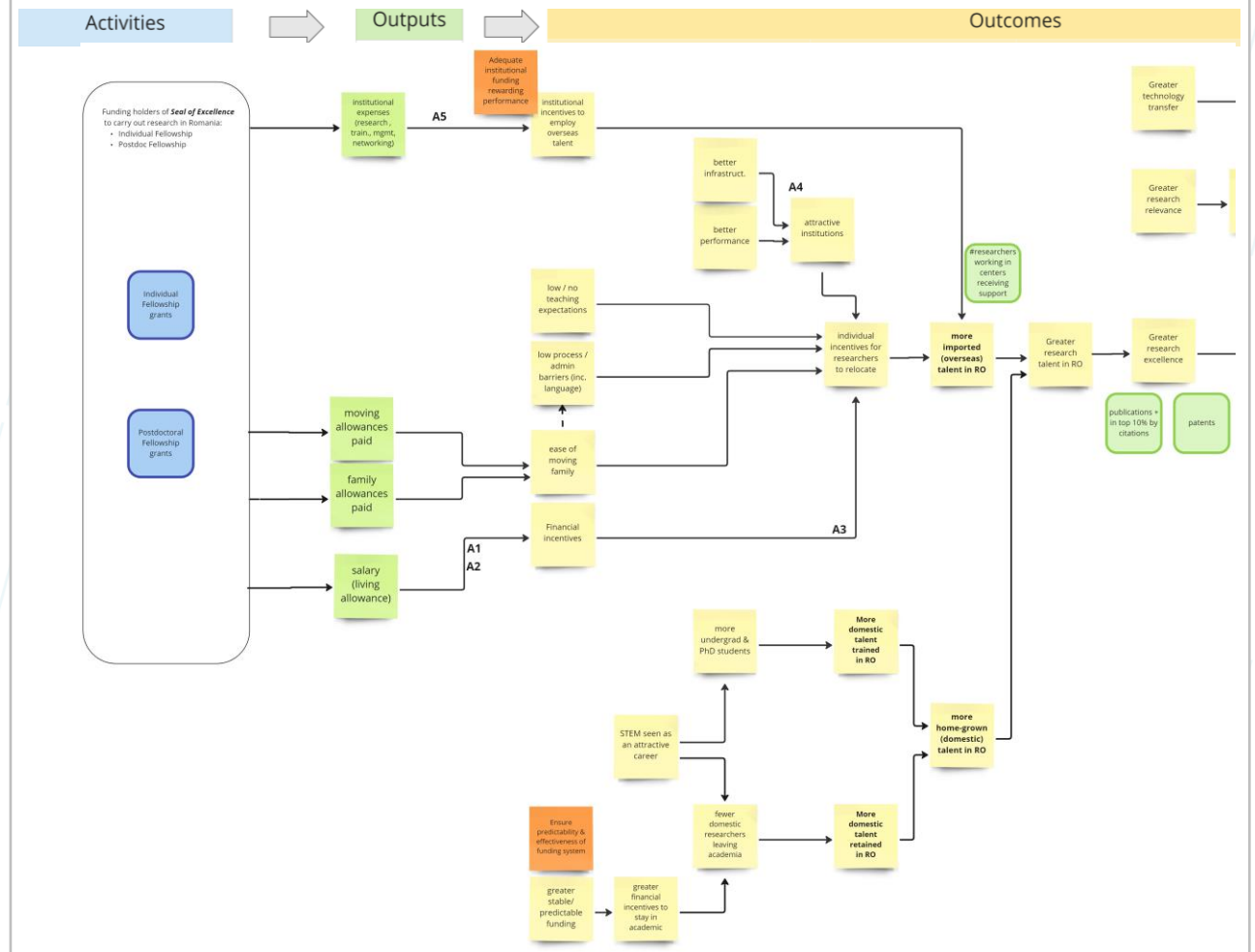
**About Investment 9:** Support for the holders of certificates of excellence received in the Marie Skłodowska Curie Individual Fellowship Award

- **Objective:** to increase the attractiveness of research careers and support confirmed researchers in carry out their research project.
- **Description:** Awarding 50 Marie Skłodowska Curie recipients of Seal of Excellence with grants to carry out Horizon 2020 and Horizon Europe research projects.
- **Budget & Status:** 8€M, in progress

## Key takeaways:

- More **outcome-focused KPIs** are needed. These should attempt to measure the longer-term benefits of the investment (e.g., how many researchers relocate/remain in Romania).
- The **adequacy of the financial incentives** for experienced researchers and their host institutions is unclear; this may be a possible failure mechanism.
- Greater impact could be created by **encouraging spillovers** such as links between imported talent and domestic talent (e.g., encouraging beneficiaries of this scheme to give guest lectures, etc).

## Snapshot of the Miro board developed during the workshop:



## 2B. TOC FOR INVESTMENT 9 - HOLDERS OF MC AWARDS

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- **Budget & Status:** 8€M, in progress

### Overview of findings from the workshop

- As with I8, logic modelling for I9 again identified several '**human factors**' (e.g., moving allowances, family allowances) which could either improve the effectiveness of intervention, if considered well, or act as failure modes if considered poorly.
- There was a lack of clarity about whether the **financial incentives** in I9 are **sufficiently attractive** for experienced researchers from leading institutions; this may need to be checked.
- Similarly, it was assumed that the funding made available for institutions will be an adequate incentive for them to host overseas researchers (given that there may be an additional administrative cost in onboarding them); this assumption may also need to be checked.
- It was unclear how many applicants may be expected from overseas versus from within Romania; future instruments of this nature might benefit from some market research to identify likely demand.
- More down-stream, **outcome-focused KPIs are needed** to determine the impact of the instrument (e.g., if researchers relocate, what proportion remain in Romania? How many remain in contact with their host? How many joint publications are produced? etc.)
- There was **no explicit link** made between the **importing of talent** and the **training (& retaining)** of domestic talent. However, there may be opportunities to create such links - e.g., by encouraging visiting Fellows to present guest lectures to undergrads, etc.
- That said, **teaching load** was identified as a potential **inhibitor**; this is not explicitly discussed in the applicant guide and may require agreement with the Ministry of Education, and discussion to determine the optimal level of non-research activity.

# 2B. TOC FOR INVESTMENT 10 - CAREER CENTERS

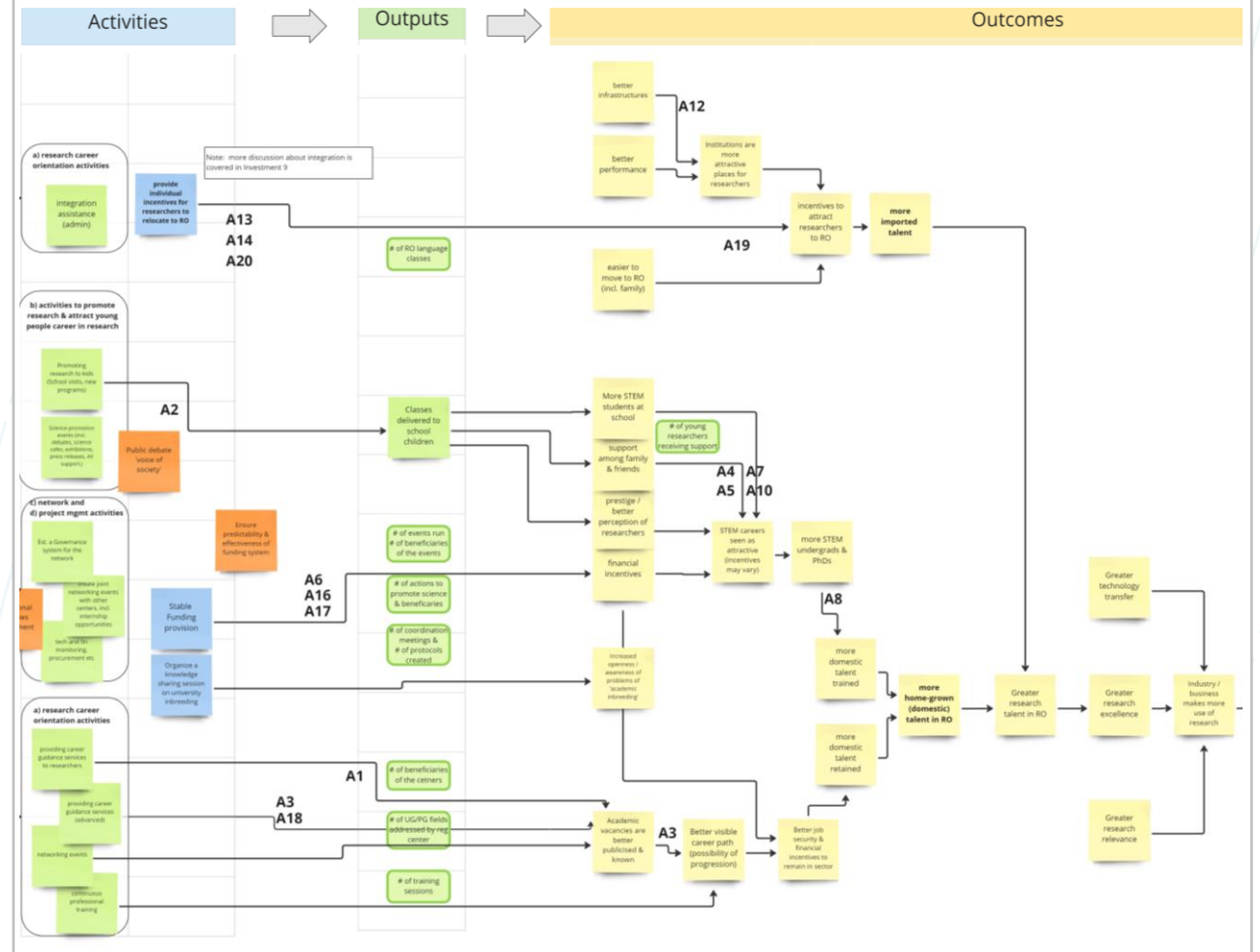
**About Investment 10:** Establishment and financial support of a national network of eight regional career guidance centers as part of the European Research Area Talent Platform

- **Objective:** to promote the research career and attract pupils, students for performing research activities and develop citizen interest for research.
- **Description:** A competitive call for selecting a network of 8 public universities which will host and operationalize 8 centers for research career orientation. These centers should address the needs of the scientific community and they should provide career guidance to researchers. This investment should also create direct synergies with I8: for the network to become one single entry point for research career, and to promote Romanian research and science and to attract young people to research careers.
- **Budget & Status:** 4€M, submission phase finalized, projects assessment.

## Key takeaways:

- Reform of career pathways may be undermined by a pervasive culture of so-called "academic inbreeding" (internal promotion); this should be tackled to avoid it being a barrier to success of the investment (also see R3).
- The investment includes different pathways to impact; evaluation of applications should recognize the different skills needed for each.
- **Downstream KPIs** are needed to determine the long-term effectiveness of the interventions.

## Snapshot of the Miro board developed during the workshop:



Full Miro board can be [accessed here](#)

## 2B. TOC FOR INVESTMENT 10 - CAREER CENTERS

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- **Budget & Status:** 4€M, submission phase finalized, projects assessment.

### Overview of findings from the workshop

- Investment 10 included **several different activities with quite different rationales for impact** - e.g., promoting STEM to children is different to later-stage careers guidance, in terms of inputs, beneficiaries, activities and near-term outcomes.
- These **different rationales each have different underlying assumptions and requirements** - e.g., promoting STEM to children requires good science communications and potentially links with schools, whilst providing later-stage careers guidance or professional training requires links with universities and possibly more mentorship skills. It may be unlikely for one organization to encompass multiple requirements. Evaluators of the scheme should therefore take care to understand the respective competencies which will be required.
- As with Reform 3, **the problem of intra-institutional promotion ('academic inbreeding'), was seen as a potential barrier**, leading to organizations not creating or advertising vacancies in the manner they should. This was considered a cultural issue which was a likely failure mode for this investment. At present, this problem is not addressed by this investment (but see Reform 3 for a suggested solution).
- Again, **there is a need for downstream KPIs to measure the effectiveness of the interventions** (e.g., number of school children applying to STEM undergraduate courses, number of researchers reporting a positive value-add from research career orientation activities, etc.).



# **3. CONCLUSIONS AND RECOMMENDATIONS**

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# 3. CONCLUSIONS & RECOMMENDATIONS (1/6)

## HIGH PRIORITY RECOMMENDATIONS FOR DESIGN OF INTERVENTIONS (1/2)

- **Ensure cross-institutional collaboration:** The NRRP is an opportunity for wide-ranging reform of the RDI system. However, it needs top-level political support, and the political buy-in from other Ministries. This is especially important for Reform 2 and PSF Recommendation 1.2 (the creation of a single ministerial co-ordination structure) since this clearly cannot be created by MCID alone.
- **Co-operation with the Ministry of Education is particularly needed.** Whilst MCID has control over many Research Institutes, several reforms require the active involvement of universities, from the Rectors and other senior leadership down to lower-level administrators. The involvement of the Ministry of Education will thus be important, and in some cases vital, if these reforms are to succeed (or even if their implementation is to be monitored). This is particularly the case for I8, which consumes a large part of the overall NRRP budget, and which relies heavily for its logic upon the internal activities of universities.
- Obtaining such inter-Ministerial collaboration is likely to require active **lobbying** by MCID's Minister, to explain the **critical role of innovation as the key driver of growth and productivity**, and the importance of science and research modernization in supporting this. Science and innovation has the potential to support all sectors of the economy and wider Romanian society but, for this to be realized, all Ministers should in turn support the reform of the research and innovation systems.
- Relatedly, we note that the current structural relationship of UEFISCDI to MCID seems anomalous and is sub-optimal for information flow; this will be discussed in more detail in another work package.



# 3. CONCLUSIONS & RECOMMENDATIONS (2/6)

## HIGH PRIORITY RECOMMENDATIONS FOR DESIGN OF INTERVENTIONS (2/2)

- **Consider multi-year budgeting:** The unpredictability of current funding has been highlighted not only by the ToC workshops, but also by separate Functional Analysis interviews (report expected in July 2023) and by the PSF OPEN. The existing annual budgeting appears to generate significant unpredictability and uncertainty for both the research sector and industry partners. Given that much research is multi-year, as is industry development, we suggest that consideration be given to moving some R&I budgeting to a multi-annual framework. We recognize that this would again require inter-Ministerial co-operation.
- **Improve monitoring & evaluation via appropriate (additional) metrics:** A consistent feature of the reforms and investments is that they typically propose performance indicators which are related to immediate outputs, rather than longer-term outcomes (for example, tracking numbers of grants disbursed, rather than the changes those grants created). This may, in part, be a consequence of poor logic models; alternatively, it may stem from a desire to be able to guarantee the availability of data to report to the EC. Whilst we understand that downstream performance indicators often present challenges in terms of their measurement and their causal relationship with the intervention concerned, a focus only on immediate outputs makes effective evaluation extremely difficult. Agreement with the EC concerning KPIs should not prevent MCID or other agencies from attempting to gather data for additional KPIs. For successful evaluation, more attention should be given to creation of credible control groups for the interventions.
- **Incorporate more logic modelling as a tool for interventions during design stage to** capture potential implicit assumptions, consider trade-offs between alternative paths to the outcomes and allow for a more comprehensive analysis of existing systemic failures and potential links between actions and down-stream outcomes.

# 3. CONCLUSIONS & RECOMMENDATIONS (3/6)

## HIGH PRIORITY RECOMMENDATIONS FOR IMPLEMENTATION (1/2)

- **Plan for post-NRRP funding of some initiatives.** Relatively little consideration appeared to have been given to the **sustainability of programs** beyond the NRRP, including their connection with Operational programs and the National Plan IV (for example, I5 establishes a series of Centers of Competence, but the mechanism of ongoing funding is unclear). Greater involvement of the private sector may help determine sustainable business models.
- **Devote resource to reform implementation:** Several reforms are highly resource-intensive, requiring external resource for proper implementation: for example, R5 requires numerous independent reviewers & experts, whilst R3 requires an awareness campaign. However, it is unclear whether there is any specific budget devoted to this. Without this, the reforms seem likely to fail.
- **Test demand in order to determine scale:** Some interventions risk being mis-sized - that is, the budget may not be appropriate for the level of demand - because they were designed without a clear indication of demand or eligibility. For example, I5 requires the involvement of at least 25 eligible and willing firms, to enable the formation of the proposed Competence Centers; however, it is unclear if any industry research was undertaken to establish approximately how many firms existed in the sectors concerned and whether they would be appropriately incentivized to participate. Similarly, some other interventions have assumed that there would be demand from overseas institutions to host visiting Romanian researchers, without testing this. Testing the demand may not be possible for investments which have already been announced but would be worth considering for any not yet launched, and for future iterations.

# 3. CONCLUSIONS & RECOMMENDATIONS (4/6)

## HIGH PRIORITY RECOMMENDATIONS FOR IMPLEMENTATION (2/2)

- **Disseminate / advertise internationally:** Several interventions (e.g., I8, I9, I10) are intended to increase international mobility of researchers. However, there was often an assumption that the target beneficiaries would automatically be aware of funding schemes, even in the absence of international advertising. These interventions should have an explicit advertising strategy which targets high-performing individuals or institutions where they may reside, potentially coupled with overseas events to raise awareness.
- **Clearly explain the purpose of reforms and investments to beneficiaries, including desired spillovers:** In some cases, intended mechanisms of action which were not made explicit in the applicant guide, but doing so could potentially improve effectiveness. For example, logic modelling of I6 showed that it intends to expose researchers to good project management practices via secondment into another organization, but the applicant guide does not explain this; making rationales explicit may encourage and enable host institutions to provide more relevant support.

# 3. CONCLUSIONS & RECOMMENDATIONS (5/6)

## RECOMMENDATIONS PERTAINING SPECIFIC REFORMS OR INVESTMENTS (1/2)

- **Increase focus on private sector initiatives:** Most interventions, including interventions intended to increase collaboration between the research sector and private sector, are strongly focused on public-sector research organizations. In general, it is unclear what incentives exist for private sector involvement, or whether the private sector has adequate involvement to steer resources in the direction of greatest industrial relevance. Especially given the low rates of business expenditure on research and development, we recommend that future reforms and investments strengthen the incentives for private sector collaboration with the research sector, and emphasize the importance of industry-led research.
- **Increase focus on technology transfer:** There is a relative lack of attention within the NRRP portfolio to reform and improvement of technology transfer systems and capabilities, identified as a problem by previous WB work. Whilst there are some relevant components of R4 and I5, it would be beneficial to pay greater attention to the role of technology transfer offices and to develop specific interventions aimed at increasing their effectiveness in national programs or OPs.
- **Revive incentives for sharing of research infrastructure:** We understand that R5 originally contained mechanisms and incentives to encourage more open access to research infrastructure. However, we understand that this was not included in the final form, nor are there any other reforms or investments which specifically address this. We therefore recommend that there are additional incentives established to encourage the sharing of research infrastructure and equipment.

# 3. CONCLUSIONS & RECOMMENDATIONS (6/6)

## RECOMMENDATIONS PERTAINING SPECIFIC REFORMS OR INVESTMENTS (2/2)

- **Encourage a culture of innovation (in academia and public sector):** It is notable that workshop participants perceived cultural norms (particularly within academia, as well as within the wider public sector and also the private sector) as a common obstacle to reform. **Resistance to change** amongst senior academics and university administrators was identified as a **likely cause of failure** for multiple reforms and investments (particularly R2, R3, R5, I5, I8, I9 and I10). Whilst culture may seem too ephemeral to address through specific reforms and investments, we do not believe that this is necessarily the case: for example, exchanges and mobility schemes can be an effective means of exposing individuals to other organizational cultures; longer-term cultural change may also be affected via education and awareness-raising campaigns, as well as changes to recruitment and other institutional policies. To give a specific example: logic models for several talent-related interventions (e.g., R3, I8, I9, I10) identified that the culture of ‘promoting from within’ (sometimes called ‘**academic inbreeding**’) was deeply ingrained. However, research from other countries shows that this tends to inhibit the flow of new ideas into an organization, and hence dampen innovation. This may require additional interventions outside the NRRP (e.g., funding an international conference to discuss the phenomenon, and working with MEdu to promote managerial reform within institutions).
- **Ensure the ‘human factors’ of talent are considered consistently:** Several interventions (R3, I6, I8, I9, I10) are focused on attracting, training & retaining talent. It is particularly important to recognize that ‘talent’ ultimately means individual people, who will typically make decisions such as relocation based on a range of considerations - including the ease of relocating family dependents, etc. Whilst some instruments recognize these ‘human factors’ - e.g., by covering relocation expenses - this is somewhat inconsistent across the NRRP.



# **APPENDIX A. INTRODUCTION TO THEORY OF CHANGE**

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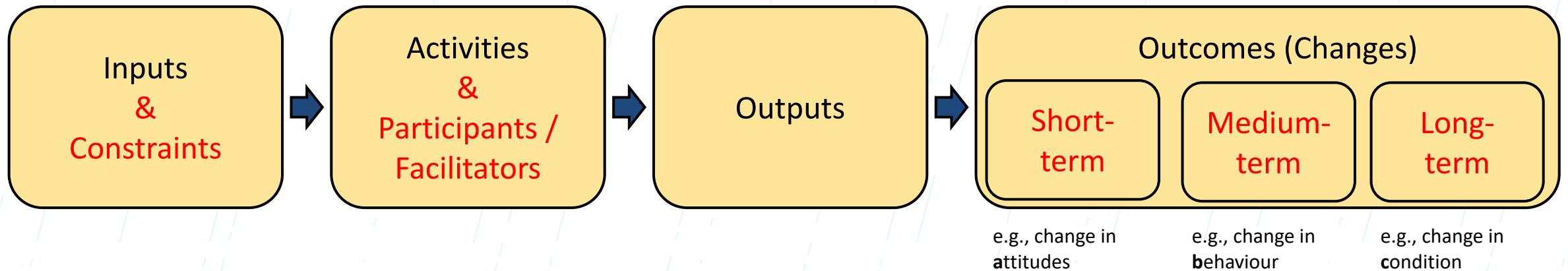
# APPENDIX A: INTRODUCTION TO THEORIES OF CHANGE

- Theories of Change (ToCs) are **causal theories about how an intervention ultimately gives rise to a particular desired outcome**. In other words, they are an examination of the links between 'what we do' and the 'outcomes we want'.
- The term 'theory of change' is used almost interchangeably with the term '**logic model**'.
- Typically, ToCs are presented as **graphic illustrations**, showing how certain activities give rise to near-term changes which, in turn, give rise to longer-term outcomes.
- An important step in the development of a ToC is **identifying assumptions** which link one condition with another; such assumptions are often taken for granted but may present failure modes for an instrument if they are incorrect. (For example, it is often assumed that if a grant is made available, the intended beneficiaries will apply – but there are often hidden assumptions about the targeting and advertising of the instrument, the opportunity cost for applicants, and so on).
- ToCs can help **make instruments more effective**, by ensuring that the activities are appropriately designed for their function; that the rationale of the individual interventions is clear; that gaps and constraints are identified and addressed; and that there is internal coherence and alignment amongst the portfolio of instruments.
- Clear logic models may also support the **practical implementation and evaluation of instruments**, by focusing attention on the proposed mode of operation of interventions (so that administrators do not lose sight of key factors) and by suggesting metrics for determining interventions' impact.
- Importantly, however, **much of the value of developing a ToC lies in the process**, not just the output: it is often an important means of generating a common understanding amongst a group of stakeholders.
- Theories of change are rarely perfect. However, there are often significant benefits in the application of even a fairly basic model.
- ToC should not be considered static; rather, they represent a set of hypotheses which should be regularly revisited, especially as evidence about the effectiveness of interventions is gathered.

# APPENDIX A: INTRODUCTION TO TOC

- A basic logic model might include only inputs, activities, outputs and outcomes
- A more sophisticated model is likely to distinguish between short-term, medium-term and long-term outcomes, as well as many of the constraints and critical assumptions which underpin the model.

*Outcomes  
outside limits of  
strategy*



## Critical Assumptions

e.g., if better education is available, people will take advantage of it; better knowledge will lead to a change in behaviour.  
e.g., economy will remain roughly stable

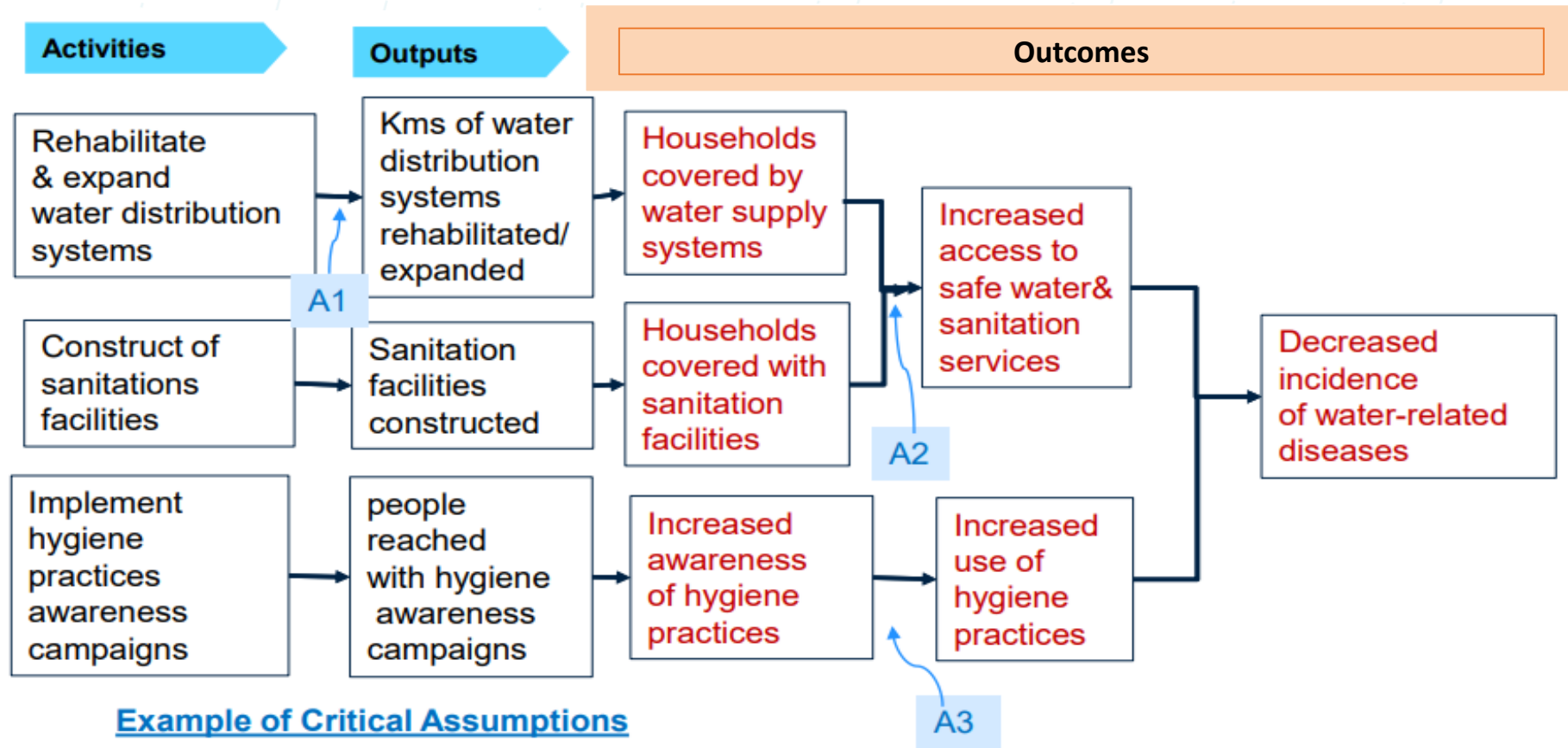
## External Factors / Context

Conditions over which we have little or no control but might help or hinder the strategy - e.g., pandemic; change of government; strategies of other countries, etc. (PESTLE model might help)



# APPENDIX A: INTRODUCTION TO TOC

- As an example, here is a logic model relating to activities intended to decrease the incidence of water-related diseases
- The developers of this model identified several critical assumptions which might lead to its failure, such as the assumption that education around hygiene practices would necessarily increase their adoption (this might be incorrect if, for example, the education is provided through schools and girls are excluded from schools).



## Example of Critical Assumptions

- A1. Water production sources available
- A2. Households with financial means to connect to water and sanitation systems
- A3. People reached with hygiene awareness campaigns are the right target (ex. women)



# **APPENDIX B. METHODOLOGICAL SUMMARY**

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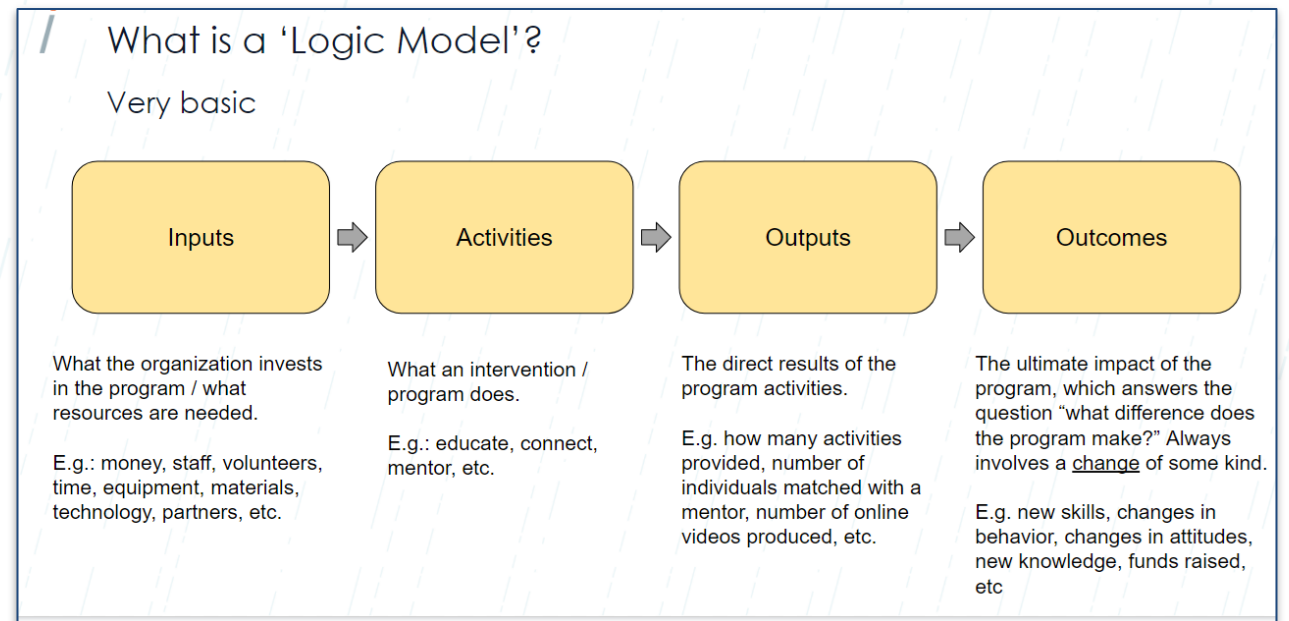
# APPENDIX B: METHODOLOGICAL SUMMARY

For this Activity, workshops were delivered online and in person at WB offices in Bucharest, in sessions of 2-3 hours.

Participants ranged from 5-12 MCID colleagues per session, and were intended to include civil servants directly responsible for each reform as well as wider colleagues. 2-6 WB staff lead or participated in each meeting.

The series began with an introduction to logic models and their purpose, then some simple exercises to familiarize participants with the concept.

Participants then used a collaborative online tool (Miro) to develop logic models for each individual reform & investment.



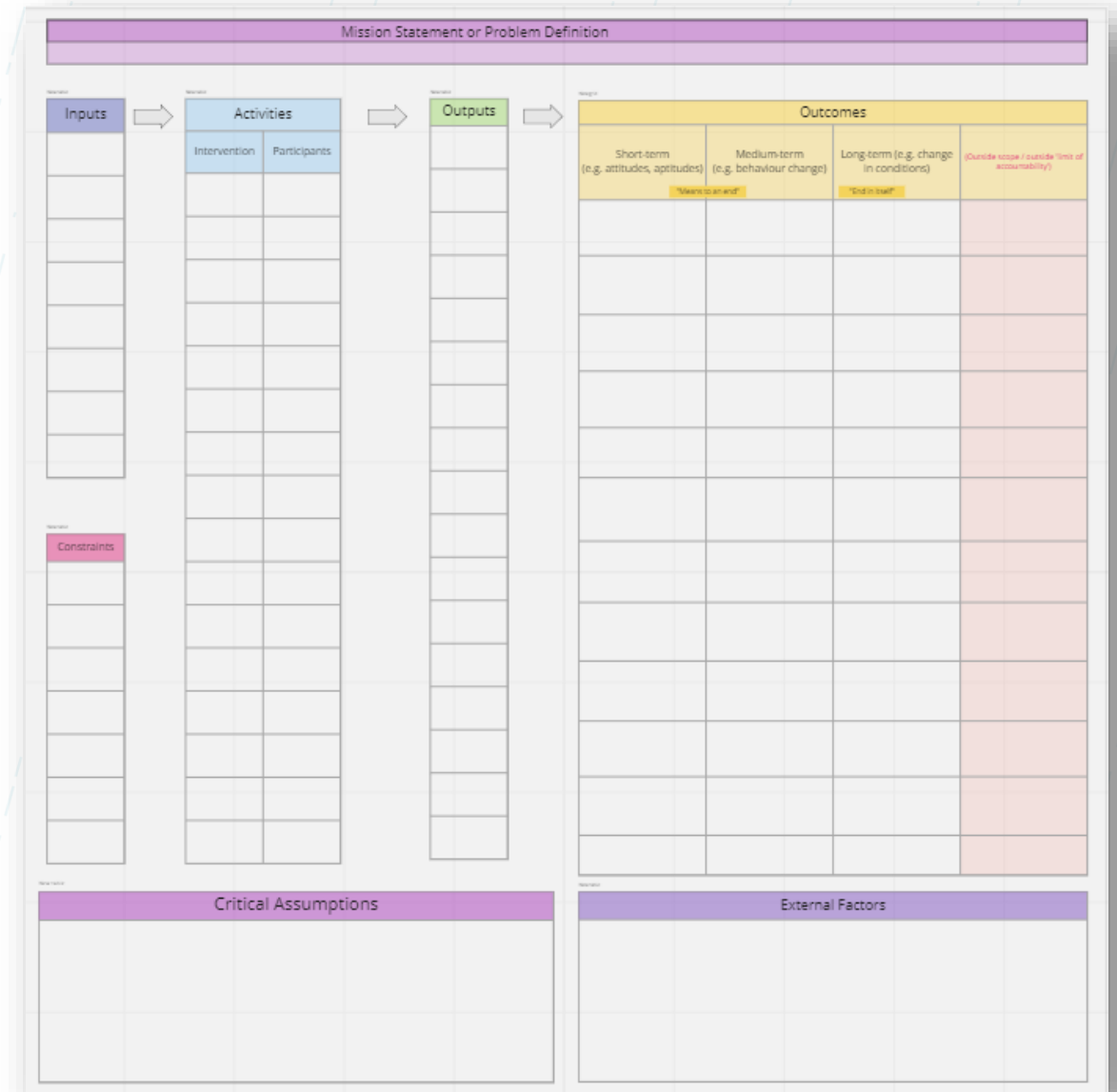
# APPENDIX B: METHODOLOGICAL SUMMARY

Development of individual ToCs typically started with gaining **agreement on the end-goal** which was the desired 'end in itself'.

After this, participants **worked backwards** to identify the 'means to an end' or precursor conditions which needed to exist as steps towards the end-goal. If precursor conditions could not be directly linked with the intervention, the group discussed how they could be created.

Participants were encouraged to **identify assumptions** in the rationale or logical steps, to help establish and mitigate potential points of failure.

Groups also attempted to map relevant **PSF OPEN recommendations** onto the conditions of the model.



# APPENDIX B: METHODOLOGICAL SUMMARY

1. Selection of **participants** ideally included **all key members working on a given instrument**, especially since part of the purpose of the Logic Model is the *process of building a common understanding* of how an instrument operates.
2. To begin, all participants were given an **overview of the purpose of logic models**, emphasizing their utility in designing, evaluating and improving instruments: e.g., their role in articulating the rationale of instruments to other policymakers & stakeholders; identifying constraints and potential failure modes; testing the internal coherence and alignment of the set of interventions; and supporting their practical implementation and evaluation. This also emphasized that logic models were rarely perfect, nor static, but rather were tools which should be **continuously developed and refined over time**.
3. The moderator then described an **abstract logic model and some examples** (see slides following methodological summary), before leading the group through a very simple exercise (e.g., applying a logic model to the growing of fruit).
4. Attendees then addressed the reform or investment in question, focusing on the ultimate goal - i.e., **the long-term outcome** which, if achieved, would mark the instrument as a success. (Note: for the NRRP portfolio as a whole, the overall goal was agreed during one of the first workshops, and this was taken as a starting point for subsequent workshops).
5. Attendees were then asked to **'work backwards'** to consider what **precursor conditions** - intermediate outcomes - would have to arise in order to bring about the end goal. Some group discussion was typically necessary to distinguish between such 'means to an end' versus the ultimate 'end in itself'; this discussion was often an important component of establishing a common view of the purpose of the instrument.

# APPENDIX B: METHODOLOGICAL SUMMARY

6. At least **one further set of precursor** conditions were then **identified**. Typically, this phase of the discussion was very 'expansive' with participants suggesting a wide-range of factors. Moderators therefore needed to exercise judgement in allowing the group to explore breadth versus depth: whilst a deep discussion of specific pathways is needed in order to identify failure modes and hidden assumptions, it was sometimes advantageous first to cover a wide range of precursors and then ask the group to prioritize some of these for deeper discussion.
7. The group then turned to the actions of the instrument, examining what **inputs** were needed for **each activity** and what the **immediate outputs** of these activities would be.
8. Next, the activities were connected with the previously-identified precursor conditions, and **each link** examined for its **rationale or causal pathway** - that is, did the group really consider it likely that a given action (and its immediate outputs) would lead to the intermediate outcomes and then the long-term outcome? *Why?* As part of this process, the group was encouraged to identify hidden assumptions which might lead to a faulty logic, and hence a lack of impact.
9. In the case of **very complex models** with numerous pathways, the group was encouraged to **highlight the pathways of greatest importance**, in order to try to simplify the model.
10. Finally, the entire model was reviewed for consistency - i.e., are there any conditions which appear in conflict, or any causal assumptions which run in opposite directions?



# **APPENDIX C. MAPPING PSF OPEN RECOMMENDATIONS**

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# APPENDIX C: PSF RECOMMENDATIONS

PSF OPEN Key messages	(abbreviated) Subcomponents (30 recommendations)	Relevant recommendations from ToC exercise	Overlap with NRRP
<b>1. Reinforce vision and governance of R&amp;I system</b>	1.1 National vision, 1.2 Single coordination structure, 1.3 'voice of society'	<ul style="list-style-type: none"> <li>Ensure cross-institutional collaboration, in order to overcome institutional silos and ensure that reforms are properly implemented</li> </ul>	<ul style="list-style-type: none"> <li>R2</li> </ul>
<b>2. Ensure predictability and effectiveness of funding system</b>	2.1 Multi-year funding, 2.2 Institutional funding & impact – oriented funding	<ul style="list-style-type: none"> <li>Consider shift to multi-year budgeting, in order to reduce uncertainty amongst research organizations, thereby encouraging investment and talent retention</li> </ul>	<ul style="list-style-type: none"> <li>R2</li> </ul>
<b>3. Use policy intelligence for strategic governance</b>	3.1 All-encompassing M&E system, 3.2 R&I Observatory, 3.3 Institutional capacities	<ul style="list-style-type: none"> <li>Improve monitoring &amp; evaluation via resources and better KPIs, in order to ensure that the</li> <li>learnings from the NRRP properly inform future policy</li> </ul>	<ul style="list-style-type: none"> <li>R2</li> </ul>
<b>4. Undertake a consolidated process of public research system</b>	4.1 Evidence based reform of the four pillars and creation of centers of excellence and centers of competence		<ul style="list-style-type: none"> <li>R5, I5</li> </ul>
<b>5. Improve governance and funding at the level of research institutions</b>	5.1 Articulation & communications of missions in line with SRA, S3 and societal expectations; 5.2 Scientific advisory boards, 5.3 Institutional funding rewarding performance, 5.4 Lower administrative burden and shift to outcome-oriented reporting processes	<ul style="list-style-type: none"> <li>Clearly explain the purpose of reforms and investments to beneficiaries, including desired spillovers</li> </ul>	<ul style="list-style-type: none"> <li>R2, (R5), (I6), (I7), (I8)</li> </ul>



# APPENDIX C: PSF RECOMMENDATIONS

PSF OPEN Key messages	(abbreviated) Subcomponents (30 recommendations)	Relevant recommendations from ToC exercise	Overlap with NRRP
<b>6. Provide a better environment for Human Resources</b>	6.1 simplification of evaluation and alignment of career advancement to EU practice, 6.2 Revised salaries, 6.3 Reform of doctoral students	<ul style="list-style-type: none"> <li>Ensure the 'human factors' of talent are considered consistently,</li> </ul>	R3, I8, I9, I10
<b>7. Establish a sound strategy for research infrastructure</b>	7.1 Coherent research infrastructure strategy aligned with priorities and promoting cooperation 7.2 Funding for investment, maintenance and operation, 7.3 Open access for all user groups	<ul style="list-style-type: none"> <li>Revive incentives for sharing of research infrastructure, in order to ensure that existing assets are properly used and available to the private sector</li> </ul>	(R2) (R5*)
<b>8. Foster public-private partnerships</b>	8.1 Stable financing for public-private cooperation, 8.2 3rd mission in academia and strengthened capacity of PROs to cooperate with business, 8.3 Effectiveness of intermediary institutions	<ul style="list-style-type: none"> <li>Increase focus on private sector initiatives in order to ensure RDI system is oriented towards end-users and economic impact</li> <li>Increase focus on technology transfer in order to ensure the economic impact of research is realised.</li> </ul>	R4, I5
<b>9. Provide more effective support for internationalization</b>	9.1 Sound, focused, evidence-based internationalization strategy, 9.2 Improved position of RO in comitology, 9.3 Shift towards professional and integrated NCP model, 9.4 Intermittent brain circulation models to attract foreign researchers	<ul style="list-style-type: none"> <li>Disseminate calls internationally</li> </ul>	R3 (R5*)
<b>10. Ensure a reinforced role of Cohesion Policy Funds</b>	10.1 Mobilise all resources to secure Cohesion budget for R&I, 10.2 Ensure coordination among OPs and with NRRP and National strategy, 10.3 Adapt forward looking approaches and program management, 10.4 Support and simplify requirements for applicants and beneficiaries	<ul style="list-style-type: none"> <li>Devote resource to reforms in order to ensure successful implementation</li> </ul>	(R2*)

\*previously identified in PSF report



# APPENDIX D. FEEDBACK FROM PARTICIPANTS

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# APPENDIX D: FEEDBACK FROM PARTICIPANTS

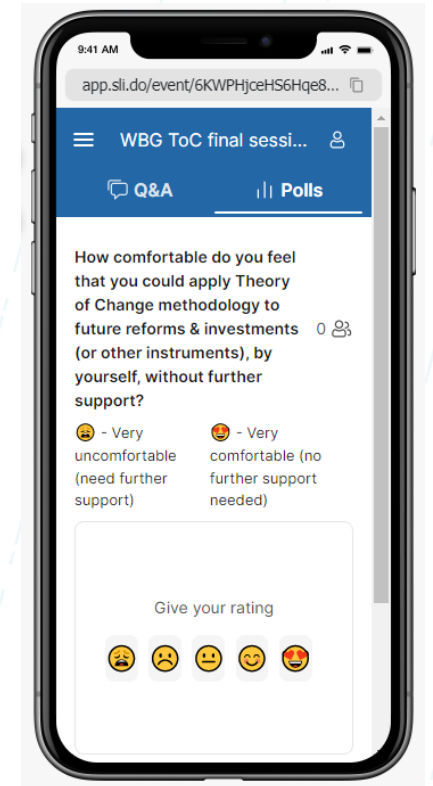
We asked participants for feedback concerning the workshops. Feedback was requested and provided anonymously via Sli.do, to encourage frank comments. Specifically, we asked:

(i) How comfortable do you feel that you could apply Theory of Change methodology to future reforms & investments (or other instruments), by yourself, without further support?

- 100% of respondents reported feeling 'comfortable' (i.e., level 4 out of 5) that they could apply ToC methodology to future instruments

(ii) Do you have any feedback for WB team about what worked well and what could be improved?

- "Open-mindedly and professional. Liked it"
- "Useful learning-by-doing experience, professional takeaways appreciated. Thank you!"
- "It helped us understand the logic behind I&R. Also I'm thinking to use ToC and Miro in my PhD thesis (if possible). Also the WB was very professional."
- "ToC Sessions are really helpful in order to understand better the mechanisms we are working on, helping us to improve the instruments."





# **APPENDIX E1. ADDITIONAL RECOMMENDATIONS FOR THE REFORM 2**

Shared with MCID's PSF unit 17.02.2023 commenting on the 3<sup>rd</sup> version of PSF Open document

Shared with MCID's PSF unit 17.03.2023 on Art 40

# APPENDIX E1.

## ADDITIONAL RECOMMENDATIONS FOR THE REFORM 2

### About Reform 2: Streamline governance of research, development and innovation

- **Objective:** to clarify and streamline the governance of the research, development and innovation system in Romania.
- **Description:** Regulatory modification to allow the creation of a new body with a decisional role for Research, Development and Innovation & Smart Specialization Strategy. [Specifically, R2 refer to "Entry into force of a Gov Ordinance establishing a single body that encompasses the existing councils, ensures inter-ministerial coordination and reaches out to the private sector".](#)
- **Budget & Status:** part of 3.43 €M, in progress.

### 1. Recommendations on Positioning of the new entity:

1. It would be beneficial to define whether (1) the current Committee for Coordination for Smart Specialization (CCSI) will be replaced by CNPSTI or (2) if the two bodies would co-exist. (see chart on next slide)

### 2. Relationship with stakeholders:

2.1 The current plan for CNPSTI should make clearer the CNPSTI – CCSI relationship and coordination with the RDAs (which are not represented at the ministerial level).

- Coordination with the RDAs is crucial for access to Cohesion Funds and it will be overseen closely by the EC during the whole programming period, as part of the enabling condition.

2.2 A suggestion to consider also other stakeholders especially Science Academy, but also e.g. Chamber of commerce, Diaspora, Regional authorities (.e.g because "The Council would also identify areas of synergy between programs (national-national, national-regional, regional-regional)

### 3. Technical Recommendations:

3.1 It would be fantastic to provide inputs for the Ministry to inform its decisions making on the **roles, responsibilities/mandate** (is it advisory or are decisions mandatory? Who will ensure enforcement?), **architecture/configuration** (e.g. will the member be paid? should it have its own apparatus and technical staff beside members?), **estimated resources** (who should be recruited, **development roadmap** (e.g. critical milestones with timeframe) **and operational mechanisms of the R&I Coordination Structure**

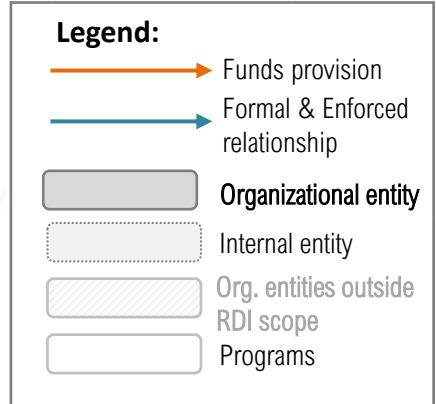
3.2. A suggestion to clarify whether council's role should be advisory. Or should monitor implementation of R&I. e.g. ""Among CNPSTI's obligations would be to ensure focus on the sectors priority in the Cohesion Funds budget" -

3.3. "Technical secretariat" should be very carefully clarified. In Romania, technical secretariat of interinstitutional councils acts almost always as a secretariat exclusively.

3.4 It is suggested that MCID would ensure coordination with other ministries. Why not the council itself since it's an interministerial body?

3.5. it would be good to define which "existing advisory bodies, agencies, honorary councils" would provide inputs - the ones under MCID or all other Ministries?

# APPENDIX E1. LACK OF COORDINATION FOR R&D FUNDING IN STI INSTITUTIONAL SETUP

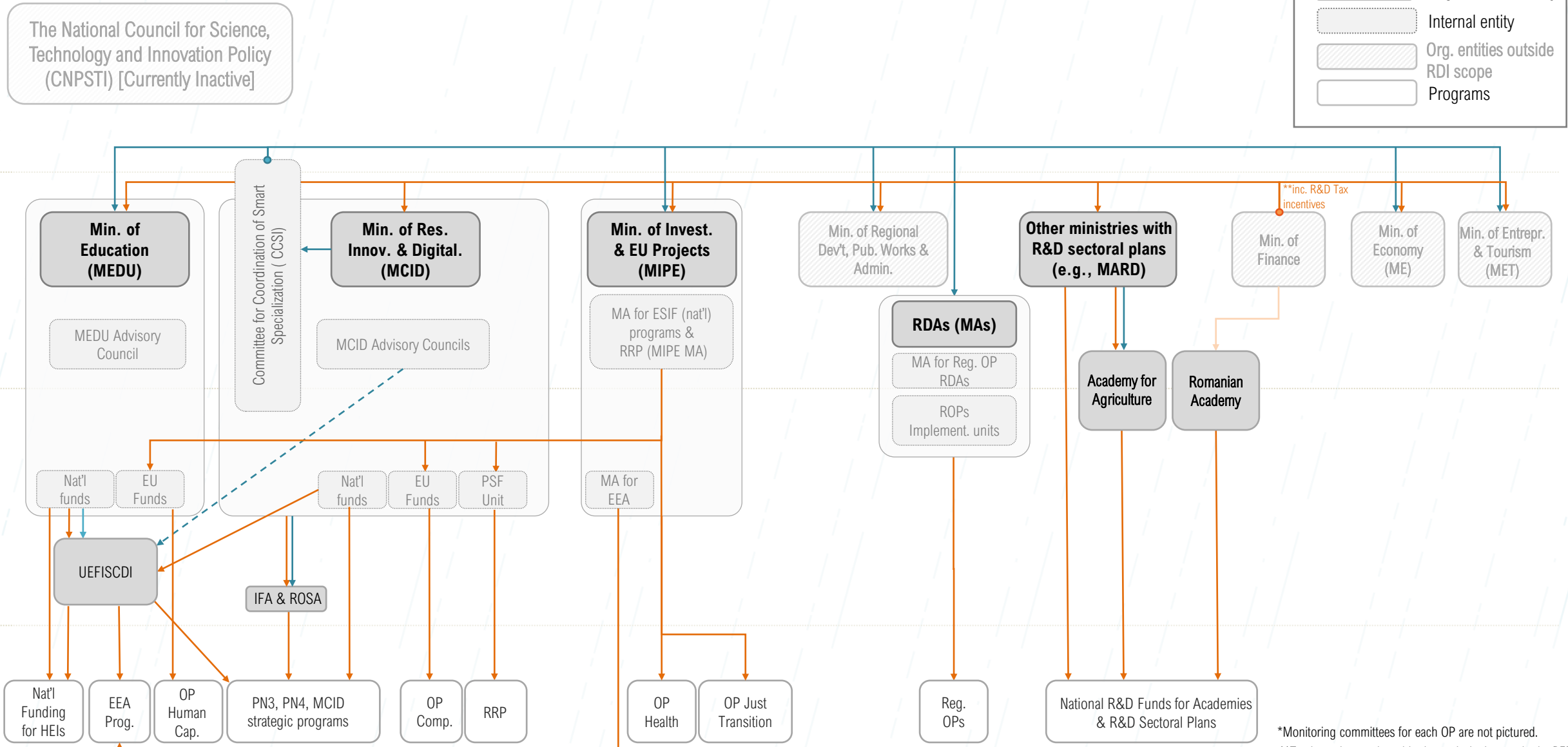


Strategy level

Policy-design level

Implementation level \*

Programs



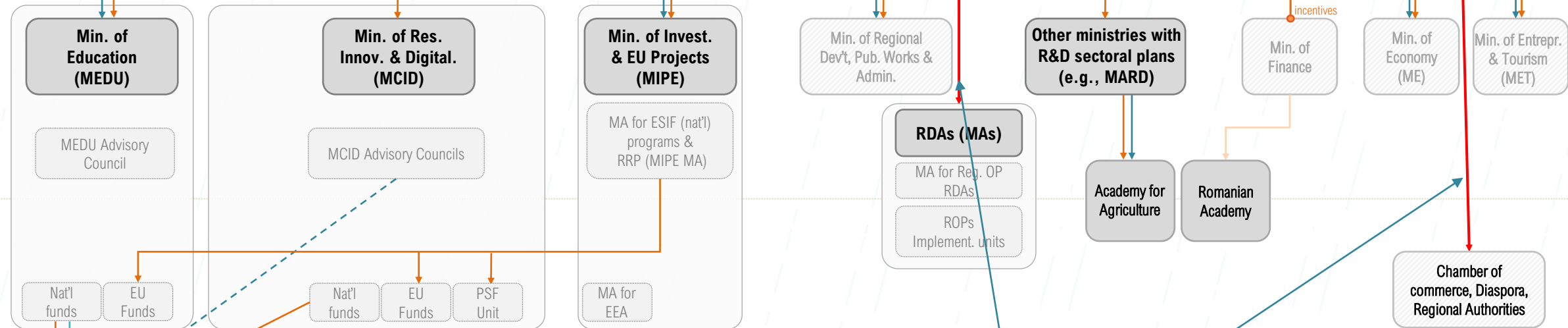
\*Monitoring committees for each OP are not pictured.  
 \*\*Tax incentives reviewed in the analysis, but not in the PER

# APPENDIX E1. CASE 1: MERGER OF THE CCSI & CNPSTI

Strategy level

The National Council for Science, Technology and Innovation Policy (CNPSTI) & Committee for Coordination of Smart Specialization (CCSI)

Policy-design level



**Legend:**

- Orange arrow: Funds provision
- Blue arrow: Formal & Enforced relationship
- Grey box: Organizational entity
- Dotted box: Internal entity
- Hatched box: Org. entities outside RDI scope
- White box: Programs

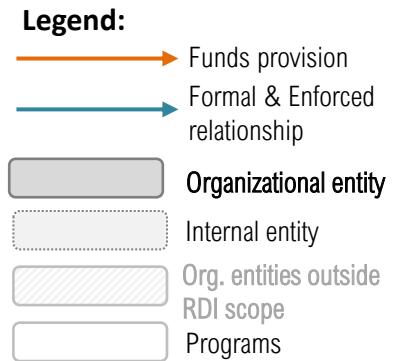
These relationships need to be clarified/established

Implementation level \*

Programs

\*Monitoring committees for each OP are not pictured.  
\*\*Tax incentives reviewed in the analysis, but not in the PER

# APPENDIX E1. CASE 2: CO-EXISTENCE OF CCSI AND CNPSTI

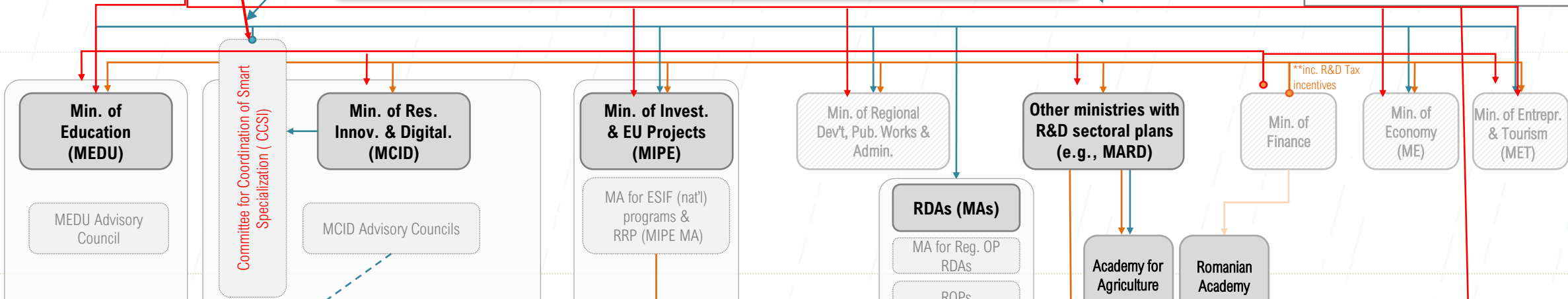


Strategy level

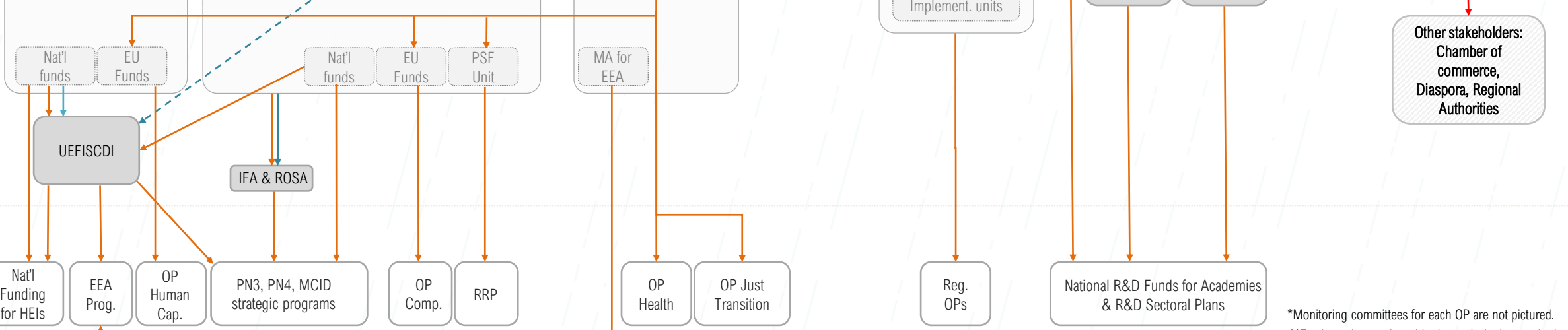
The National Council for Science, Technology and Innovation Policy (CNPSTI) [Currently Inactive]

This relationship need to be clarified/established & new relationships with the policy designing level to be created

Policy-design level



Implementation level \*



Programs

\*Monitoring committees for each OP are not pictured.  
 \*\*Tax incentives reviewed in the analysis, but not in the PER



# APPENDIX E1.

## ADDITIONAL RECOMMENDATIONS FOR THE REFORM 2

### 1. Proposed drafting of Art 40

(1) In view of establishing the priorities of the National Strategy, ensuring coherence and continuity in the implementation of the National Strategy and coordination with private sector bodies, the National Council for Science and Technology Policy shall be established and effectively implemented, without legal personality, as a decisional body of the Government in this matter, in the Chair of the Prime Minister.

(2) The National Council for Science and Technology Policy consists of a maximum of 12 members, which will include: the ministers responsible for research and development, education, finance, economy, and European funds, two representatives of the private sector holding relevant experience in the research, development, and innovation sector, out of which one with relevant start-up background, and a representative of the Regional Development Agencies. The Prime Minister and the designated ministers are ex officio members of the National Council for Science and Technology Policy. The other members of the National Council for Science and Technology Policy shall be appointed by a decision of the Prime Minister, based on the proposals of the minister responsible for research and development, for a 2-year mandate.

(3) The regulation on the organization and functioning of the National Council for Science and Technology Policy shall be adopted by a majority of the votes cast in its constituent meeting, based on the proposal of the state authority for research and development.

(4) The National Council for Science Policy will review the necessity, composition and mandates of each advisory body under the coordination of the state authority for research and development and under the coordination of the authority for education and will decide on adjustments to ensure an adequate and coherent advisory structure, including where necessary, the establishment of working groups gathering relevant state authority and/or other relevant representatives.

(5) The National Council for Science and Technology Policy shall submit to the Government, within a Government meeting, an annual report of activity that will be subsequently made available to the public.



# **APPENDIX E2. ADDITIONAL RECOMMENDATIONS FOR THE REFORM 3**

Shared with MCID's PSF unit 25.03.2023 commenting on the first draft of PSF Open experts

# APPENDIX E2.

## ADDITIONAL RECOMMENDATIONS FOR THE REFORM 3.

### COMMENTS ON IMPLEMENTATION OF RECOMMENDATION 6.1

#### About Reform 3: Reform of research career

- **Objective:** to increase the attractiveness of the research career and the performance of researchers.
- **Description:** detailing KPIs to evaluate performance of Romanian researchers and to detail standards for 'good conduct in scientific research' for better access to funding and scholarships.  
**Recommendation 6.1:** Career path and evaluation of human resources in the research system
- **Budget & Status:** part of 3.43 €M, in progress.

1. **Perspective:** Both documents are largely written from a university perspective. There needs to be a stronger recognition that the HR needs of a university are not always the same as the RDIs. For example, RDIs can benefit from a career path in program / project management while this is generally less critical in a university.
2. **Good first step:** Simplify the evaluation of human resources and align conditions for career advancement to those implemented in other EU countries. Individual career plans should be agreed with institutions, and researchers should be held accountable against their own development plans.
3. **Good:** Using KPIs, merit-based principles, transparent, open, and competitive procedures. Using financial and non-financial incentives.
4. **Good:** Using same career advancement framework across all researchers, independently from the type of institution. While we agree in principle, the criteria within the framework will need to address the differences in expected outcomes for basic research, applied research, technology development, and innovation.
5. **Expected Results:** Addresses attracting high performing researchers to academia. Also need to address attracting them to the RDIs. What attracts researchers to academia is different than what attracts them to research institutions. **Good:** Addresses attracting researchers from abroad – and hopefully includes repatriating Romanians and others from Eastern European countries working abroad.
6. **Agree with Content of Measure 1.** Reform of CNATDCU. Need to move beyond simple citations and bibliometrics and move towards work across disciplines, securing research funding, providing senior leadership, and mentoring, etc.
7. **Benchmarking Box 1:** Needs to address RDIs as well as universities. Much of this needs additional detail – based on benchmarking results, not just the benchmarked RDIs.
8. **EU Framework:** Looks to be a sound approach.
9. **Proposal:** Appears reasonable (i.e., no need of accreditation to access a position).
10. **Phase 3:** Maybe too much focus, again, on university terminology. Need to add levels (may be the same as universities) and recognize that criteria are different for RDIs.
11. **Measure 4:** Design a mechanism for the potential integration into the Romanian R&D system of researchers. **Need to potentially include a longer timeline – 3 years is likely to be short. Need to have a common system within an RDI – the write-up proposes two different systems (as to not disrupt). This entire section needs much more thought.**

# APPENDIX E2.

## ADDITIONAL RECOMMENDATIONS FOR THE REFORM 3.

### COMMENTS ON IMPLEMENTATION OF RECOMMENDATION 6.2

#### About Reform 3: Reform of research career

- **Objective:** to increase the attractiveness of the research career and the performance of researchers.
- **Description:** detailing KPIs to evaluate performance of Romanian researchers and to detail standards for 'good conduct in scientific research' for better access to funding and scholarships.  
**Recommendation 6.2:** Clarify and realign the conditions and incentives in the salary and other remuneration for human resources in PROs and HEIs
- **Budget & Status:** part of 3.43 €M, in progress.

1. **Good.** Provide reasonable income guarantees to researchers and ensure fair treatment.
2. **Need to address RDIs as well as universities.** This document recognizes that but does not include Romanian data or data from European benchmarks.
3. **Decisions to be taken for implementation.** This is a good list – but it needs to have a framework where salaries are tied to job level as well as to performance. For example, a Scientist I job category had a salary range of XX – YY. We hired them at the beginning of that range. Their promotions and raises were then based upon merit-based performance and taking on additional responsibilities. Promotions were based on taking on the job responsibilities of the next level – and their career plan.
4. **Types of incentives:** Need to have annual performance evaluations (rather than every 5-6 years).
5. **Linked to Department or Institute Performance:** Organizational KPIs should roll down to individual KPIs – and the Institution should be measured along with the individuals.
6. **Revision of Salaries:** Need to benchmark against other countries – and then to adjust to Romanian economy and the researchers' level of responsibility. Years of experience do not correlate to level of responsibility and merit-based performance.
7. **Measure 2:** Design of Incentives: Need to recognize that targets and goals set at the national level are the foundation for each university's and each RDI's 5-year strategic plan. These strategic plans should set forth the goals and targets for these institutions – and the researchers KPIs flow from the goals and targets of the institute.



# **APPENDIX E3. ADDITIONAL RECOMMENDATIONS FOR THE REFORM 5**

sent to MCID, Oct 6, 2022

# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

## About Reform 5:

Support to integrate the RDI organizations in Romania into the European Research Area

- **Objective:** to increase the performance and consolidation of the public research, development and innovation organizations in Romanian and their integration into the European Research Area.
- **Description:** The new legislative framework includes a periodic external evaluation of all R&D institutes in Romania, provision of access to non-/financial support for RDI organizations, digitalization of procedures, evaluation of large public RDI projects and deliverables (greater than 0.5 €M) by internationally recognized researchers.
- **Budget & Status:** part of 3.43 €M; the law was adopted; work in progress to define the criteria for RDI entities assessment.

## 1. Overall Comments:

- We acknowledge the importance of institutional reforms and recognize the ambitious activities embedded under Reform 5 Draft Law. As you may know, our recent 'Logic Model' workshops conducted with members of the PSF Unit proposed a focus on improving research excellence and relevance of RDIOs as a driver of increased socio-economic impact in Romania. Please refer to Reform 5: Original Logic Model appended to this note for a consideration of the output of the logic model exercise. We are very encouraged to see these foundational principles codified in the Reform 5 Draft Law.
- We would, however, like to highlight that institutional reform is a long-term and resource-intensive process. **It is essential that Reform 5 is not seen as a 'one-off' reform, but rather as the start of an ongoing process.** This process will require integration with the other reforms and investments, continuous support from the Romanian authorities, and a significant human resource and funding envelope for the next 5 to 10 years, depending on the adopted pace of the RDI sector reform.
- Importantly, given the challenging nature of such reforms, the long-term sector-wide program would ideally be informed by the pilot activities with 5 RDIOs that the World Bank will support under the forthcoming Reimbursable Advisory Service (RAS) engagement. This would allow to both trial existing international practice and tailor the design features of a sector-wide reform program for Romania.
- To this end, we provide a series of specific comments backed up by graphical illustrations in the flow diagrams appended below.

# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

## COMMENTS REGARDING THE REFORM 5 DRAFT LAW (1/4):

### ***(a) Reserve flexibility to define implementation details beyond the Law***

- We endorse framing the reforms in terms of the broad principles and recommend that details of implementation are defined via by-laws and other secondary or tertiary decrees/legislation (Minister orders, etc.).
- There are, however, several places where the Reform 5 Draft Law remains prescriptive (e.g., in terms of specific numbers of individuals in the Evaluation Commission or time periods for application to an evaluation process), and where it may be beneficial to reserve the flexibility to change this, especially, based on experiences from the pilot interventions under the RAS.
- One suggestion would be to **use more general language that can be defined and adjusted later via more flexible rules and/or decrees or legislation.**

# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

## COMMENTS REGARDING THE REFORM 5 DRAFT LAW (2/4):

### ***(b) Ensure Diversity for Stronger Outcomes: Strengthen the Evaluation Commission & Expert Teams by including international and private-sector representatives***

- The Draft Law currently envisions engagement of an **Evaluation Commission** that will oversee the evaluation process of all 252 RDIOs with the objective of determining their respective classification into Class I, II, or III organizations. The Evaluation Commission is also meant to oversee the deep dive assessments of interested RDIOs by teams of 3 international experts (“**Experts**”), leading to the preparation and eventual implementation of Transformation Plans.
- At present, the Reform 5 Draft Law provides that the Evaluation Commission will make use of, but not necessarily directly be composed of, international experts. We suggest that, in addition to relying on the support of additional experts, the Evaluation Commission itself should directly include international members and private sector representatives, to ensure that international best practices are applied by the Commission and the overall scope of pursuing both research excellence and industrial and relevance in the Reform 5 Draft Law is achieved.
- Furthermore, **we suggest that the 3-person Expert teams include research sector expertise, institutional organization / management transformation expertise and translational expertise necessary to transfer research results from the RDIOs to the private sector and society.** This would be aligned with good practices of management are properly embedded within the process and the final goal of transferring the research results of the RDIOs into the private sector is taken into consideration in the preparation of RDIO Transformation Plans.
- We understand that the Evaluation Commission will make decisions based on information provided by the Experts, and that the Evaluation Commission will be ultimately responsible for the classification of RDIOs. However, our reading of the Reform 5 Draft Law leaves the distinction between Commission members and the Experts, on whose opinion the Commission will draw, insufficiently clear.  
**Therefore, we recommend amending the relevant articles to ensure clarity in this regard.**
- We have also been unable to determine why the **Evaluation Commission** is composed of 21 members and we would welcome understanding the rationale for the proposed number. While this may be driven by political economy considerations, **please consider reducing these numbers with more resource being directed towards Experts who will be conducting the deep-dive reviews and preparing Transformation Plans of institutions.**



# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

## COMMENTS REGARDING THE REFORM 5 DRAFT LAW (3/4):

### ***(c) Optimize Use of Public Resources: Make Transformation Plans optional and open to all***

- Our reading of the Reform 5 Draft Law is that Transformation Plans are currently compulsory for all Class III organisations. We strongly endorse the principle of voluntary integration, as opposed to compulsory consolidation. In our experience, such voluntary reforms yield results that better serve as demonstration for other RDIOs to engage in the process. **Therefore, we suggest that the Transformation Plan should not be compulsory but be made voluntary for all Class III RDIOs to avoid the stigma and “labelling” associated with such mandatory processes.** This would also reduce inefficient efforts with scarce public resources in RDIOs that are resistant to reform. Notwithstanding the above, sufficient resource should, however, be reserved for all Class III organizations to go through a Transformation Plan, if they so elect. And we believe that the current threat of becoming ineligible for public funding, embedded in the Reform 5 Draft Law, creates sufficient incentive for a high number of Class III RDIOs to opt into the voluntary process of deep dive assessment and Transformation Plan implementation.
- In addition, **we further suggest opening Transformation Plans to some Class II and Class I organizations that may request this.** We consider it likely that there will be some RDIOs within all classes that wish to improve and would benefit from external assistance in developing such a plan. In addition, opening the Transformation Plan process to Classes I and II is likely to produce valuable demonstration effects of the transformation process and increase voluntary uptake by other RDIOs. We recognise that this will increase the resource envelope required, but believe that this is a more effective and sustainable pathway, based on our experiences of performing reform processes in other post-transition economies.

# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

## COMMENTS REGARDING THE REFORM 5 DRAFT LAW (4/4):

### ***(d) Ensure adequate incentives for Consolidation***

Much of the Reform 5 Draft Law relates to the proposed consolidation of RDIOs either through consortia or mergers. **We wish to emphasise the importance of allocating appropriate and sufficient incentives for such consolidation between RDIOs of different classes.** Without these, we believe that it is very unlikely that Class I RDIOs will see any incentive to partner with Class II or III RDIOs. We note that the current Reform 5 Draft Law does not specify the incentives for such consolidation, but rather indicates that these will be announced in due course. This indeed retains flexibility for the development of such incentives. **However, it will be important, for the incentives for consolidation to be announced before the deadline for evaluation applications** so that the RDIOs have sufficient time to understand the process and decide upon it, and for these incentives to be sufficiently sizable to incentivise consolidation. It is also advisable that resources be made available for matchmaking activities between RDIOs as these processes often need to be animated in the initial phases of reform implementation to ensure transparency and build credibility for the process.

# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

## COMMENTS REGARDING THE IMPLEMENTATION OF REFORM 5 DRAFT LAW:

The following comments relate to the implementation or broader purpose of the Reform 5 Draft Law:

### ***(a) Allocate appropriate resources***

The proposed RDIOs' evaluation and classification will be resource intensive. Based on similar exercises in other post-transition countries, we roughly estimate €75 million for an exercise with 252 RDIOs. This preliminary envelope would accommodate the sector wide self-reporting evaluation and classification process, deep dive assessments of RDIOs, development of Transformation Plans, and support Transformation Plan implementation. At present, it is unclear how this process will be resourced, and we would welcome and encourage a discussion in this regard.

### ***(b) Require Annual Self-reporting in the Performance Evaluation of RDIOs***

We note that Article 11.4 of the Reform 5 Draft Law requires annual reporting of various metrics by consortia. However, we have not seen such requirement referred to in connection with all RDIOs. We strongly recommend that such annual reporting be required of all RDIOs receiving any public funding. Not only is this in line with international good practice, and a foundational element for evidence-based policy making, but it will also simplify this and future rounds of classification. Although we acknowledge that there will undoubtedly need to be some expert judgement involved in the evaluation and classification of RDIOs, we suggest placing strong emphasis on the self-reporting of data by RDIOs. This will reduce costs and increase efficiency overall. We can assist in providing examples and comparable processes and costs from other countries.

# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

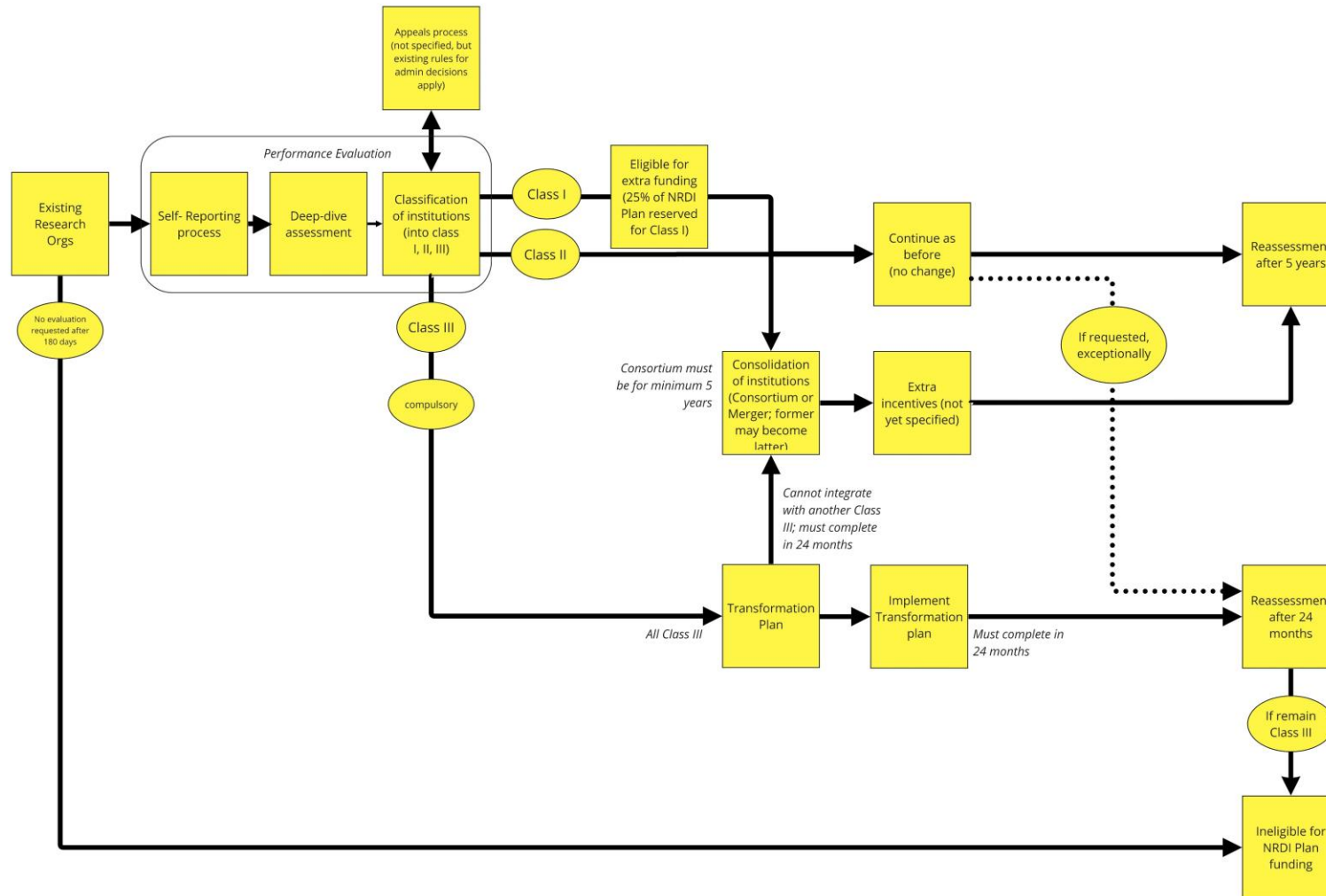
## COMMENTS REGARDING THE IMPLEMENTATION OF REFORM 5 DRAFT LAW:

### ***(c) Develop exit strategies for non-performing RDIOs***

It is our understanding that RDIOs that remain Class III after the implementation of a Transformation Plan, or that fail to implement the Transformation Plan within 24 months or do not apply for an evaluation in a timely manner, will become ineligible for RDI Plan funding. We suggest that some consideration be given towards developing an 'exit strategy' for these organisations given that their ineligibility for RDI Plan funding is likely to make most of them unsustainable. Such a strategy might, for example, include processes for transitioning from public research organisations into private research companies. We do not believe that it is useful or necessary for this to be specified in the Reform 5 Draft Law at this time. However, we wish to raise this as a topic for your consideration in future phases of Reform 5.

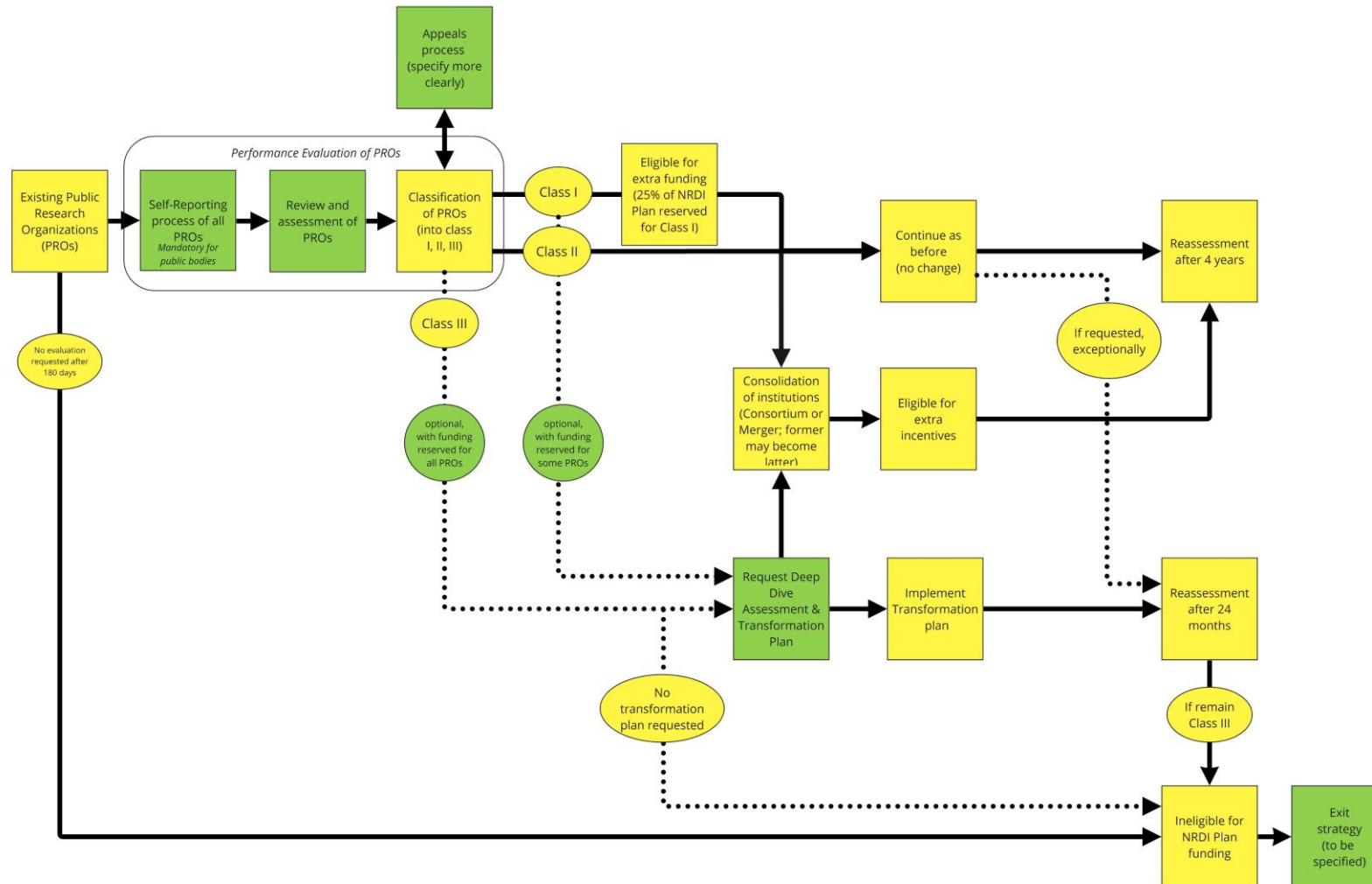
# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

CURRENTLY PROPOSED LAW



# APPENDIX E3: KEY RECOMMENDATIONS FOR THE REFORM 5

## WORLD BANK SUGGESTIONS TO THE PROPOSED LAW





# **APPENDIX F: ADDITIONAL RECOMMENDATIONS FOR BENEFICIARIES' GUIDELINES**

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# APPENDIX F: ADDITIONAL RECOMMENDATIONS FOR BENEFICIARIES' GUIDELINES (1/4)

The World Bank provided in 03.2023 specific recommendations to Reform 5 to beneficiaries' guidelines in methodologies 1, 3, and 5. At the end of March, methodologies 2, 4, 6 and 7 were not yet ready. The following slides describe key inputs.

## **Suggested re-write of article 3, chapter 3, methodology 1.**

- (1) Individuals must meet the following eligibility conditions to be members of the team of expert evaluators:
  - a) Hold a doctorate and the position of professor/associate professor or senior research scientist with both extensive experience in R&D project management and a strong record of journal publications and applied R&D and innovation;
  - b) Senior R&D leaders with extensive experience in various aspects of managing complex R&D organizations;
  - c) Have participated in at least 2 evaluations on different European/international programmes and/or European/international research organizations;
- (2) The criteria specified above in Art 3 (1) are not cumulative.
- (3) Persons may not be independent assessors if they:
  - a) Are defendants;
  - b) Have a final criminal conviction for which there has been no legal rehabilitation or judicial outcome;
  - c) Have dignitary status;
  - d) Have been sanctioned for deviations from the rules of good conduct in scientific research as defined by them in Law No. 206/2004 on good conduct in scientific research, technological development and innovation, as subsequently amended and supplemented;
  - e) Are members of the governing bodies of a political party;
  - f) Are members of another advisory body of the MCID;
  - g) Have the status of a Securitate worker or collaborator, established by a final court decision.



# APPENDIX F: ADDITIONAL RECOMMENDATIONS FOR BENEFICIARIES' GUIDELINES

## **Suggested re-write of article 10, chapter 3, methodology 1.**

- The first stage of the evaluation will be a self-assessment. This self-assessment procedure will use the same evaluation criteria as will be used by the expert working group. The self-assessment process will be organized and monitored by the Evaluation Commission. The Commission will provide the research organization with all relevant information and forms to complete the self-assessment review.

## **Suggested re-write of article 1, chapter 4, methodology 1.**

- (1) The following are the general evaluation criteria for the performance evaluation of the RDI organizations:
- I. Technological development, innovation, and digitization activity
  - II. Research results and their level of national and international acceptance
  - III. Governance, management and institutional capacity
  - IV. Socio-Economic and financial performance and impact
  - V. Human resources and financial resources and management
  - VI. Collaboration with other R&D stakeholders, universities, private sector and abroad
  - VII. Success and ability to attract competitive external funding both from within Romania and abroad
  - VIII. Quality of strategic development plan for the next 5 years.

Detailed performance evaluation criteria within these higher-level criteria will be developed and customized based on the type of RDI under evaluation (e.g., basic science, applied science, social science). The Evaluation Commission will be responsible for the further development and customization of the criteria to RDI categories and ensuring a consistent evaluation process across the RDIs.

# APPENDIX F: ADDITIONAL RECOMMENDATIONS FOR BENEFICIARIES' GUIDELINES

## Suggested re-write of article 1, chapter 4, methodology 1.

(2) The performance indicators associated with the evaluation criteria for research organizations, listed below, are provided for in Art 7. of Ordinance No. 57 of 16 August 2002 on scientific research and technological development, from which accredited state higher education institutions are exempted. The final evaluation criteria and their sub-criteria for the purposes of evaluation and scoring will be established by the Evaluation Commission.

I. For Criterion A, Development, innovation, and digitization activity, will be related to the productivity of the R&D activity in relation to the resources available (i.e., the funding received by the research organization), as well as the degree of digitization, and will take into account the originality, importance and accuracy of the research results in relation to the highest quality standards in the field. Specific examples of how performance related to this criterion may be measured include:

- a) Number of patents obtained at national and international level
- b) Number of patent filed (national/international)
- c) Level of digitization of the institution (e.g., number of licenses, number of new computers, in relation to number of employees)
- d) Number of enterprises that have introduced a product / service innovation through collaboration with the DC organization
- e) Number of participations in international fairs / exhibitions
- f) Investments in RDI infrastructures of European or regional interest located in Romania (in RON/value share attracted through co-financing in total investment)
- g) Number of products and technologies resulting from research activities based on own approvals or innovations (e.g., products sold, amounts received)
- h) Number of utility models
- i) Number of registered trademarks
- j) Number of spin-off companies set up

# APPENDIX F: ADDITIONAL RECOMMENDATIONS FOR BENEFICIARIES' GUIDELINES

## Key comments to M3 and M5:

- The role of the Evaluation Commission in customizing the evaluation criteria for groups of RDIs (e.g., basic research, applied research, social science).
- The role of the Evaluation Commission in clarifying the scoring process — defining what a 5 means, for example, so that different teams of RDI evaluators come up with scores that are reasonably consistent across the RDIs.
- The role of the Evaluation Commission in designing and supporting the RDI self-assessment process (they will need guidance and a template, for example).
- Ensuring that the selection process for the expert evaluators is focused on picking people with the needed expertise.
- Ensuring that the selection process for the Evaluation Commission is focused on picking people with the range of needed backgrounds and expertise.

Detailed comments shared on 25.03.2023 as edits in the word documents.



Finanțat de  
Uniunea Europeană  
NextGenerationEU



Planul Național  
de Redresare și Reziliență

Should you need any more information, kindly contact project task team leader Łukasz Marć [lmarc@worldbank.org](mailto:lmarc@worldbank.org)

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