TECHNICAL SUPPORT INSTRUMENT

OECD SUPPORT TO

IMPROVING THE GOVERNANCE MODEL OF THE RESEARCH AND INNOVATION SYSTEM IN SLOVENIA

Improving the Governance Model of the Research and Innovation System in Slovenia

Synthesis

DG REFORM/OECD Contribution agreement REFORM/IM2022/006

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Executive summary

The document outlines a comprehensive framework for enhancing research and innovation (R&I) governance in Slovenia, aimed at supporting policymakers in the ongoing STI governance reform process. It presents diagnostic findings, international best practices, and targeted recommendations for improving Slovenia's R&I system. Key areas of focus include the establishment of a robust governance model, fostering a culture of collaboration across sectors, enhancing strategic policy intelligence, ensuring consistent and reliable funding for innovation, and building capacity for effective R&I governance. The recommendations are designed to address identified gaps, such as the need for better coordination and strategic alignment across government and with EU funding priorities, strengthening the role of agencies and ministries in strategic tasks, and promoting a culture of experimentation and innovation. The document also emphasizes the importance of engaging stakeholders throughout the reform process and building the necessary skills and resources to support the implementation of reforms.

1. Foreword

This note presents the main results of the TSI project 'Improving the governance model of the research and innovation system in Slovenia'. The project is funded by the European Union via the Technical Support Instrument and implemented by the OECD, in cooperation with the European Commission. It is a cooperation between DG REFORM, OECD and the Government of Slovenia.

The document synthetises the detailed notes prepared along the projects, available as separate documents:

Output 1: Diagnostic of R&I governance; Output 2: International R&I governance good practices; Output 3: Recommendations and implementation guidelines for improving R&I governance; Output 4: Guidelines for developing and maintaining capacity; Output 6: Guidelines for developing and maintaining capacity. Output 5 consisted of several workshops run online and in person in Slovenia. The team performed three missions in Slovenia over the course of the project.

Slovenian stakeholders have actively participated in this project and in the production and discussion of its results. OECD and DG Reform are grateful for this support!

2. Introduction

Context

Better coordination of the different actors of the Slovenian R&I system is key to encouraging investment, increasing competitiveness and achieving sustainable economic and social growth in a world increasingly characterised by uncertainty, volatility, ambiguity and complexity. Sound R&I governance is particularly important for ensuring the effectiveness, consistency, and continued relevance of significant investments in the current period of implementation of Slovenia's post-pandemic resilience and recovery strategies and complex societal challenges.

Against this backdrop, Slovenia has engaged in significant reforms to improve the governance of its R&I system. These reforms build upon the diagnostics established in several past studies and are made possible in great part by the funds awarded by Slovenia as part of the National Recovery and Resilience Plan.[1] To date, they have consisted in a new legal basis (the RDI Act) and a national RDI strategy (ZRISS) that comprised an ambitious of measures. These were supported by significant structural changes, notably the establishment of a Development Council with a broad strategic advising and monitoring mandate and a cross-government Programme Committee to supervise and monitor the implementation of the new R&I measures. At the same time, the ministries and agencies were restructured, with a view to better coordinate research and innovation policies.

Objectives

OECD is supporting Slovenian authorities in the implementation of these reforms and the strengthening of the related national R&I institutional and administrative capacity with financial assistance from the DG Reform of the European Commission.

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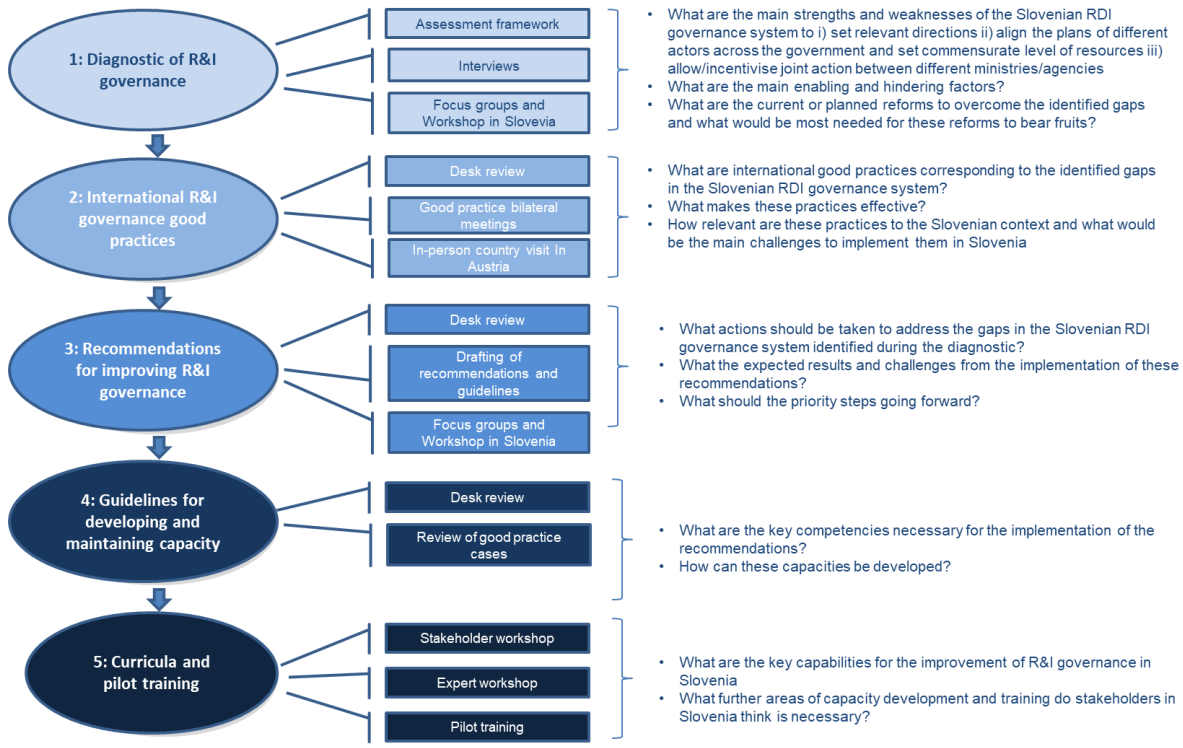
[1] The RRP consists of 58 investments and 34 reforms, amounting to EUR 1.49 billion in grants and EUR 705 million in loans, representing 3.7% of the GDP.

The project aims to inform and support an impressive wave of reforms of the R&I structure of governance, which creates an unavoidable 'moving target' challenge. This challenge was resolved by maintaining close contacts with the stakeholders engaged in these reforms, with numerous contacts with the Slovenian 'project team' as well as online and in-persons meetings and workshops involving a broad array of R&I actors and beyond. This challenge was turned into an opportunity as the project impacted on the governance changes 'in real-time'.

One remarkable feature of this project is that it covers the whole 'intervention chain'. Building upon a broad awareness of the issues at stake based on an informed diagnostic the current Slovenian R&I governance structure, the project includes a benchmark of international governance good practices relevant to the identified gaps, the development of ensuing recommendations and implementation guidelines and, finally, the provision of a curricula of the skills necessary to implement on-going and future reforms related to OECD prescriptions (Figure 1). Desk review, template-based survey, meetings, interviews, peer exchanges with representatives of international case studies and focus groups and workshops with stakeholders in Slovenia have been carried out throughout the course of the Project from 16 September 2022 to 16 February 2024.

Figure 1. Illustration of the project's main steps



Analytical framework

The assessment, benchmarking and prescriptive activities are underpinned by a dedicated analytical framework assessment. R&I governance being multifaceted, multi-level and intersectoral, this framework

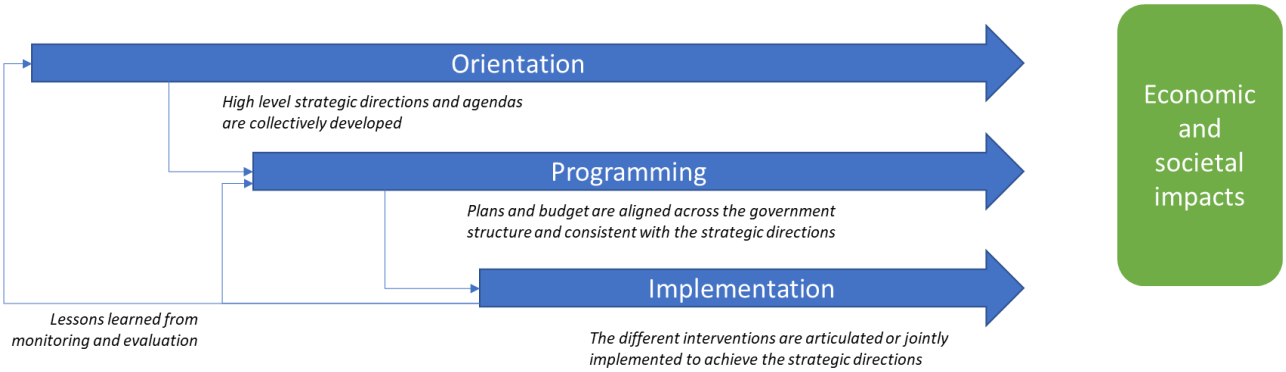
is helpful as both a map to investigate its different components as parts of a whole and a compass to set reform directions in close interaction with Slovenian authorities and stakeholders.

R&I governance is defined in this project as follows:

> R&I governance is the set of formal and informal arrangements and mechanisms to set and align goals, allocate and manage resources as well as assign and exercise public decision-making authority with regard to research and innovation activities, across the government and with stakeholders.

Building upon this definition and based on previous assessments and analyses of national systems, three main functions of governance are distinguished. The three functions ensure, as much as possible and when relevant, a whole-of-government approach to govern the contribution of R&I to economic and societal impacts (see Figure 2).

Figure 2. The three main functions of R&I governance



For each function, Table 1 presents the desired ideal state and criteria that, in combination, serves as reference for the assessment. The framework is kept relatively general in order not to be over prescriptive and accommodate the different ways in which these functions can be carried out, in relation to the Slovenian institutional specificities.

Table 1. Desired ideal state and assessment criteria by governance function

Function	Ideal state	Assessment criteria
Orientation	Strategic policy directions should clearly define the desired end points at different time horizons to concretely guide public action. They should have strong political backing and their definition should draw on the expertise, interests and values of a broad range of stakeholders, possibly citizens. They also factor in knowledge about possible futures so that alternative directions and their potential impacts are explored. While being flexible to adapt to new conditions and evolving consensus they should be stable and robust, extending beyond political terms to address ambitious and long-term challenges	Directionality Clarity and measurability Political legitimacy Participatory Relevance Continuity Anticipatory
Programming	The high-level directions set through *Orientation* should be taken up in ministry and agency plans. These plans should be aligned across policy sectors (and therefore administrative boundaries) and levels of government (national, subnational, etc.) in order to minimise duplications and set the ground for joint action of different policy and regulatory authorities. They should also allow the coordination of policy experimentations. Based on the results of monitoring activities and other information (for example, anticipatory knowledge from foresight exercises), the plans should be revised	Directionality Continuity Intersectoral consistency Resourced Accountability

	regularly.	
Implementation	The objectives and rationales of the different policy instruments are clearly linked to the high-level strategic frameworks and the different ensuing ministry and agency plans. These instruments realise their respective goals but also, when relevant, contribute together to systemic objectives. In some cases, they can be articulated or even jointly managed and implemented. The results of their monitoring and evaluation feed into decision-making processes. There are mechanisms, regulations and 'safe spaces' in place to allow the experimentation of novel approaches.	Directionality Integration Accountability Reflexivity Novelty

3. Diagnostic of R&I governance in Slovenia

The diagnostic is structured along the three main functions of governance as defined in the analytical framework:

Orientation: Collectively developing R&I strategic agendas in Slovenia

In spite of increasing clarity around goals for R&I, there is no integrated strategy and some inconsistencies are apparent.

Achievements	Limitations and challenges
✓ New comprehensive and bold national R&I strategy ✓ Several strategies have clear objectives with targets, milestones and baseline values ✓ Stability for strategic orientation has been improved by the presence of long-term (10-year) strategic plans.	✓ Fragmented strategic framework with an overly broad range of priorities ✓ No strong sectoral strategies and roadmaps

Political backing has been strengthened, but there remains a perception that practical engagement of politicians in R&I policy issues may be lacking.

Achievements	Limitations and challenges
✓ Newly established Development Council as the highest strategic body, attended by ministries and high-level stakeholders ✓ R&I is seen as higher in the policy agenda of the current government	✓ Perceived lack of political engagement in R&I policy issues

While R&I strategies have been informed by broad participation, there are few opportunities and mechanisms for cross-government strategic steering.

Achievements	Limitations and challenges

✓ The national R&I strategy was supported by broad consultations ✓ The development of the S4 and its recent revisions was the occasion of significant and broad consultations, in accordance with the Entrepreneurial Discovery Process.	

Existing relationships could provide information for strategic orientation to anticipate and adapt to new conditions, but there is a lack of systemic analytical support.

Achievements	Limitations and challenges
✓ The implementation of the S4 in each priority area is supported by SRIP participation ✓ The SRIPs help produce area-specific knowledge and information ✓ Support from the Chamber of Commerce. Various initiatives (workshops, surveys, studies, brainstorming) feed into their policy and system recommendations	✓ Lack of an established system for analytical support for strategic orientation, including anticipatory approaches

> *This diagnostic points to the following needs for improving strategic orientation:*
>
> - *Better integrate strategic frameworks*
> - *Establish the operational procedures and formal role for the Development Council*
> - *Ensure the continuity and quality of analytical and operational support to the Development Council*

Programming: Aligning R&I plans and budgets across the government structure in Slovenia

While the RDI Act and ZRISS include many reforms designed to improve coordination, longstanding challenges may hinder vertical and horizontal alignment.

Achievements	Limitations and challenges
✓ The 2021 RDI Act and ZRISS include a number of reforms that aim directly to improve the whole of government coordination of the R&I policies ✓ Recent improvements in coordination to respond to sustainability transitions.	✓ A lack of experience and dedicated mechanisms for thematic funding limits possibilities for R&I to reflect high-level directions ✓ Mindsets and culture in politics and public administrations hinder interministerial coordination ✓ Little dedicated staff and resources for research and innovation matters in sectoral ministries

	✓ Research and innovation activities not perceived as part of sectoral administrations' mandate ✓ Agencies have been confined to an execution role

Fragmented and unpredictable funding, in particular for innovation, has resulted in a reduction in trust among innovation actors and weak coordination and continuity.

Achievements	Limitations and challenges
✓ Gradual increase in R&I funding to reach an investment of at least 1 % of GDP (annual increase of 0,08 % of GDP)	✓ Research and innovation support actions are funded from two distinct budgets, with different funding sources, limiting the possibility to create joint actions and integrate the policy instruments to support projects throughout the innovation chain. ✓ Research and innovation support actions are characterised by their lack of continuity. ✓ Funding instability

> *This diagnostic points to the following needs for improving programming and coordination:*
>
> - *Foster a cross-sectoral collaboration culture within public administrations (ministries and agencies)*
> - *Embed R&I objectives, funding and capabilities in sectoral ministries*
> - *Establish integrated strategic framework and instruments in priority/challenge areas*
> - *Improve the governance, mandate and resources of agencies so that they become strategic partners of ministries*
> - *Enhance the stability and predictability of calls and other innovation support measures*
> - *Secure R&I funding on a multiannual basis*

Implementation: making R&I policy interventions and reforms effective in Slovenia

Changes to the funding of research institutes and universities may open the possibility of leveraging their capabilities to implement government priorities

Achievements	Limitations and challenges
✓ Changes in university funding through RDI Act empower governing structures to strengthen top-down strategic initiatives in universities	✓ Capabilities of universities and research institutes are currently used by the government in an ad hoc way

The creation of a new agency for R&I has the potential to improve coverage and coordination across TRLs, but the ensuing disruption to the status quo will require careful management

Achievements	Limitations and challenges
✓ New R&I agency can improve the consistency of measures ✓	✓ Cooperation between agencies has been scarce ✓ Funding gap in TRL 4-6, which is an essential 'pivot stage' in the innovation chain ✓ The division of responsibilities and mandates following the restructuring of agencies is still unclear and will require careful communication with R&I stakeholders

Capabilities and expectations for experimentation, monitoring and evaluation must be expanded in order to generate useful information for decision-making across R&I governance

Achievements	Limitations and challenges
✓ The 2021 RDI Act sets out changes to the evaluation of research institutions, universities and programmes to prioritise scientific excellence and social impact as qualitative measures	✓ No overall monitoring of R&I policy measures and their effects ✓ Limited monitoring and evaluation offer few opportunities for systematic policy learning or reorientation based on information generated through these ✓ High level of risk-adversity in public administrations and the absence of safe spaces for policy pilots (i.e., test beds and the like)

These diagnostic points to the following needs for improving implementation and joint action:

- *Set up the formal rules and procedures for internal allocation of basic funding within research institutions*
- *Strengthen top-down strategic leadership and strategic management capacity in research institutions*
- *Promote strategic dialogue between the government funders and the research institutions*
- *Establish conditions and incentives for R&I cross-agency cooperation*
- *Increase funds and strengthen capabilities for continuous and integrated monitoring of R&I system*

Conclusions of the diagnostic

These gaps and limitations are further synthetised in eight key R&I governance challenges, which form the main references for developing recommendations and guidelines:

- **Whole of government**: Research and innovation are currently seen as undertaken by MHESI and METS, without sufficient engagement from sectoral ministries
- **Coordinated strategy development and prioritisation**: Strategic fragmentation (several overlapping strategies) and a lack of coordinated priorities limit Slovenia's ability to pursue pathways that can make the most if its strengths
- **Strategic policy intelligence**: There is not currently a broadly trusted and shared capacity for high-quality, timely analysis for supporting research and innovation policy
- **Support and funding for innovation**: There is no consistent and reliable funding and support for innovation. This prevents strategic planning and continuity.
- **Support to R&I in priority areas**: R&I funding remains, for the most part, bottom-up and non-directed, with limited focus on specific priorities
- **Research-Industry collaboration**: Gaps in expertise, incentives, skills, and facilities inhibit research-industry knowledge exchange and collaboration
- **Agency and ministry linkages**: The existing relationships and division of roles between agencies and ministries are inefficient
- **Policy innovation and change management**: Mindsets, culture, and administrative structures do not proactively support and lead policy change

Both the RDI Act and the national RDI strategy (ZRISS) include significant reforms that address some of these weaknesses. These offer a cause for optimism among many of the stakeholders consulted in the development of the diagnostic. Decisions have been made, and clear steps have been taken to address issues in the coordination of R&I policy. However, more needs to be done to institutionalise and deepen these reforms so that they do not remain purely formal and administrative acts and have an impact *on the ground*. For instance, the creation of the Development Council is an important step forward, but it has now to be endowed with financial and analytical resources that will allow it to fulfil an ambitious set of tasks formalised in its mandate. Similarly, the gathering of research and innovation funding in one single agency can be effective in creating linkages across the innovation chain only if the corresponding instruments and programmes are coordinated or integrated.

4. International good practices for R&I governance

Based on the insights of the diagnostic, the OECD has identified 13 international initiatives that are relevant to the identified gaps and that stakeholders in the Slovenian R&I system can learn from. A series of bilateral peer-exchange meetings taking place virtually and, for Austrian good practices, in person between representatives of these cases and Slovenian stakeholders have provided a forum for the sharing of practical guidance and experience. Before each bilateral meeting, a dedicated fiche on the relevant good practices was sent to both the bilateral counterpart (for fact-checking) and the Slovenian stakeholders (for information and preparation of the meeting).

International good practices for strategic orientation

Establishing a powerful R&Y strategic advisory body supported by a strong secretariat (The Council for Research and Technology Development - Austria)

The role of the Austrian Council for Research and Technology Development (2000-2023) was to systematically, independently and thoroughly advise the Austrian Federal Government on all R&I issues. The main goal of its work is to provide an essential contribution to a future-oriented RTI policy.

The RFTE, including its chair, consisted of 6 voting members, appointed in their personal capacity. Among the voting members, three were currently non-Austrian nationals. Ministers who play a key role in R&I policy held seats in the Council, but without voting rights. A strong secretariat of about 10 staff and a budget that allows undertaking or commissioning specific studies and providing numerous analyses and evidence-based statements and recommendations for innovation policy (notably in its annual reports and the annual reports on Austria's scientific and technological performance).

RDI strategy and policy monitoring (Austria)

Austria has a robust monitoring and evaluation culture in the R&I policy area. The country has set up comprehensive initiatives to monitor its R&I performance and progress in achieving its national R&I strategy.

The Austrian Research and Technology Reports are annual status reports to the Austrian parliament on the federally funded research, technology and innovation. The reports draw on current data to present an overview of specific trends in R&I and show how Austria measures up internationally in select categories. The reports are commissioned by three ministries with significant R&I activities.

The annual report on the scientific and technological performance capacities of Austria records the results of the analysis of the objectives of the RTI Strategy 2030 and the analysis of the current strengths and weaknesses of the Austrian RTI system in international comparison. It allows for a continuous goal-oriented monitoring of the RTI system. The indicators for measuring the RTI system's performance are directly linked with the goals of the RTI Strategy 2030.

The FTI Monitor of the RFTE is an online platform with data, visualisations, benchmarks and analysis to monitor the progress towards the targets included in the RTI Strategy 2030. It is a platform where the data of the annual report on the scientific and technological performance capacities of Austria are made available in an interactive and visual way.

The Platform Research and Technology Policy Evaluation (FTEval) was created in 1996 as an informal partnership to present methods and approaches of evaluation, discuss the current evaluation practice on an international level and thus contribute to the development of a culture of evaluation in Austria. The platform comprises 25 institutional members – ministries, agencies, evaluators and research institutes. It holds regular events, has a journal (FTEval Journal for Research and Technology Policy Evaluation) and a newsletter. A central activity of the platform is also to serve a repository of the Austrian evaluation reports.

Establishing platforms for innovation in key ecosystems (Strategic Innovation Programmes - Sweden)

The Strategic Innovation Programme (SIP) is an initiative led by the Swedish innovation agency Vinnova and funded by 3 agencies: Vinnova, the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) and the Swedish Energy Agency. It aims to select and support the development of self-governed 'innovation platforms' in order to improve the international competitiveness

of Sweden's economy and find sustainable solutions to global challenges by enhancing interactions between universities, companies, and other civil society organizations and government agencies.

The creation of SIPs occurred over two stages: 1/ The development of Strategic Innovation Agendas (SIAs). Ecosystems of innovation actors were funded through a dedicated scheme to develop bottom-up Strategic Innovation Agendas (SIAs); 2/ Transition from SIAs to SIPs. Some ecosystems have become SIPs, i.e., structured partnerships to realise parts of their respective SIA.

Seventeen SIPs were launched in annual batches from 2012-2017. Funding lasts for up to 12 years, subject to a positive external evaluation every 3 years. Each SIP is managed by a Programme Office hosted by an organisation (Industry Association, Research Institute, etc.). The Programme Office is overseen by a programme board which is appointed by a general. The SIP initiative as a whole is managed jointly by the three agencies which have established a joint steering group for the purpose. The Programme managers for individual SIPs and the members of the steering group meet regularly to coordinate policies, administrative procedures, communication activities and budgets across the portfolio of the SIP.

Leveraging agencies' resources and competencies in R&I strategic orientation (Research Council of Norway - Norway)

The Research Council of Norway (RCN) has been the dominant intermediary actor in Norwegian R&I policy since 1993. It has a unique position and mandate among OECD countries, since it combines funding for basic research as well as for applied, industry-oriented and collaborative research. RCN is also responsible for co-ordination tasks across different policy sectors, for research and policy evaluations, for strategic and financial steering of the institute sector and for providing strategic advice to the government on science and technology policy matters. This is a combination almost unique by international standards.

RCN is a key advisory body to the Norwegian authorities on research policy issues (not limited to RCN's role) and carry out tasks commissioned by 15 ministries. It performs this function in a variety of ways: Regular discussions with ministries; Developing and supporting coordinated research programmes; Developing strategic documents; Collecting and providing data and evidence; Participating in and sponsoring new national initiatives; Preparing policy briefs.

Building capacity in policy design, planning and foresight in Public Administrations (PlanAPP - Portugal)

PlanAPP is the Portuguese Competence Centre for Planning, Policy and Foresight in Public Administration. It is a centre-of-government body set up in 2021 that aims to enhance all phases of the public policy cycle, 'anticipation and planning, design and implementation, monitoring and evaluation' and improve cross-sectoral coherence of strategies and policies. It does so by developing new methodologies for analysis and collaboration, building skills for public servants and scientists, conducting analysis to support government decisions and coordinating networks for alignment of cross-sectoral planning.

A key principle of the centre is that there can be no single service that is able to answer all policy development needs. While it offers support to ministries, therefore, PlanAPP aims to facilitate the development of a network of competencies across the public administration. To benefit from support from PlanAPP, ministries must make a request the Presidency of the Council of Ministers. In ministries with departments for planning and strategy, the role of PlanAPP is to support these activities with methodological guidance. In ministries where these capacities do not exist, PlanAPP supports them to

develop capabilities through methodological support and advice on human resources to build skilled teams. PlanAPP also collaborates with the National Institute of Public Administration to develop training.

The Centre also supports cross-sectoral coordination via an inter-ministerial network coordinated for cooperation and sharing of knowledge and resources in the areas of strategic planning, public policies and foresight (RePLAN). The network promotes the coordination and alignment of sectoral plans and is coordinated and supported by the expertise and analytical outputs of PlanAPP's multisectoral teams

International good practices for programming and holistic coordination

Setting an integrated R&I governance and funding framework (the R&I Strategy, Act, Pact and funding agreements - Austria)

Austria has established a specific R&I governance system to connect the national strategy goals to agency priorities and funding, and to the main research performing institutions. This governance also allows multiyear R&I funding and cross government funding agreements.

The Research, Technology and Innovation (RTI) strategy 2030, adopted by the Austrian Council of Ministers, is the 10-year government strategy that set outs the main priorities in Austria. Its implementation is monitored by a cross-governmental RTI Task Force under the chair of the Federal Chancellery.

The Austrian Research Financing Act (FoFinaG) establishes a specific legal framework for the allocation of federal funds to research, technology, and innovation (RTI) aimed at increasing long-term planning reliability and reducing budgetary fragmentation. The new law introduces three key elements: 1/ a three years' revolving budget cycle for RTI; 2/ the statutory definition of 11 public "central institutions" performing or funding research that are entitled to federal financing; 3/ Three years' performance and financing agreements with the central institutions as a comprehensive governance tool.

In a cross-ministerial setting, the 2021-2023 RTI Pact operationalises the targets and fields of activity that are set out in the RTI Strategy 2030 and defines the corresponding priorities and concrete measures to be implemented for the coming 3-year period. The Pact also serves to establish a multiannual (three-year) stable funding framework (amounting to Euro 3.9bn) and to reduce duplications between the three main ministries involved in RDI activities. This agreement is negotiated every three years based on the Research Financing Act.

Based on the Strategy and Pact, the three ministries have negotiated three years' performance and financing agreements with the 11 central institutions as a comprehensive governance tool. The priorities of the three-year RTI Pacts are allocated to the institutions by negotiation and discussion between them and the relevant Ministries.

Strengthening R&I capabilities and awareness in sectoral ministries (RITA Programme - Estonia)

RITA is a programme initiated in 2015 and supported by the European Regional Development Fund. It aims to strengthen sectoral R&D by providing funding, strategic policy intelligence, a framework for strategic cooperation and capabilities to undertake socially relevant research. It notably supports a network of science and development advisors across sectoral ministries. The Scientific advisors play a key role to integrate all activities in an interministerial setting.

RITA has not yet been evaluated but it is deemed positive by involved stakeholders. Scientific advisers are well connected to the scientific community and they cooperate closely with each other in a network coordinated by the Estonian Research Council. This initiative has positively influenced knowledge-based

policymaking in sectoral ministries. For example, some ministries have developed and currently implement their own sectoral R&D plans and programmes. Additionally, the system has proven beneficial in reducing silos and improving cooperation among ministries. Regular meetings and informal communication help advisors share their experiences and be informed in other ministries R&D plans. Even more concretely the programme has resulted in an increase of interministerial projects. As the programme started, joint R&D projects between the ministries were rare and the participation was limited usually to two ministries. By 2018–2019, there were several projects with up to four ministries participated. In 2020, a R&D project was started in an area of common interest between six ministries and the Government Office.

Business Finland's Monitoring and Evaluation practices (Finland)

Business Finland was set up in 2018 as a new organisation which merged two former agencies. It disburses innovation funding and promotes trade, tourism and investment in Finland. Following a previously strong programme of monitoring and evaluation in Tekes, Business Finland monitors and evaluates the projects it funds throughout their life cycle in order to assess their impact. At a higher level, it also annually monitors the whole set of projects it supports. The resulting information is used to enhance the effectiveness of the organisation's funding and activities to promote innovation.

The impact assessment team is located in the strategy unit of the agency. There are three people working in the team, two of whom are working on impact analysis and one on programme evaluations. The evaluations are procured from evaluators by using competitive tendering outside Business Finland, with tenders describing the type of analysis that Business Finland considers relevant. The annual evaluation budget is around 500,000 EUR. A 4-year plan for evaluation is agreed upon with its line Ministry.

A steering group is set up for each evaluated instrument, which includes the stakeholders responsible for the instrument, with regular meetings between the steering group and evaluators. Following the evaluation, there is an 'aftercare' service to discuss the outcomes of the evaluation and recommendations to change the instrument.

Establishing an overarching cross-agency collaboration agreement (Collaboration on green growth - Norway)

Building upon the cooperation between the Research Council of Norway, Innovation Norway and Enova since 2016 in the Pilot-E initiative, an overarching collaboration agreement in the green innovation area has established between the three agencies for the period 2021-2025 and extended to also include Gasnova and SIVA.

The objective of the agreement is to ensure a seamless connection between the different funding instruments of the different agencies to better support sustainable transitions. The agreement includes cooperation on existing instruments or the development of joint calls for proposals; the mobilisation, analyses and identification of common focus areas; management and information systems that simplify and increase user-friendliness and quality, as well as common methods and expertise; the sharing of data, data collection/processing and accessibility.

A Steering Group for the agreement has been established to monitor and develop the collaboration, with one member from the department director level of each agency. A Secretariat of the agreement has been established, with one permanent member from each of the agencies.

International good practices for implementation and joint action

Integrating the instruments portfolio of three agencies (Pilot-E - Norway)

Since 2016, Pilot E is a comprehensive research and innovation support package offered collectively by three Norwegian agencies Research Council of Norway (RCN), Innovation Norway and Enova. The main objective is to fast-track projects across the whole innovation cycle, from basic research to market deployment. The projects are led by large consortia and aim to develop more ambitious climate emission-free and energy-saving solutions from idea to market as a means of reducing emissions both in Norway and internationally.

Pilot-E launches mission-oriented calls informed by the strategic aims of the government and interaction with industry. Recent calls have covered topics such as zero-emission shipping, hydrogen, and energy system flexibility. The three agencies pool their respective instruments and collaborate together in order to offer an integrated 'one-stop-shop' to support selected projects throughout the innovation chain. The calls require a single application with proposals to cover the full innovation chain. Representatives of the three agencies and a programme manager paid by them are organised in a light and flexible governance structure. They cooperate on the design of the calls for proposal, the selection of projects and their monitoring.

An evaluation performed in 2020 concluded that Pilot E was a relevant solution that meets the market's needs for better coordinated instruments aimed at the development of energy and environmental technology. The collaboration model was shown to be effective in terms of management structure and utilisation of synergies between policy actors.

Adopting a mission-oriented innovation policy approach to address key systemic challenges (national and EU mission - Austria)

While they vary in terms of their focus, scope and design, mission-oriented innovation policies (MOIPs) have the common goal of promoting proactive action across disciplinary, sectoral and administrative silos to collectively address a challenge too complex to be solved by any individual measure. Concretely, a mission-oriented policy is a "platform for collective actions" that articulates, for each selected challenge, 1/ a collectively developed agenda; 2/ a dedicated structure of governance for taking (and monitoring the effects of) common or mutually consistent decisions; and a tailor-made, 3/ an integrated policy mix.

Austria has launched four 'national' missions: Climate-neutral cities, Energy transition, mobility transition and circular economy. For instance, the Circular Economy Mission coordinates different services within the ministry and its agency to enable the establishment of continuous and systematic linkages between research and innovation measures and implementation support actions. The latter include actions related, for instance, to investment funding, market deployment, awareness raising, education and regulations. It also promotes a systemic approach across sectoral and disciplinary silos. The mission aims to mobilise various R&I thematic areas related to production technologies, digital technologies, mobility, space technologies or the climate-neutral city. R&I impact pathways have been collectively developed for different streams of the mission (e.g., reducing material consumption) to reach concrete mission targets. Additional monitoring and evaluation measures have been developed to follow the mission target.

Austria is also acknowledged by the European Commission and the OECD as one of the leading countries in terms of engagement in the five EU Horizon Europe missions: Adaptation to Climate Change; Cancer; Ocean and Waters; Climate-Neutral and Smart Cities; Healthy Soil. Under the leadership of the Federal Ministry of Education, Science and Research, the government has set up a unique policy and governance

framework not only for contributing to EU missions but also for leveraging EU mission dynamics in national research and innovation activities.

Developing policy experimentation capabilities and culture (Experimental Finland - Finland)

Experimental Finland was launched in 2015 to make the public sector more efficient and citizen-focused, and improve entrepreneurship through the promotion of an experimental culture throughout Finland. Experimentation was supported at three levels: strategic experiments (large-scale studies connected to Finland's strategic objectives); pooled pilots and partnerships (regional or sector-specific); and grassroots initiatives at the level of municipalities, NGOs, academics and citizens

A digital platform, called 'Place of Experiment', was launched in 2017 as an information and engagement resource which detailed past and ongoing experiments and provided guidance for people to submit their own experiment ideas. A digital platform, called Kokeilun Paikka, 'Place of Experiment', was launched in 2017 as an information and engagement resource which detailed past and ongoing experiments and provided guidance for people to submit their own experiment ideas.

The clear mandate for experimentation from the Government provided legitimacy for explorative work and stimulated the dialogue between stakeholders and organisations about the cultures and processes for policy development. This dialogue reinforced trust and helped to establish networks for experimentation in different sectors. In the longer term, Experimental Finland helped to establish a stronger innovation culture across the public sector. There is now an acceptance of experimentation as a valid tool for developing policies, and leadership continues to encourage innovation.

5. Recommendations for improving R&I governance in Slovenia

The OECD developed 10 recommendations with detailed implementation guidelines to address the issues identified and discussed during the diagnostic. They were developed based on the team's expertise and refined through interactions with Slovenian stakeholders. They were strengthened with ideas stemming from the identified international good practices.

Recommendations and guidelines for better strategic orientation

1. Establish an 'R&I Secretariat' with the necessary capacity and budget to support the strategic and analytical work of the Development Council and Programme Committee (data, studies, background research, foresight, preparation of meetings).

What should Slovenia do to implement this recommendation?

- Establish an R&I Secretariat with the necessary capacity and budget to support the Development Council and Programme Committee strategically and operationally; ensure that this is aligned with the RRI Platform
- Clearly define distinctive roles for and formalise linkages between the Development Council and the Programme Committee
- Establish processes (e.g., a process guidebook) to ensure ownership and use of the R&I Secretariat's work by the Council.

Expected results

- R&I policy decisions are supported by information and data that are reliable, systematic, relevant to the policy needs at one moment in time anticipatory and consistent.
- Effectiveness of the Development Council and Programme Committee is enhanced by up-to-date information
- Policy learning and skills are continually enhanced

2. Strengthen the role of the SRIPs in the development and implementation of thematic strategies in key areas.

What should Slovenia do to implement this recommendation?

- Formalise role of SRIPs as official S3 ecosystem platforms
- Set formal processes for interactions between SRIPs and public authorities
- Provide the SRIPs with the necessary resources and capabilities to play the role of ecosystem partners

What are the expected results of this recommendation?

- The capacities and resources of SRIPs are leveraged to develop S3 ecosystem platforms through stronger linkages with policy actors
- SRIP action plans improved and systematically considered
- Enables move toward more thematic/challenge-led policies
- Ensure that the Secretariat of the Development council has capabilities to validate the analysis of the SRIPs

3. Establish a multiannual and interministerial R&I strategy that provides guidance for national and EU funding

What should Slovenia do to implement this recommendation?

- Develop a comprehensive R&I strategy encompassing the national and EU funding streams and cover the whole innovation chain from research to industrial development and market deployment.
- Set out a clear framework of priorities aligned to economic and societal goals to guide the respective strategies of implementing bodies and funding agencies under the MHESI and MEDT
- Establish processes for evidence-based flexibility, with mechanisms in place to reallocate funding based on emerging priorities and intelligence

What are the expected results of this recommendation?

- Establish clear and well-known R&I priorities
- Broaden the R&I strategy beyond MHESI and promote coherence across strategies
- Shield R&I priorities and funding from political interferences.
- Improve the consistency and synergies between national and EU R&I funding

Recommendations and guidelines for better planning and coordination

4. Establish a multiannual and interministerial financial framework that ensures the consistency, predictability and stability of R&I funding

What should Slovenia do to implement this recommendation?

- Establish a multiannual funding framework to allocate funding to the priorities outlined in the strategy. This could take the form of a 3-year financial ‘R&I PACT’

- Link funding to performance metrics
- Establish a clear and inclusive process for developing the multiannual funding framework

What are the expected results of this recommendation?

- Strengthening of connections between high-level strategic priorities and policy decisions
- Increase of the R&I funding stability and predictability, which has been a significant issue for R&I actors in the past
- Shield R&I priorities and funding from political interferences
- Promote cross-government budgetary/programming co-ordination
- Increase the involvement of the agencies in the negotiation of the multiannual financial funding framework

5. Establish the necessary processes, capabilities and infrastructure for continuous and integrated monitoring of R&I system

What should Slovenia do to implement this recommendation?

- Development Council and Programme Committee to be given the necessary resources and set the processes for ensuring its roles in evaluation and monitoring as specified in the Act.
- Develop a biannual evaluation plan and require new programmes and policies to be launched with an evaluation plan
- Expand and improve the analysis of data relevant to R&I policy
- Centralise and make available online all monitoring and evaluation reports
- Develop a community of R&I evaluation experts

What are the expected results of this recommendation?

- Better target investments and interventions in R&I system
- Allow assessment of system performance
- Better connect R&I activities to policy decisions and strategic objectives

Recommendations and guidelines for better implementation and joint-action

6. Enhance capabilities for R&I in sectoral ministries through a network of 'research and innovation coordinators'

What should Slovenia do to implement this recommendation?

- Establish 'research and innovation coordinators' (RICs) in all organisations with R&I activities in order to improve sectoral participation in R&I. Ensure that they are provided with training and ongoing support
- Coordinate a cross-ministerial network gathering the RICs to promote peer-learning and strengthen the connections between their respective hosting institutions
- Support sectoral ministries to place and leverage suitable RICs.
- Provide dedicated funding for interministerial R&D projects that several RICs can coordinate and lead.

What are the expected results of this recommendation?

- Strengthen the connections between high-level strategic priorities and policy decisions
- Promote cross-government budgetary/programming co-ordination
- Increase thematic funding for cross-ministerial priorities
- Build trusted relationships between government and the scientific community
- Establish a contact point and scientific collaborator within sectoral ministries to support SRIPs

7. Promote a culture of experimentation by dedicating resources to pilot innovative R&I tools and building capabilities in experimental methods.

What should Slovenia do to implement this recommendation?

- Establish a clear mandate, justification and goals for experimentation
- Set up and provide training to central project team to champion and support R&I experimentation
- Establish processes, mechanisms and infrastructure for conducting and assessing experiments
- Provide incentives for civil servants and other stakeholders to engage in experiments
- Regularly communicate about ongoing experimental approaches to encourage participation and experimentation by a wide range of stakeholders

What are the expected results of this recommendation?

- Adapt interventions to be more responsive to changing context and technologies
- Develop a tailored toolkit of policy measures for Slovenia based on testing
- Continually explore new approaches to identify effective measures

8. Empower the agencies to be involved in more strategic tasks and establish the necessary processes

What should Slovenia do to implement this recommendation?

- Establish multiannual institutional and funding arrangements between ministries and agencies (in particular MHESI and ARIS).
- Coordinate regular strategic discussions between the ministries and their agencies
- Clarify the division of tasks between the ministries and their agencies.
- Increase formal requirements for regular coordination between ministries and agencies
- Develop trusted relationships between agency and ministry staff.

What are the expected results of this recommendation?

- Improve use of agency resources, capabilities and networks to achieve national priorities
- Improve the capacity of agencies to implement thematic funding
- Create better connection between agencies and high-level priorities
- Build a stronger working relationship between agencies and ministries

9. Ensure that necessary skills and resources to improve coordination, strategic policy intelligence, experimentation and monitoring and evaluation are present and accessible

What should Slovenia do to implement this recommendation?

- Create a coherent skills development plan for the implementation of the reforms and recommendations
- Coordinate training and hiring to ensure that there is no competition between different R&I bodies

What are the expected results of this recommendation?

- Skills for strategic policy intelligence, strategy development, sectoral R&I capabilities and monitoring and evaluation are accessible

10. Promote the continued engagement of relevant actors in the implementation and iteration of ongoing R&I governance reforms based on monitoring and policy learning

What should Slovenia do to implement this recommendation?

- Establish the Secretariat of the Development Council as a key coordinating support body
- Mobilise the Programme Committee to clearly communicate the content of reforms and their progress to relevant stakeholders to ensure that they benefit from strong buy-in in the Slovenian RDI system.
- Establish a process for a regular (e.g., annual) discussion between the main ministerial and agency actors to take stock of what worked well or not in terms of co-ordination during the past year and plan necessary actions.

What are the expected results of this recommendation?

- Ensure consistency and effectiveness of ongoing R&I reforms
- Reduce overlaps and inconsistencies between interventions
- Mobilise the expertise and resources of different public and private actors on common priorities
- Enable evolution and improvement of governance and actions based on strategic discussions supported by monitoring and evaluation.

6. Guidelines for developing and maintaining capacity for R&I governance

The recommendations propose changes and detailed guidelines to improve the capacity for effective R&I governance in Slovenia at institutional and system levels. Each recommendation is additionally accompanied by a list of competencies to ensure that it has sufficient capacity at the individual level. These competencies have been informed by a review of good practice cases and wider literature on skills for public servants working in R&I.

Overarching skill categories

Many of the skills required to implement the recommendations are duplicated or share similarities with those proposed for other recommendations. When viewing these competencies across recommendations and with reference to the diagnostic framework, five overarching skill categories emerge for development to build capacity in Slovenia:

- **Knowledge development, management and use:** These skills are necessary to orient and programme policies through up-to-date evidence, knowledge about possible futures, experimentation and monitoring and evaluation. They include strategic foresight, monitoring and

evaluation approaches, research design for experimentation and knowledge management. A demand for evidence in governance bodies and a culture of its development and use among key R&I institutions is necessary to ensure that such skills offer value to the broader R&I system

- **Design and planning for policies, programmes and strategies:** These skills are important for R&I stakeholders to set legitimate, robust and adaptable strategic direction and align plans to address ambitious long-term challenges. They enable the consideration of evidence, conflicting political values and ethical implications of actions to support R&I development.
- **Project and programme management:** Project and programme management skills equip public servants with the necessary tools to plan for successful outcomes and anticipate and respond to challenges and new information.
- **Writing and communication:** Clear and precise communication of scientific knowledge and options for decision-making is essential for facilitating coherence and mutual understanding of research and innovation across policy domains, sectors and among diverse stakeholders.
- **Stakeholder management:** Given the growing complexity of R&I and the increasingly systemic nature of the challenges and objectives is aims to address, policy makers must increasingly draw on the expertise, interests and values of a broad range of stakeholders to make informed and legitimate decisions. Skills in stakeholder management enable the resources and intelligence of stakeholders from government, industry, research and civil society to be effectively orchestrated.

Approaches for capacity development

Good practice cases examined for this project and recent OECD work examining approaches to improve skills and capacities within the public sector shed light on methods that are likely to be effective for the development of the skills and competencies detailed above. These include:

- **Training:** It is important that training programmes that are tailored to the context and needs of specific learners, and opportunities for the application of skills during training and in the immediate work environment are present. Shared training can establish a shared understanding and motivation for the use and development of new skills among learners who are required to collaborate in their work. The RITA programme in Estonia ensures that tailored training in written skills, drafting of terms of reference and knowledge brokering is provided for scientific advisors.
- **Mentoring:** Mentoring can improve skills and confidence and help develop a culture of continuous learning. It has also been shown to help new staff to integrate into the workforce, which may be of value to the research and innovation coordinators of Recommendation 6.
- **Communities of practice:** Communities of practice can be powerful drivers for the development of capability and the promotion of motivation. Within communities of practice, practitioners regularly come together to share knowledge developed through application and explore new methods and approaches. Austria's Platform for Research and Technology Policy Evaluation (FTEval) operates in some respects as a community of practice, creating an opportunity for knowledge sharing through organisation and participation in national and international events.
- **Practical projects:** Practical projects that require the development and application of new capacities are a powerful driver for capacity development at organisational and individual level, but require that individuals are supported to develop appropriate capabilities. In Finland, the pilot-oriented Experimental Finland programme enabled public servants to gain hands-on experience of developing and implementing experimental approaches in a safe-to-fail environment.
- **Peer learning:** Learning from national and international peers can enable public servants to gain knowledge from the practical experience of others in similar situations. In the course of this project,

online and in-person bilateral peer-learning meetings were set up to allow stakeholders from Slovenia to learn directly from international peers.

7. Curricula and pilot training for implementing R&I governance

The structured list of necessary competencies

A detailed list of necessary competencies has been identified for the implementation of each recommendation, which is provided as a 'curriculum map' in a separate Excel file. For each skill, six learning outcomes have been elaborated using the large-language model ChatGPT 4 and subsequent human review[2], corresponding to Bloom's Taxonomy[3]. This taxonomy, developed in 1956, is a framework of six levels of expertise with an action-oriented learning outcome. These have been adapted below for application in a policy making context:

- Knowledge: Name key concepts and methods
- Comprehension: Understand and explain possibilities and limitations of approaches and methods
- Application: Select and apply relevant methods and approaches in practical situations
- Analysis: Analyse data deriving from the application of the approach to identify key themes and insights
- Synthesis: Combine approaches and insights requiring different skills and incorporate them into policy making processes
- Evaluation: Assess the effectiveness of different methodological approaches and proposals

This granularity is helpful in considering the necessary skill profiles of teams and individuals to achieve desired outcomes for the recommendations. For example, senior decision-makers may only need basic comprehension of a skill such as monitoring and evaluation, while specialists require a high level of expertise in one area and only knowledge of the others.

The list of learning outcomes for each recommendation can be provided to training providers as a curriculum to guide the development of tailored training.

Pilot training

A pilot training event was planned to provide an overview of key capabilities for the improvement of R&I governance in Slovenia and to collectively identify further areas of capacity development and training. Following an initial discussion with the Slovenian project team and an online workshop with a wider range of stakeholders, the following learning outcomes were agreed, which correspond to skills required for the implementation of Recommendation 1:

- Understand the challenges and expectations of RDI policy in a volatile, uncertain, complex and ambiguous environment

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[2] Given the knowledge limitations of the project team, these outcomes are presented as indicative in order to guide skill assessment and planning for competence development.

[3] https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/#1956, Accessed 2 Feb 2024

- Recognise the role of RDI in delivering sustainable development goals and other key priorities
- Understand the value and role of foresight and technology assessment approaches
- Compare data sources and approaches for providing robust and useful evidence for RDI decision-making
- Discuss techniques to set integrated strategic plans that synthesise objectives and activities from across government

On 30th January 2024 in Ljubljana, four sessions of training to achieve these learning outcomes were provided by OECD experts to 19 stakeholders from ARIS, SPIRIT, MHESI, METS and Ministry of Cohesion and Regional Development. On 31st January 2024, a recap and co-creation session took place for a discussion on key areas for further capacity development. Participants collectively expressed an interested in developing capabilities in horizon scanning, a better understanding of the tools and applications for monitoring and evaluation, understanding of novel tools and approaches applying artificial intelligence for data collection and analysis, and the ability to apply a range of approaches for logic modeling and mission development.

8. Next steps

There is currently a unique window of opportunity for reforms of the governance of the R&I system in Slovenia. The RRF provides not only significant funding but also an implementation and monitoring framework for these reforms until the summer of 2026. It is the objective of this project to help these reforms as they unfold. Significant achievements have been made, in terms of increased funding, new governance structures and now processes. More importantly, as discussed with Slovenian partners, the mindsets are changing. New linkages are strengthening between ministries, between agencies. Interactions across silos are slowly becoming part of public authorities' routines, even beyond the formal platforms and committees.

it is essential to build on this positive momentum and address the remaining gaps identified in the diagnostic. The recommendations, guidelines and tools provided in this project can help with this.

> *The OECD, therefore, proposes as a next step to discuss and possibly formally endorse the project's results, notably the recommendations, at a meeting of the Development Council in the presence of high-level political leaders to ensure their high-level legitimacy. Such a meeting should result in a plan and timetable for the implementation of priority recommendations in the next two years.*