European Commission

Breaking down walls and building new bridges: the Whole of Government Approach in Research & Innovation policy

Mutual Learning Exercise
on the Whole of Government Approach in Research & Innovation policy

Final report

PSF CHALLENGE

HORIZON EUROPE
POLICY SUPPORT FACILITY

Independent
Expert
Report

Research and Innovation

Breaking down walls and building new bridges: the Whole of Government Approach in Research & Innovation. Mutual Learning Exercise on the Whole of Government Approach in Research & Innovation policy

European Commission
Directorate-General for Research and Innovation
Directorate A — ERA & Innovation
Unit A.1 — Semester & Country Intelligence
Contact (Horizon Europe PSF coordination team):
Magda De CARLI, Head of Unit A.1
Stéphane VANKALCK, PSF Head of Sector, Unit A.1
Annamaria NEMETH, PSF Coordinator of the MLE on WGA, Unit A.1
Krzysztof KANIA, Policy Officer, Unit G.1
Email Magda.DE-CARLI@ec.europa.eu
Stephane.VANKALCK@ec.europa.eu
Annamaria.NEMETH@ec.europa.eu
Krzysztof.KANIA@ec.europa.eu
RTD-PUBLICATIONS@ec.europa.eu
European Commission
B-1049 Brussels

Manuscript completed in April 2024
Second edition

PDF ISBN 978-92-68-14881-5 doi: 10.2777/24409 KI-AX-24-017-EN-N

Luxembourg: Publications Office of the European Union, 2024

EUROPEAN COMMISSION

Breaking down walls and building new bridges: the Whole of Government Approach in Research & Innovation policy

Mutual Learning Exercise on the Whole of Government Approach in Research & Innovation policy

Main author:

Patries Boekholt

Contributors:

Susana Borrás

Totti Könnölä

Geoff Mulgan

Wolfgang Polt

2024

Directorate-General for Research and Innovation
Horizon Europe Policy Support Facility

Table of Contents

List of Tables, Figures and Boxes

List of Abbreviations

AC	Associated Country
CNPSTI	National Council for Science Technology and Innovation Policy (Romania)
DG	Directorate General
EC	European Commission
ERDF	European Regional Development Fund
EU	European Union
HEI	Higher Education Institutions
MLE	Mutual Learning Exercise
MCST	Malta Council for Science and Technology
MS	Member State
OECD	Organisation for Economic Cooperation and Development
PSF	Policy Support Facility
RIC	Research and Innovation Council (Finland)
R&I	Research and Innovation
RRP	Recovery and Resilience Plans
RVVTI	Council for Science, Technology and Innovation (Slovak Republic)
SDG	Sustainable Development Goals
VAIA	Research and Innovation Authority (Slovak Republic)
WGA	Whole of Government Approach

EXECUTIVE SUMMARY

The Whole of Government Approach (WGA) is key to addressing **transformative and complex policy issues** and designing coherent policy mixes. The approach gives powerful incentives and tools to foster cross-policy coordination and collaboration to tackle challenges and opportunities with more impact. The Mutual Learning Exercise (MLE) took place from November 2022 until March 2024 with five participating countries: Bulgaria, Finland, Malta, Romania and the Slovak Republic. The country visits provided excellent opportunities for the participants and invited guests to exchange lessons on governance solutions, policy instruments and processes as well as challenges and barriers.

Why is the WGA essential in policy making?
Many of the big challenges facing governments – and many priorities for innovation - don't fit well into traditional departmental boundaries. It follows that all governments need a mix of horizontal and vertical structures and processes, particularly for issues like climate change, Artificial Intelligence or specifics like inward investment and immigration. However, EU nations remain generally very siloed, both by function, but also by technology readiness levels, which makes it hard to respond to cross-cutting challenges. This MLE also showed many promising examples to draw on how traditional vertical structures can be combined with more flexible and agile horizontal ones. Which of these can be used will depend very much on the political context, the institutional arrangements and the topic. Each individual country needs to address how to ensure that the key currencies of the respective governments – power, money, knowledge – are better aligned with cross-cutting tasks, and how science, technology and innovation strategies can be better aligned with the broader goals of governments, for example from decarbonisation to ageing.

Table 1: Why is the WGA essential in policy making?

However, the WGA it is not a panacea for all cases. As the WGA can be complex, labour intensive and likely to slow down decision making processes, countries need to be selective and use these approaches when it genuinely adds value to the desired policy outcomes.

Each challenging policy topic calls for different constellations of government entities and stakeholders and rarely does it need the involvement of the entire government structure. Mapping out what configuration of actors fits the policy challenge and what role research and innovation (R&I) policy plays in this structure is a necessary first step to start crosscutting policy approaches. The implementation of WGA approaches asks for R&I programmes that are designed and implemented by cross-departmental units that tackle the urgent challenges jointly, as was illustrated by a number of good examples in the MLE workshops. In addition, it needs **coherence and consistency of the policy mix**. Governments should ensure that the combination of policy instruments avoids duplication, overlap, conflicting targets or unbalances.

The historical characteristics of policy systems and prevailing political cultures mean that some countries have policy environments that are more conducive to WGA than others, as became clear across the range on countries participating in the MLE. On the basis of the many exchanges in the MLE, the lessons are that the key ingredients for an effective WGA are a) cross-silo governance structures, b) collaborative policy culture and open processes and c) relevant capacities in government institutions.

There is a wide set of **governance structures** that support the WGA and facilitate enhanced cooperation between government entities. Good examples that were presented in this MLE are parliamentary cross-party R&I committees, high-level R&I councils and inter-ministerial committees. The report gives an overview cross-cutting governance structures and other tools in the concluding chapter which can be deployed by each country.

Nevertheless, having these types of WGA friendly **structures in place is not a sufficient condition** for effective collaboration. **Policy culture and collaborative processes** are as important and provide the oil that makes the governance structures work well. A strong political leadership can set a common vision providing the framework for joined up policies and setting the role of R&I to achieve that vision. For these (high-level) governance structures to work in a coherent and holistic manner, there is a need for **political leadership that supports, enables and if necessary, directs** ministries, agencies and other institutions to work collectively towards shared goals. **Trust** is another key ingredient which can be built up by inclusive and systematic actor engagement throughout the policy cycle.

In countries where the existing (legislative) government structures and political cultures are less conducive to stable WGA processes, more flexible initiatives such as inter-ministerial working groups or joint programmes between agencies could contribute to maintaining continuity of collaborative processes in times of frequent political changes. **Experimentation** with more coherent policy mixes, mobilising stakeholders such as the private sector in designing and implementing green industrial roadmaps technology or civil society in missions, are WGA-like options that do not require major reforms.

Typical barriers in countries less conducive to WGA can be the low political priority and fluctuating funding for R&I, the absence of a problem-oriented framework for R&I policy, fragmented and inflexible funding sources that sustain the silo approach and insufficient capacity to engage in collaborative processes.

Supra-national factors have played a positive role in supporting WGA processes across all European Union (EU) countries. In particular, the challenge of addressing the twin transition including through recovery and resilience plans (RRP), the Green Deal policy and the pursue of its objectives through design and implementation of industrial technology roadmaps, the inspiration from the EU R&I mission approach and the smart specialisation strategies requiring multi-level governance, have been important triggers for more coordination in policy making at national but also at EU level.

The way forward

The silo approach in government policy making will need to be broken down to tackle the many urgent societal challenges ahead. The WGA can help to build new bridges between departments, between national and sub-national authorities and institutions and between the government sector, the private sector and civil society.

As the MLE lessons demonstrate, the WGA is a multi-faceted concept that can be applied for many policy themes adapted to highly distinct national and sub-national governance contexts. Hence, developing an actionable set of recommendations based on the many perspectives that were elaborated during this MLE is challenging. In each Member State (MS) the building blocks for the WGA, the urgent issues for R&I policy and the shift towards more transformative and directional R&I policy operates in a different setting. Nevertheless, there is a set of general recommendations that are concluded from the activity to make to national policy makers and to the EU.

Recommendations for EU Member States and Associated Countries:

1. Develop **cross-cutting roles**, teams, budgets and strategies for a few top long-term priority issues, such as net zero and digitalisation, as well as a problem-solving approach with time limited, cross-cutting teams on a few more immediate priority topics (e.g. diasporas). Dedicated inter-ministerial committees can help but they are rarely enough.[1]

2. Ensure provision and exchange of **data and knowledge** (e.g. R&I competences and stakeholders, foresight studies, relevant policy instruments) to map the facts and choices are organised in a cross-government way, visualised and made easily available and comprehensible to the general and specific audiences.[2]

3. Invest in and foster **capacities and competencies across government institutions** embracing the process skills necessary for collaborative approaches and systematic stakeholder engagement. Keep in mind that informal relationships matter as much as formal structures.

4. Build systematic **engagement mechanisms** with stakeholders and civil society along the entire policy cycle, ideally using shared roadmaps with business on priority sectors and structured partnerships with civil society.[3]

5. Develop **novel monitoring and evaluation frameworks** that capture the achievements of the WGA that will go beyond the individual programme evaluation.

Recommendations for the European Commission:

6. Keep **spreading the word** on the necessity of the WGA across Europe and disseminate good practices as well as the lessons regarding the barriers to cross-sectoral policy making. For example, the ERA Policy Dialogue could benefit from a WGA in the next phase of implementation during 2025-2027.

7. Establish stronger **synergies between various EU funding programmes as well as action plans** (e.g. acceleration of R&I and deployment of climate neutral technologies for achieving Green Deal objectives), allowing the support of WGA through aligned policy portfolios across sectoral policies.[4]

[1] See for instance examples in paragraph 3.1 in Box Examples of governance structures created to reduce policy silos discussed in the MLE and Box Examples of national R&I Councils discussed in the MLE.

[2] See for instance the example of the use of cross-government foresight studies used in Finland as illustrated in paragraph 3.2 and the Mission Facility for Policy learning discussed in paragraph 4.3.

[3] See for instance Box Stakeholder engagement in the Slovak Republic discussed in the MLE in paragraph 3.3.

[4] Examples in this report are the funding from different agencies and ministries for the Pilot-E programme in Norway illustrated in Box in paragraph 4.1, as well as the Topsectors Innovation Programme developed and funded by multiple ministries, as illustrated in paragraph 5.3.

1. Introduction

1.1. Background

This report is the outcome of the Horizon Europe Policy Support Facility (PSF) Mutual Learning Exercise (MLE) launched on the request of a group of EU Member States (MS)[5]. The MLE took place between November 2022 and March 2024 with the aim to identify and exchange good practices regarding the application of Whole of Government Approaches to the design and implementation of national R&I strategies and plans that foster the transformation of our key socio-economic systems towards sustainability.

Five countries contributed to developing the scope and structure of the MLE y: **Bulgaria, Finland, Malta, Romania and the Slovak Republic** . A team of policy experts each in charge of a sub-topic and the European Commission's Directorate General for Research and Innovation (DG R&I) [6] were actively involved and contributed to the implementation of the project. During four country visits to the participating countries (Bulgaria, Finland, Romania and Slovak Republic) national representatives contributed to the exercise by providing insights into national examples and experiences.

The sub-topics of the MLE were elaborated in several joint learning workshops with representatives of all participating countries, the experts, Commission officials and invited guests (including from other countries than the five MLE participants: Austria, Czech Republic, Israel, Lithuania, the Netherlands, Norway and Sweden). The key building blocks of the WGA are covered in several thematic reports including discussions on the WGA concepts and their use in R&I, governance structures, policy instruments and mixes, the involvement of actors and stakeholders, including industry particularly in the case of industrial technology roadmaps for green transition. The country visits in Bratislava, Bucharest, Helsinki and Sofia allowed for extensive discussions, interactive working sessions and visits to organisations central in sustainable transition and WGA approaches. Participants learned from the contents of the discussions but also benefited from the networking opportunities with peers from the participating countries and local experts.

The kick-off and first thematic (virtual) meeting (30 November 2022) covered the topic **"Introduction and overview of the Whole of Government Approaches in research and innovation".** The outcome of this workshop is synthesised in thematic report 1.[7]

The second thematic meeting was held in Sofia (25 and 26 April 2023) on **"New policy designs and instruments for a Whole of Government Approach."** Thematic report 2 covers these findings.

Meeting three held in Bratislava (19-20 June 2023) covered the topic **"New ways of Actors' engagement for a Whole of Government Approach."** Thematic report 3 summarises the findings on this topic.

[5] https://projects.research-and-innovation.ec.europa.eu/en/statistics/policy-support-facility/psf-challenge/mutual-learning-exercise-whole-government-approach-research-and-innovation

[6] Units A1 European Semester and country intelligence, G1 Common R&I Strategy & Foresight Service and E1, Industrial research, innovation and investment agendas.

[7] All Thematic Reports and the Final Report of this MLE can be found on the Policy Support Facility portal with the information page of this MLE.

Meeting four which took place in Helsinki (25 and 26 September 2023) covered the topic "**Green Transition: Implementation of industrial technology roadmaps through a Whole of Government Approach",** synthesised in Thematic Report 4.

The fifth meeting, held in Bucharest (9 and 10 November 2023), covered the topic on **"New governance structures for a Whole of Government Approach",** which is synthesised in Thematic Report 5. This visit also captured the lessons that each MLE delegation learned from the MLE and from all these visits, discussions, reports and social meetings.

A concluding meeting was held virtually on 25 January 2024, summing up the lessons, some of the good practice cases presented during the visits and take aways from the MLE. This resulted in the formulation of possible next steps on how to use the WGA for R&I policy.

1.2. Structure of the report

This final report is structured as follows. Chapter 2 sets a short background on the WGA concepts and its emergence in R&I policy. Chapter 3 depicts essential ingredients for effective WGA, the governance structures, processes, policy culture and policy learning in support of WGA. Chapter 4 zooms in on the processes for actor engagement that are essential for transformative and directive R&I policy making. Governments need policy instruments to intervene, address challenges and make changes when necessary. This is covered in the fifth chapter. The sixth chapter elaborates on two applications of WGA in R&I policy practice that were discussed extensively in the MLE meetings: green industrial technology roadmaps and missions. Finally, chapter 7 summarises the key findings and sketches the possible next steps for the effective use of WGA for R&I policy in diverse R&I governance settings.

2. Background on Whole of Government Approaches [8]

Key take aways on the background of Whole of government approach
• More holistic and cross-sectoral approaches are a necessity for transformative approaches to the 'wicked' problems that we are facing such as a carbon-neutrality, accessible and high-quality healthcare for all.
• Rarely does a WGA cover all policy domains, each policy challenge asks for a different constellation of government entities and stakeholders.
• Governments need to be selective when to use WGA as it also has drawbacks such as being more labour intensive and possibly slowing down decision making.
• R&I policy makers at international organisations and national government have started to embrace WGA and WGA-like policy processes to support target-oriented and directional R&D instruments and initiatives.

Table 2: Key take aways on the background of Whole of Government Approaches

[8] See for a more detailed discussion of the background of WGA the Thematic Report 1 – *'introduction and overview of the Whole of Government Approaches in Research and Innovation (R&I)'*, as well as Thematic Report 5 '*New governance structures for the Whole of Government Approach'* on the MLE info page.

2.1. Historical background of the WGA concept

The Whole of Government Approach (WGA) refers to joint activities by diverse government bodies such as ministries, agencies, regulators to develop and implement coherent policies. WGA is defined as *"the notion of ensuring policy coherence by applying a systemic, holistic, or cross-sectoral approach to both policy challenges and solutions in view of an overarching objective. A WGA for transformative R&I policy is defined as a process that ensures that R&I policies work in close synergy with and are mutually beneficial to other sectoral policie*s."[9]

There is a long history of governments seeking to improve coherence in the ways they support innovation. However, there are hardly any examples of WGA that involved **all parts** of public policy. The most striking examples came in times of war, when countries including the UK, US and Germany, reorganised industrial production to meet an urgent need for tanks, aircraft and munitions and at the same time dramatically accelerated innovation, with examples like rockets, radar and the jet engine in WW2, and the extraordinary Manhattan Project which at one point had an economic scale equivalent to the entire automobile industry.

In more recent years the terms 'joined-up government' and 'holistic governance' used in the political science arena, are closely linked to the new public management (NPM) thinking in support of public service reforms. The UK developed joined-up government models starting in the late 1990s[10]. Perri et al. (2002) distinguish three dimensions that need to be better integrated in order to prevent fragmented government: 1) different tiers of government from international to local (what we today would call multi-level governance), 2) government functions or policy domains, and 3) different sectors (i.e., public, non-profit and private). One of the rationales to introduce WGA is to get a better grip on what Perri et al. call "wicked problems" or very complex issues that *are precisely the ones that cross departmental boundaries and resist the solutions that are already available through the action of one agency*.

Christensen and Laegreid (2006) state that the main rationale for a more joined-up, holistic or WGA is the assumption that a coherent approach with mutually reinforcing objectives and means, is likely to have a bigger impact on addressing policy problems, compared to fragmented approaches. A fragmented approach could in its worst case leads to conflicting objectives and means, with many negative externalities. Overall, the common pattern of policy making with demarcated budget lines and legally (sometimes constitutionally) defined competences and responsibilities (and accountability) has its rationale and logic. This limits the application of far-reaching WGA approaches. Hence, there are very few examples of WGA approaches that cover **all** government domains.

A key theme in the literature is that while the WGA promises more coherent and efficient policy delivery, WGA should only be used where there is a clear case that this is the best means of achieving the desired outcomes. WGA can also be costly, time-consuming in terms of substantial coordination costs and may not be the best approach for more straightforward and clear-cut problems. Indeed, it can be the case that a Whole of Government Approach could slow down the resolution of an issue that could more easily and efficiently be tackled

[9] Council of the European Union, WK4612/2022, Note to the ERAC Delegates Meeting 12-13 April 2022.
[10] For an extensive overview of holistic governance approaches see 6. Perri, D. Leat, K. Seltzer and G. Stoker (2002), Palgrave, Basingstoke; and Christensen, T. and Per Laegreid, The Whole of Government Approach, Regulation, Performance and Public-Sector Reform, Working Paper 6-2006, Stein Rokkan Centre for Social Studies.

by a single department or agency. A key challenge then is to have clear criteria and good decision-making as to when and how departments join up.

2.2. The evolution of WGA in R&I policy

The impetus for a more holistic approach in R&I policy including broader policy objectives originally came from the transition management literature, which argued that there should be closer linkages and synergies between R&I policy and environmental sustainability issues. The transition literature argues that in order to address sustainability issues, there is a need for more radical innovations and new technological paths, rather than the incremental innovations supported by 'mainstream' R&I policy.[11] The notion of the 'third generation R&I governance' aims to focus R&I on major societal challenges and away from the pursuit of industrial innovation and growth.[12] Arnold and Barker (2022) argue that this needs not only new types of policy instruments, but that the existing second-generation organisations are likely either to resist or to over-estimate their ability to make the changes needed to develop more transformative policies. This is mostly due to path dependencies caused by existing institutions, lobbies and interest groups.

This has led to changes in R&I governance such as the involvement of new actors and stakeholders beyond the R&I system. In addition, an impulse came from the literature on public sector innovation and initiatives, such as the OECD Public Governance Reviews.[13]

The notion of the need for more coordination between R&I policy and sustainability issues was also picked up by the OECD which took the initiative with a working group on horizontal innovation policy aiming to streamline policies regarding the broader R&I eco-system.[14] This mainly focused on coordination of policies within national innovation systems such as science, technology and innovation type interventions.

At the same time, the call for a WGA in R&I policy has been triggered by a number of global developments. A change of focus of R&I policy in favour of tackling 'grand challenges' in the mid-2000s meant that R&I instruments moved from a strictly thematic focus (in terms of technologies or sectors), towards priorities based on responding to these challenges. While the discussion started at European level, the societal perspective on R&I policy was soon embraced by many national R&I policy makers, as illustrated by the so called Lund Declaration at a Swedish EU Presidency event in 2009. A societal perspective for R&I meant that alongside the objective of scientific excellence and supporting private sector competitiveness, R&I policy needed an additional directionality or target-orientation.

In 2020 the European Commission embraced the WGA to implement the SDGs in a holistic manner.[15] Some of the key strands of this approach are designing and effectively applying deeply transformative policies, ensuring policy coherence for sustainable development and the engagement of civil society, private sector and other stakeholders. In addition, ensuring

[11] See for instance Geels, F. (2004) From sectoral systems of innovation to socio-technical systems, Insights about dynamics and change from sociology and institutional theory; Kemp, R. and Loorbach D., (2006) Transition management: a reflective governance approach; Geels, F. and R Kemp, (2007) Dynamics in Socio-Technical Systems, Typology of Change Processes and Contrasting Case Studies.

[12] Arnold, E., K. Barker, (2022) What past changes in Swedish policy tell us about developing third-generation research and innovation governance.

[13] See for instance for public sector innovation in R&I policy the recent (2022) OECD report: Tackling Policy Challenges Through Public Sector Innovation.

[14] The so-called MONIT projects by the OECD TIP Working Group explored how this issue took shape across different OECD countries and policy domains (see OECD 2005).

[15] European Commission, (2020), Delivering on the UN's Sustainable Development Goals – A comprehensive approach, SWD(2020) 400 final.

an effective (R&I) governance structure is a key element of the European Semester and thus the national reform programmes of member states, which includes embracing WGA to tackle transformative policy issues.

As will be the case for WGA approaches for R&I, each thematic area (e.g. whether dealing with addressing climate change or curing cancer) requires the involvement of a different constellation of government institutions and stakeholders. The policies fostering the twin (green and digital) transition require a mapping of what parts of government policy need to be involved to develop a holistic or coherent approach.

3. Governance structures and policy processes conducive to WGA[16]

Key take aways on governance structures and processes conducive to WGA
• Numerous R&I governance structures can be set up and adjusted to foster joined up strategies and cooperation across multiple ministries and agencies to achieve transformational change. Selecting the best options is highly dependent on the national context of the R&I system; • These WGA supportive governance structures work best if there is strong political leadership that fosters such a holistic approach and provides a shared long term vision; • Having these governance structures in place is not a sufficient condition for effective collaboration. Policy culture and collaborative processes are as important as the oil to make the governance machine work; • Awareness of potential barriers to WGA is helpful to support implementation.

Table 3: Governance structures and policy processes conducive to WGA

3.1. R&I governance structures

WGA is implemented by a diverse set of government institutions, policy frameworks and regulative arrangements. WGA governance structures take different forms and are influenced in practice by the historical development of the respective administrative system. Hence, the operational implementation of WGA is very context specific and difficult to replicate from one country to another. The MLE has therefore sought to identify more general principles and lessons that can be adapted to national circumstances.

Moreover, there is a range of tools that governments can use to support better coordination and align activities[17]. In principle, a government can use a mix of command, incentives and

[16] See for a more detailed discussion of the background of WGA the Thematic Report 1 – 'introduction and overview of the Whole of Government Approaches in Research and Innovation (R&I)', Thematic Report 3 'New Ways of actors' engagement for the WGA' as well as Thematic Report 5 'New governance structures for the Whole of Government Approach' on the MLE info page.

[17] Mulgan, G (2008) The Art of Public Strategy, Oxford University Press; Jacob, K. & Volkery, A. (2004). Institutions and Instruments for Government Self-Regulation: Environmental Policy Integration in a Cross-Country Perspective. Journal of Comparative Policy Analysis: Research and Practice, 6:3, 291-

persuasion to align the actions of multiple ministries and agencies. However, national governments vary greatly in their ability to use 'commands' given that they range from coalitions of parties with widely divergent views, to ones led by single parties with strong parliamentary majorities. Moreover, across Europe the level of centralisation varies considerably, with some countries having a far-reaching federal distribution of responsibilities, including in the R&I policy area.

Several types of governance structures have emerged in a number of countries:

- **Whole of Government Frameworks** (quite often in the form of strategies). Government lays out strategies for the respective policy targets. Both formulating the strategy as well as the implementation is done across departments. This policy formulation can take place at cabinet level, it can stem from standing parliamentary committees or it can be the work of dedicated tasks forces. Mechanisms to achieve this included policy action teams, cross-cutting reviews of spending and the establishment of cross-cutting units to cover issues that involve multiple departments and have been difficult to solve (Mulgan, 2009).

- **Inter-ministerial committees**. These are groups of representatives from different ministries or departments that meet regularly to coordinate policies and programmes across departments. Their remit and role can range from predominantly exchange platforms which help avoid overlap in actions ('negative coordination') to joint strategy formulation for a whole area. The committees which seem to have most impact also have the competence to agree on joint programme formulation and resource allocation, or at least make proposals concerning financial resources ('positive coordination').

- **Specialised agencies**: These are organisations that are established to facilitate cross-sectoral collaboration and integration. In some countries, due to increasing 'agencification', these institutions have assumed an important role beyond being mere implementation agents, but are also pro-active in proposing strategic priorities, developing policy approaches and designing programmes.

Examples of governance structures created to reduce policy silos discussed in the MLE

In the **Slovak Republic** the Innovation Authority VAIA was established to operate as a cross governmental coordinator for R&I policy and supporting the national R&I Council. One of its achievements so far has been to reach out to many stakeholders and civil society to engage them in the debate on the country's long-term strategy for R&I.

Finland: the Parliamentary Working Group on Research, Development and Innovation develops the cross-party multi-annual plan for research and innovation (see below). This ensures a consensus on the long-term government investments for R&I.

309. DOI: 10.1080/1387698042000305211; Lægreid, P., Verhoest, K. & Jann, W. (2008). The Governance, Autonomy and Coordination of Public Sector

Examples of governance structures created to reduce policy silos discussed in the MLE
Austria: the Research Technology and Innovation Task Force is a platform for regular exchange among relevant ministries in R&I matters, but also develops strategies and forms sub-groups (e.g. on the EU Missions (see below)) with operative tasks in coordinating the activities of different actors. The Task Force is composed of representatives of the Federal Chancellery, the Federal Ministry of Finance, the Federal Ministry of Education, Science and Research, the Federal Ministry for Digital and Economic Affairs, and the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology.
Romania: an inter-ministerial National Committee for Science, Technology and Innovation was established in May 2023. Among the aims of the committee is raising the importance of R&I across sectoral ministries and in the Cohesion Policy Operational Programmes (2021-2027). The committee should ensure viable governmental coordination mechanisms in R&I policies and for the smart specialisation strategy.

Table 4: Examples of governance structures created to reduce policy silos discussed in the MLE

A governance structure that is frequently used in EU countries to develop a broad R&I strategy and vision building is **high-level national R&I councils**. These advisory councils include representative of government authorities as well as representatives of different beneficiary and stakeholder groups. A rationale for these national councils is to decrease compartmentalisation and improve coordination between sectoral policy domains by cross-ministerial participation. To ensure the highest possible cross-cutting political support to R&I policy, the prime minister often chairs the council. The participation of other actors to the councils aims to provide a representative set of views of specific beneficiary groups and domains of expertise.[18]

In how far can these national R&I councils support WGA, for instance by ensuring cross-ministerial representation and by widening the participation of stakeholders in the formulation of R&I strategies? In most councils, the government representatives are the (deputy-) ministers responsible for the science and technology, education, economy (or trade and industry) and innovation, domains. In some cases, the (deputy-) minister of finance is also included.[19] There are only a few exceptions that have a more diverse participation from other policy domains.[20]

[18] This topic of high-level national R&I councils was extensively discussed in the third thematic MLE workshop on the topic of actors' engagement and more information can be found in Thematic Report 3 *'New Ways of actors' engagement for the WGA*' on the MLE info page.

[19] Schwaag-Serger, S., E. Wise, E. Arnold (2015), National Research and Innovation Councils as an instrument of Innovation Governance, Vinnova Analysis 2015:07, Stockholm

[20] Examples include the National Research Council of Science and Technology of Korea that has (ex officio) vice-ministers of Agriculture, Food and Rural Affairs, Health and Welfare and Land, Infrastructure and Transport on the Board and Finland that currently has the Minister for Agriculture and Forestry in the Council and in past also the Ministry for Defense and for Health.

Examples of national R&I Councils discussed in the MLE

The **Finnish Research and Innovation Council** (RIC)21 is probably the best known and most drawn on example across Europe and beyond. The advisory body chaired by the prime minister, looks at the long-term R&I policy. Currently the RIC has in addition to the prime minister, five more ministers as member as well as seven members representing different stakeholders (from research and business). The workshop presentation on the experiences of the RIC in Finland emphasised that the role of the RIC is to support the government in developing long-term R&I strategies and direction, for instance a choice on missions. Decisions on funding are made by the ministries, not by the Council. Recently the new government has strengthened the RIC's operations and assigned a full-time secretariate to support the RIC's work.

The **Slovak** Government **Council for Science, Technology and Innovation (RVVTI)** acts as a central coordinating and advisory body for R&I policies. Led by the prime minister, its 15 members include four ministers responsible for different parts of R&I support and recognised experts with international experience selected by an independent committee. Its main tasks are to ensure cohesive policy formulation and inter-ministerial coordination. The MLE workshop described how the Council itself was recently reformed, with less ministries participating, complemented by expert members, not necessarily representing a fixed set of institutions in the R&I. The Council is supported by the relatively new Research and Innovation Authority (VAIA) that acts as a cross-governmental coordinator in R&I matters and secratriate of the Council.

Bulgaria is in the process of establishing a national **Innovation Council**. It is foreseen that the council will be co-chaired by the Minister of Education and Science and the Minister of Innovation and Growth. In addition, the council will have members from business, representatives from Higher Education Institutions (HEI), research organisations and experts on IPR and technology transfer will join the council. The Innovation Council will act as an advisory body to the two ministers.

Malta has the **Malta Council for Science and Technology (MCST**)[22] which has a mix of tasks. In addition to advising the government on national and international R&I policy matters (including smart specialisation), MCST manages a range of national and international R&I programmes. MCST advises several thematic ministries, thus as such it forms a horizontal bridge across the governance system. The organisation is led by a CEO who is politically appointed. With a mix of operational and advisory functions, it is less comparable with the councils in other MLE countries that act solely as cross-ministerial advisory body.

[21] See the website of the Finnish Research and Innovation Council: https://valtioneuvosto.fi/en/research-and-innovation-council.
[22] See the website of the Malta Council for Science and Technology: https://mcst.gov.mt/.

Examples of national R&I Councils discussed in the MLE

Romania is has very recently reformed and streamlined its R&I governance system and established a **National Council for Science Technology and Innovation Policy (CNPSTI)** as a single coordination structure. This council will coordinate all R&I related investments. The preparation of the legal framework and its operation is still underway, but it is likely that the council will be chaired by the Prime Minister and will provide strategic directions for the national plan for R&I. The Council will formally set the strategic direction to an inter-ministerial committee with representatives from all ministries with R&I investments.

Table 5: Examples of national R&I Councils discussed in the MLE

The MLE exchanges suggest that high-level councils can be an important mechanism to foster a more WGA as well as setting a longer-term direction for R&I policy, rather than the short-term operation and funding decisions that governments often take. Comparing the experiences of the five participating MLE countries, it is obvious how much the position, composition and roles of these high-level councils are shaped by the national administrative structures, political history and culture. The extent to which these councils represent different layers of stakeholders from within and beyond government varies considerably.

While the literature on councils mostly focuses on the structure, membership and mandate, the MLE participants' experience highlighted additional success factors:

- It is not only the composition of the council but also the quality, experience and commitment of the **individuals** in the council that makes a difference. Evidence suggests that members who were selected due to their expertise often add more value to the debate than members who represent a particular type of organisation;

- **Size matters**: the experience of some countries is that when councils have too many members, coming to decisions and providing clear policy advice is much more difficult. Particularly in those countries that need to take more radical decisions and reforms, smaller councils seem to be more effective. Hence the reform of the Slovak Government Council RVVTI, reducing considerably the number of (ministerial) members. This seems to be contrary to the WGA philosophy of broadening the policy scope. In operational terms there is a trade-off between expanding the policy scope and effective decision making which needs to be taken into account when designing governance structures;

- For a council to be listened to it needs some form of **leverage**. Often this concerns the coordination of the allocation of (European) R&I funds. It can also be a political commitment, perhaps by the endorsement of the Prime Minister as a member or chair of the council. In countries undertaking reforms, the ministers present in the council need to 'own' the reforms set out in the council's long-term strategies;

- Having **clear targets** on what the council's advice should achieve in the longer term (beyond electoral periods) helps to give clarity to the council's tasks. The discussions should go beyond detailed short term (funding) decisions but rather tackle the 'hard questions' on the R&I system;

- To underpin the **continuity** of a council and to provide some stability in politically volatile times, the existence of a secretariat type body that has resources to collect policy

evidence, to consult actors on a regular basis and to disseminate information to a wide set of stakeholders is considered an important asset to the R&I system. This also helps councils to operate across the short political election cycles.

It was argued that **legacy** plays an important role and makes it difficult to change these strategic councils' set up and position significantly. Particularly if significant system reform is needed, the legacy of existing councils can hamper change. Nevertheless, the example of the reformed Slovak RVVTI demonstrated that changes can be made to improve the council's performance and influence learning from experiences of the former council.

There are quite some societal issues that need well developed **multi-level governance mechanisms** and channels to underpin WGA, as both problem owners and solutions can be regional and local. Particularly the collaboration between national and regional policy makers and stakeholders (e.g. innovation centres, local hubs) are in need of improvement in most of the MLE participant countries. Smart specialisation strategies have improved this, nevertheless, a study by Guzzo et. al. (2021) on the governance of smart specialisation found evidence that there are still several problems and challenges with multi-level governance.23 The MLE highlighted examples of progress made on this issue, for instance, the Slovak Republic adopted an ecosystem approach and empowered the regional innovation centres to become regional innovation authorities with more autonomy and independence.

3.2. Processes, policy culture and learning

Governance structures aimed at strengthening the coordination and collaboration between diverse government institutions, whether permanent or temporary, are important building blocks for WGA as discussed in the previous section. However, even when in place, these are not sufficient to make a WGA function well.

Many examples discussed during the MLE showed the importance of political culture (leadership, aiming at a shared long-term vision), a culture to collaborate across the administrative and legal boundaries of specific policy domains and in general a strong trust culture in society and policy, Collaborative processes work as the 'oil in the governance machine'. In addition, the MLE participants learned how open, inclusive and constructive dialogues to develop joint initiatives, need time, sufficient human capacity in the relevant institutions and sometimes professional and external facilitation.

Political leadership at a high level is essential for the WGA to work so that ministers and senior civil servants are committed to the WGA approach. This supports the development of shared visions of the long-term overarching policy goals. In this vein, WGA requires a re-alignment of understandings about goals, roles and outcomes, and a shift away from narrower departmental objectives.

In a few instances the connection with politicians and parliament is actively involved in the R&I governance. In Finland, parliamentary cross-party working groups aim for a 'whole of political spectrum approach' to R&I policy and develop multi-annual R&D funding plans. One of the commitments the working group made was to raise the R&D intensity of Finland to 4% of GDP by 2030. In Romania, the MLE met with a representative of the Senate's cross-party Committee for Science, Innovation and Technology that looks at legislation in this domain and connects with stakeholders from the R&I community. In general, an enhanced role of

[23] Guzzo, F., C. Gianelle (2021), Assessing smart specialization: governance, JRC Report, EUR 30700 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-37673-6, doi:10.2760/48092, JRC123984.

and connection of parliaments with other R&I policy stakeholders could be explored more widely as a tool in MS. Potentially it can help raise awareness of R&I, stabilise the funding levels beyond election periods and foster the whole of political spectrum approach as applied in Finland. Even if the political situation is unstable (e.g. frequent changes of government, R&I not high on the political agenda) there is room for manoeuvre to engage in WGA-type activities and experiments, as practical examples explored during this MLE have shown.

In Finland, the Prime Minister's Office coordinates and develops joint foresight work of the government and of the ministries. The focus is to bring future challenges and opportunities to be discussed, explored and decided together, to link futures work and strategic foresight to decision-making processes, to strengthen cross-governmental foresight work, to establish continuous strategic foresight processes in government. The main foresight processes are the Government Report on the Future and the futures reviews of the ministries. Stakeholder engagement in such processes is important such as the citizen dialogues which in the in the last round mobilised 500 citizens, without a clear represented position, questions about hopes or fears for the future and preferred futures. Moreover, people from vulnerable communities, e.g. deaf people or immigrants, are engaged.[24]

3.3. Actors' engagement in policy making

Key take aways on actors' and stakeholder engagement
Actor engagement is crucial for WGA as it leads to more transparency, involvement and helps to widen the diversity of inputs to the design of R&I policy. If implemented well it helps building more trust.
While actor engagement was practised regularly in most countries, it was rarely built systematically into the policy cycle.
Several remedies can be applied to avoid that dominant stakeholders have too much influence in stakeholder engagement processes.
Good communication and expectation management are essential to have positive inputs from actors' engagement processes.
Managing and facilitating actors' engagement processes asks for investment in specific expertise and skills

Table 6: Key take aways on actors' and stakeholder engagement

A WGA approach is not only concerned with improving coordination and collaboration between government authorities, whether horizontally (across policy domains) or vertically

[24] Presentation of Jaana Tapanainen-Thiess, 'The Whole of Government Approach in Government Foresight and Government Report on the Future', in the country visit to Finland of the MLE WGA on Green Transition: Implementation of Industrial Technology Roadmaps through the Whole of Government Approach, September 25, 2023.

(at different geographical levels). The involvement of stakeholders, beyond government authorities, whether direct or indirectly concerned with the outcome of R&I policies, is also crucial for effective policies. Engaging actors in a meaningful way in R&I policy and governance serves several purposes as it:

- increases the **transparency** of public policy and therefore serves a more general purpose of improving democratic processes and raising trust;
- **can improve the relevance and adequacy** of policy strategies and interventions and bring them more in line with the needs of these stakeholders, thereby increasing the potential effectiveness of these interventions;
- increases **adaptability and receptiveness** of policy to emerging needs and opportunities;
- creates the opportunity to **widen the diversity** of inputs in the design and implementation of R&I policies;
- raises **early awareness of potential conflicts and risks** that strategies and policies could bring about.

In the previous chapter on WGA governance, high-level councils for R&I as a mechanism to involve stakeholders from outside government in a long-term debate on the national R&I strategy was discussed. In addition, the involvement of regional and local actors through multi-level governance was briefly discussed in that chapter as well. More recent extensions of the concept point to the necessity to go even beyond a WGA and include non-government actors as well like the 'whole of nation approach' (WNA), 'whole of community approach' (WCA), and 'whole of society approach' (WSA) – especially in addressing problems that need active participation of citizens. The whole of nation approach is often used in relation to ensuring security, peace and resilience in countries. Organisations such as the World Bank use the concepts including WGA as an overarching policy framework for national reforms.[25]

Much of the attention in the R&I policy context has been on involving citizens, predominantly in relation to scientific research. Under the banner of responsible research and innovation (RRI), tools and guidelines have been developed to make science (policy) more inclusive and to broaden the engagement of stakeholders and citizens in the performance of science.[26] The OECD (2023) recently published a policy paper on the topic of citizens engagement in innovation policy. The paper's definition of the different actors of the innovation ecosystem relevant to engagement is quite wide and includes the private sector, research and academia, the non-profit sector and civil society organisations in addition to citizens as the 'public'. The report identifies challenges of engaging citizens in innovation policy as the topic is seems disconnected from everyday life and may be perceived as highly complex and technical.

During the MLE, practices were shared on **why, how and when** actors' engagement enriches the scoping, design and implementation of R&I policy. One clear finding is that trust building is a key ingredient of engagement processes. In traditionally high trust-based societies actors' engagement is more common and systematically built into (R&I) governance processes. Low

[25] See for instance the World Bank publication on applying WGA to human capital policy.
[26] See in particular the website https://rri-tools.eu/ which provides many tools, resources and other information to apply RRI principles, including stakeholder engagement.

trust-based societies need more experimentation and perhaps start with small steps, showcasing success stories and ensuring that there is sufficient inclusiveness.

Stakeholder engagement in the Slovak Republic discussed in the MLE
For the preparation of the national R&I Strategy the innovation Authority (VAIA) made extensive use of various forms of stakeholder engagement, alongside traditional methods such as data gathering and institutional consultations. These stakeholder consultations were held in several cycles of evaluation and redesign of the national R&I strategy.
In an early stage, over 100 in depth interviews were held with businesses, researchers, students and other experts. To draw up the first strategy concept, the next step was to organise a co-creation festival to develop policies with 90 'end-users' from the wider ecosystem. During this festival specific policies for 11 interventions areas were designed, piloting design-thinking methods. In parallel to the festival round tables were organised with government partners to discuss the financing of R&I. Subsequently, a first draft of the national R&I strategy was published for wider public consultation. This led to over 700 comments on the national strategy which were synthesised and incorporated in the next draft of the strategy. The final version of the national R&I strategy was submitted for approval through the more traditional channels of institutional and cross-departmental proceedings, then approved by the Council of Science, Technology and Innovation, before final approval by the government.
Some key lessons learned was that the process takes considerable time and requires good planning. Feedback loops and evaluation should be part of this planning process and constructive criticism should be expected and taken on board. The broad commitment from the wider ecosystem provided additional support to the innovation authority to have the national R&I strategy adopted by the government.
For the preparation of the national R&I Strategy the innovation Authority (VAIA) made extensive use of various forms of stakeholder engagement, alongside traditional methods such as data gathering and institutional consultations. These stakeholder consultations were held in several cycles of evaluation and redesign of the national R&I strategy.
In an early stage, over 100 in depth interviews were held with businesses, researchers, students and other experts. To draw up the first strategy concept, the next step was to organise a co-creation festival to develop policies with 90 'end-users' from the wider ecosystem. During this festival specific policies for 11 interventions areas were designed, piloting design-thinking methods. In parallel to the festival round tables were organised with government partners to discuss the financing of R&I. Subsequently, a first draft of the national R&I strategy was published for wider public consultation. This led to over 700 comments on the national strategy which were synthesised and incorporated in the next draft of the strategy. The final version of the national R&I strategy was submitted for approval through the more traditional channels of institutional and cross-departmental proceedings, then approved by the Council of Science, Technology and Innovation, before final approval by the government.

Table 7: Stakeholder engagement in the Slovak Republic discussed in the MLE

It was evident from the MLE discussions that the engagement of actors, whether those directly involved in R&I policy, beneficiaries, problem owners or interested citizens is considered crucial to define and develop better R&I policies and strategies. While actor engagement was practised regularly in most countries, it was rarely built into the policy cycle systematically. It was observed that actor engagement is more difficult to organise in a country where **trust** in the political system and government is low compared to a high trust country, such as Finland. In addition, in countries with limited R&I funds, competition for scarce funding amongst the actors makes co-creation type consultation processes more complicated. The workshop participants discussed various responses to working in a context of low trust, including extensive and transparent communication and launching small experiments to get a first set of stakeholders on board. It is clear from the examples that building trust is a very slow process and takes ample planning. As was said during the MLE workshop in Bratislava: "*don't expect quick fixes from actor engagement processes"*.

In the MLE debates it was stressed that all stakeholders, whether academics, business representatives or others have certain interests. It was argued that R&I policy makers should contextualise this and recognise the position of specific stakeholder groups. Several **remedies against a dominant set of stakeholders** having too much influence on the engagement processes were proposed such as:

- Large scale opinion polls with a broad representation to ensure a wide enough input;
- Actively mobilising new, previously underrepresented stakeholders to join the engagement processes and ensure diversity of actors in consultation processes;
- Jointly developing common visions and strategies with distinct, and opposing, stakeholders, in order to create more understanding of each other's positions and helping everybody see the bigger picture;
- Providing data and evidence before the stakeholders meeting and/or asking stakeholders to provide evidence to support their point of view.

Engagement processes require good (two-way) communication. All good practice cases had **ample attention to the communication** throughout the engagement process including feedback loops, so that it is clear that something is actually done with the inputs from the consultations. There were many examples of a creative use of social media, festivals and events, television programmes and so on, alongside the more traditional methods such as interviews, workshops, conferences, and round tables. Nevertheless, there was agreement that keeping the communication alive after the inputs have been collected and keeping actors informed on how the inputs are used and subsequently implemented is much more challenging.

How exactly to organise different forms of actor engagement is context specific and needs to be adapted to national, regional and local situations. This limits the possibility for making specific recommendations based on the rich set of examples and experiences examined by the MLE. Notwithstanding, the MLE workshop demonstrated that the problems and challenges related to actor engagement are not unique and **lessons learned from other countries** can be valuable when adapted to a specific context.

4. Applying WGA in practice: novel policy instruments, green industrial technology roadmaps and missions

4.1. A new approach to policy instruments in a WGA context

Key take aways on policy instruments
• A WGA necessitates identifying and addressing the problems that hinder innovation performance within the broader innovation system. To effectively target these issues, policy instruments should adopt a problem-oriented perspective. • In addition to problem-oriented instruments, a WGA in R&I policy requires a focus on addressing complex societal challenges, often referred to as grand challenges. These challenges demand transformative approaches to drive significant changes in socio-technical systems. • A crucial aspect of a WGA in research and innovation policy is the coherence and consistency of the policy mix. Governments should ensure that the combination of policy instruments avoids duplication, overlap, or unbalances.

Table 8: Key take aways on policy instruments

The design and implementation of R&I policy instruments need to be seen from a different perspective using WGA lenses. Traditionally the range of R&I policy instruments is focused on improving the functioning of the R&I system, such as to stimulate scientific excellence, promote R&I careers, improve the collaboration between academia and business and so on. Nevertheless, even if the objective of the policies is to improve the R&I system, collaboration with other policy domains and wider parts of government are needed. A topic discussed frequently during the MLE is how to address the brain drain in science and technology. A policy mix which included measures outside the R&I realm such as visa and immigration regulations, fiscal incentives and various social measures were mentioned as part of the approach. This requires action across several policy sectors.

With increasing attention given to the role R&I needs to play in addressing wider societal issues, R&I policy objectives have become broader. Internationally the focus on the contribution of R&I to the SDGs has meant that policy instruments need to cover wider set of dimensions. This requires greater directionality of policy instruments to address complex societal issues that go beyond the R&I system. Hence, R&I policy instruments need to be aligned with policy instruments from other sectoral policies and different types of policies such as regulations (legal changes), fiscal measures, and ‘soft instruments’ to change behaviour.

As no policy instrument operates in a vacuum or can address complex issues also, a customised set of policy instruments, also called a policy portfolio, is required to address the particular problem(s) that need government intervention. This portfolio is best construed as a coherent and consistent policy mix, meaning that policy instruments do not conflict with each other but rather reinforce their impacts, avoid duplication and well balanced.

The problem-oriented R&I policies should ideally be transformative in nature, e.g. having a systemic approach that aims at substantial changes that have societal impact, rather than focusing on single technologies or sectors. Again, such a transformative approach calls for

policy design processes that go beyond the traditional focus of R&I policy and have more 'directionality' aiming at specific problems. This does not mean that such an approach replaces traditional R&I policy instruments, but it complements these. Finding the right balance between traditional and problem-oriented policy instruments is part of the search for the right policy mix and will vary depending on the specific characteristics of the national and regional R&I systems.

Example of an integrated approach to low carbon energy discussed in the MLE
Reviews of R&I system in Bulgaria have pointed out that the fragmentation of the R&I landscape is a major obstacle to address societal issues. To assist Bulgaria's transition to a low-carbon competitive economy, the government launched the *National Scientific Program Low carbon energy for transport and domestic use,* that aims to integrate the activities of an extensive number of research institutions, universities and the private sector stakeholders to jointly tackle low-carbon energy solutions. The programme aims to significantly intensify the connections between public research and the private sector, and to introduce a defragmented and multidisciplinary approach to the topics in the programme. In addition the alignment with European initiatives in low-carbon energy is ensured. To increase the effectiveness of the research programme, a clear link is established with the National Roadmap of Research Infrastructures to design and build demonstration projects for the deployment of low carbon technologies. For Bulgaria such a cross-institutional approach spanning multiple institutes of the Bulgarian Academy of Sciences, universities from across the country and private sector participants and across different R&I programmes is a novel way of horizontal research programming.

Table 9: Example of an integrated approach to low carbon energy discussed in the MLE

In particular, the societal problems (e.g. sustainable energy, health and wellbeing, climate change) ask for intensified collaboration across areas of government, that go beyond the R&I system, and ministries, agencies and institutions. A WGA can be help define a more systematic and holistic approach to specific policy problems. As aforementioned, rarely does the WGA involve the entire spectrum of governmental policy domains.

From the R&I policy perspective, a comprehensive mapping of the existing policy instruments is an important step to develop a coherent policy mix that covers both the performance of the R&I system and the societal challenges. This involves categorising their objectives, their target groups and stakeholders as well as evidence on their effectiveness. A recent JRC report (Bianchi et al, 2024) demonstrates the use of power maps to identify relevant actors towards a WGA, combined with an understanding the relative importance of each policy, to allow to prioritise the most relevant ones to develop transformational agendas.

For each specific societal challenge that R&I policy aims to contribute to, an additional mapping is needed of policies in other domains that either reinforce or hamper the effectiveness of the R&I policy instruments. This will need the engagement of other ministries and agencies responsible for the relevant policy domains and a dialogue on how each other's policies can reinforce existing and new policy instruments. This works best when the policies are embedded in the overall strategic goal-setting by the government.

The MLE discussed several cases where multiple ministries and agencies developed joint policy instruments as well as policies initiated by the R&I ministries or agencies, but with active input from those other policy domains. The Challenge Driven Innovation programme managed by the innovation agency Vinnova in Sweden is an example of an instrument

focused on projects finding solutions for the SDGs. The funded projects are multidisciplinary and require the involvement of a wide group of stakeholders, including 'problem owners'. Another example is the Pilot-E programme developed by three agencies in Norway responsible for policy objectives for science, innovation, climate and environment (see Box 2).

Pilot-E programme from Norway – a case of joint programming

Pilot-E is an example of a successful case of joint programming. It is a relatively small funding scheme that supports R&I projects about green innovation. The programme is a "fast track from concept to market", funding specific projects of collaborative consortia, mostly firms.

The programme is run jointly by three Norwegian agencies: the Research Council of Norway, Innovation Norway, and Enova. The first call for proposals was launched in 2016. Each call for proposals has a specific theme related to green innovation, such as: Zero-emissions maritime transport, zero-emissions land-based good transports, the energy system of the digital age, sustainable industrial processes, zero-emissions in the building and construction sector, etc.

- Projects must comply with the following criteria:
  - Cover the entire pathway from research to full-scale demonstration.
  - Have a plan for market introduction of the new green solution.
  - Fall under the thematic area of the call for proposals.
  - Establish a steering group, including anticipated customers.
- Relevant features of the implementation of Pilot-E:
  - Strong collaboration across the 3 Norwegian agencies managing the programme jointly.
  - Strong thematic clustering of the individual projects in portfolio boards.
  - Strong directionality and coherence between Pilot-E thematic funding and overall Norwegian R&I policy strategy.
  - Policy-makers follow-up closely the development of the individual projects.

Table 10: Pilot-E programme from Norway - a case of joint programming
Source: Borrás and Schwaag-Serger (2022); and Larrue (2021)

4.2. Industrial Technology Roadmaps for Green Transition

Key take aways on applying WGA in green industrial technology roadmaps

- Industrial decarbonisation strategies highlight the advantages of a careful design and implementation of the industrial technology roadmaps, which includes the need for the

Key take aways on applying WGA in green industrial technology roadmaps
engagement of industry actors to benefit from their competencies and resources to define and implement the actions. • For industrial technology roadmaps to prepare for future challenges the government needs to balance between selecting participants from the representative structures of current industries and from the emerging fields, for instance start-ups, research and technology organisations and civil society organisations. • The approaches illustrate the essence of investment in strategic intelligence to support the policy approaches (data sets, baseline studies, foresights, monitoring and evaluation).

Table 11: Key take aways on applying WGA in green industrial technology roadmaps

The green transition and the implementation of industrial technology roadmaps is a topic closely connected to the policy on industrial decarbonisation, which is addressed by another PSF MLE[27] (European Commission, 2023b). The latter MLE seeks to contribute to the Green Deal objectives and it is a follow up of the first ERA industrial technology roadmap on low-carbon technologies in energy-intensive industries, published by the European Commission in April 2022. It aims at facilitating the development or update of specific national industrial technology roadmaps and cross-sectoral strategies or programmes with key stakeholders. In fact, ERA Action 12 on 'Accelerating the green/digital transition of Europe's key industrial ecosystems' aims embraces the industrial technology roadmaps as one of the key pillars of activities in 2023-2024 with 20 Member States, 3 Associated Countries and 7 stakeholders.

In this MLE, the focus was on how WGA approaches can be applied to orchestrate the industrial ecosystem stakeholders and to enable more disruptive structural changes to socio-economic production systems thereby improving environment sustainability. The industrial green transition is typically a topic that calls for a WGA approach. The topic crosses many policy domains such as industrial policy, R&I policy, climate change, sustainable energy or, depending on the sector, many more such as mobility and communication systems. According to the MLE participants, the topic is dispersed over a wide range of government strategies, government departments and agencies, often at a preparatory stage or still in consultation. Consequently, it proved difficult for the MLE countries to pinpoint exactly how far advanced they are in this area, as the information is dispersed over many institutions and stakeholders.

There is not **one** model for green industrial road-mapping. The MLE discussed examples of politically led ones, public-private partnerships, some with industry in the lead, and grassroots initiatives. One model is not better than the other, however private sector stakeholders need to be actively involved in order to drive change in the industrial ecosystem.

Finland provides an **inspiring example o**f how the government facilitated and how **industry was eager to take the initiative in the road mapping process**. "We are in this together" was the clear message.

[27] The MLE on Industrial Decarbonisation serves as a platform for 12 participating countries and runs between April 2023 and March 2024 (see for more detail, European Commission, 2023b). For more information, see the information: Mutual Learning Exercise on Industrial decarbonisation | Research and Innovation (europa.eu)

These processes take place in a context of a cooperation and strategy setting culture across the Finnish government and politics, and part of a wider trust culture in government and society. This was illustrated by the "Government Report on the Future" and the cross-party Parliamentary Working Group on R&I as mentioned above in Chapter 2.

The outcome of the road-mapping processes and the demand for support from the government was not necessarily for (R&I) funding, but more so for changes in regulation, to allow innovative products on the markets, for instance. In the discussion on Finland's national circularity strategy, it also came to the forefront that regulation and permits are essential in changing the ecosystem towards circularity.

Sector-specific low-carbon roadmaps in Finland using a WGA approach discussed in the MLE

The objective of a carbon-neutral Finland by 2035 was announced by the government in 2019 stating that sector-specific roadmaps to low-carbon operation would be prepared in cooperation with each sectors' operators. The roadmaps were to be used to achieve a better understanding of the scale, costs, and conditions of the required actions.

A total of 13 sectors28 produced roadmaps in coordinated cooperation. In addition, bio energy association and one labour organisation published reports to contribute to the roadmap project. The sectors had independent control over the drafting and execution of their roadmaps.

In addition to project managers and steering groups assembled by the sectors, consultants and trade association committees were particularly important actors. Some sectors also organised workshops, discussions, avenues for comment, and member surveys to enable them to extensively listen to their membership and stakeholders. Each of the core sectoral roadmaps contain their own scenarios and models. The same consultant and core team was engaged across the roadmaps, leading to some comparability between roadmaps.

The Ministry of Economic Affairs and Employment (MEAE) supported the sectors by coordinating the whole project, offering guidance, and arranging regular discussions and seminars. Additionally, the sectoral ministries participated in monitoring the roadmap efforts and/or the utilisation of the results in their sectors.

The roadmaps show that the Government's goal of a carbon neutral Finland in 2035 is achievable for industry and other sectors with existing or upcoming technologies. However, the realisation of roadmaps requires that the investment environment is favourable.

The results of the roadmap work have been utilised in the preparation of the Government's climate and energy policy, the targeting of R&I investments and the preparation of a sustainable recovery.

Table 12: Sector-specific low-carbon roadmaps in Finland
Sources: (Paloneva & Takamäki, 2021) and the MLE panel discussion [29]

[28] The roadmap project identified the energy, chemical, forest and technology sectors as the key industries in terms of greenhouse gas emissions. Other sectors included agriculture, bioenergy industry, commerce, construction industry, food industry food industry, hospitality industry, logistics and transport, property owners and developers, sawmill industry and textile industry.

[29] Panel discussion on Finnish industrial low-carbon roadmaps and implementation: public-private cooperation, in the country visit to Finland of the MLE WGA on Green Transition: Implementation of Industrial Technology Roadmaps through the Whole of Government Approach, 25 September 2023.

As the debate across the MLE participants and Finnish experts revealed that developing and publishing the industrial roadmap for each sector is a valuable process, building joint responsibility for the green transition across the private and the public sector. A more challenging aspect is to ensure that the roadmap is completely implemented, and targets are met across the industry members, as these roadmaps are mostly voluntary. There was no clarity whether the government should use 'carrots' (e.g., co-funding of (R&I) investments, public procurement) and/or 'sticks' (directives and regulations if targets are not met). It was suggested that when the roadmaps are finalised, government could create a roadmap 'mirror group' to ensure that actions that need to be taken by the public sector are picked up by relevant ministries, agencies and regulators. It was clear from the examples presented during the workshop that the roadmaps are accompanied by extensive data analysis to create good baseline studies as well as foresight studies to develop the scenarios for the future.

4.3. Mission policy as a driver for WGA

Key take aways on missions as a driver for WGA
• Societal challenge-oriented missions form excellent opportunities to develop WGA-like cross-sectoral policy approaches, allowing sectoral departments to have a seat at the table and using R&I as a contributor to a wider set of policy objectives. • The lessons from the MLE good practices is that mission oriented R&I policies can be developed using existing governance structures and policy instruments combined with extensive stakeholder engagement. • Integrating mission-oriented policies as a key element in transformative R&I policy will require a stronger governance reform with collaborative mechanisms between sectoral policy domains and with a diverse set of stakeholders).

Table 13: Key take aways on missions as a driver for WGA

Horizon Europe's mission policy and similar mission policy approaches in EU countries forms an insightful example of a WGA-like approach. A separate PSF MLE dedicated to EU Missions launched in 2023 elaborates mission policy and its governance in more detail.[30] During the WGA MLE the governance of missions was regularly discussed as an example of a coordinated policy approach.

Mission policies aim to target a specific societal challenge with clear objectives and targets. R&I policy is one component for achieving those targets, ideally in coordination with other sectoral policies and policy instruments (e.g., regulation, public procurement, training and re-skilling, public finance). To address mission policy, a number of novel governance developments launched in this domain are worth considering.

The European Commission (EC) introduced a number of novel governance approaches for the implementation of the first Horizon Europe missions. All five missions have designed similar governance structures and are set up as cross-EC undertakings. Typically, one Directorate General (DG) operates as mission manager, while another has taken up the role as deputy mission manager. All missions have an EC owner group which represents the DGs

[30] See the First thematic report of this MLE on Creating National Governance Structures for the implementation of EU missions.

and agencies involved in the mission. The composition of these owner groups varies considerably across the Missions, with for instance the owner group of the Cancer Mission consists of over 25 EC entities, while other missions have less than 10, mostly sectoral DGs involved. The MS representation in the programme committees (sub-groups dedicated to a specific mission) is in some cases also expanded beyond the usual representation from the R&I policy domain.[31]

At national level, the Austrian government has established a new implementation and governance framework, led by an EU Missions Working Group (see Figure 1). This working group is co-chaired by the Ministry of Education, Science and Research (BMBWF) and the Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK). The working group also has members from the Chancellery, Finance Ministry, Health Ministry, Ministry for Agriculture, three other ministries with R&I responsibilities and 11 federal R&I institutions. This is almost the whole of government that takes part in coordinating Austria's contribution to the EU mission policy. This group developed an '*Implementation Framework for the Implementation of EU Missions in Austria*'. The Austrian agency for research and innovation funding (FFG) is tasked with the management of the national mission policy and funding. In addition to the missions working group, a range of stakeholders are involved also in mission specific 'Action Groups'. To support this governance structure, the working group has invested in setting up a strategic intelligence system, the so-called mission facility, focused on monitoring and evaluation and foresight studies.

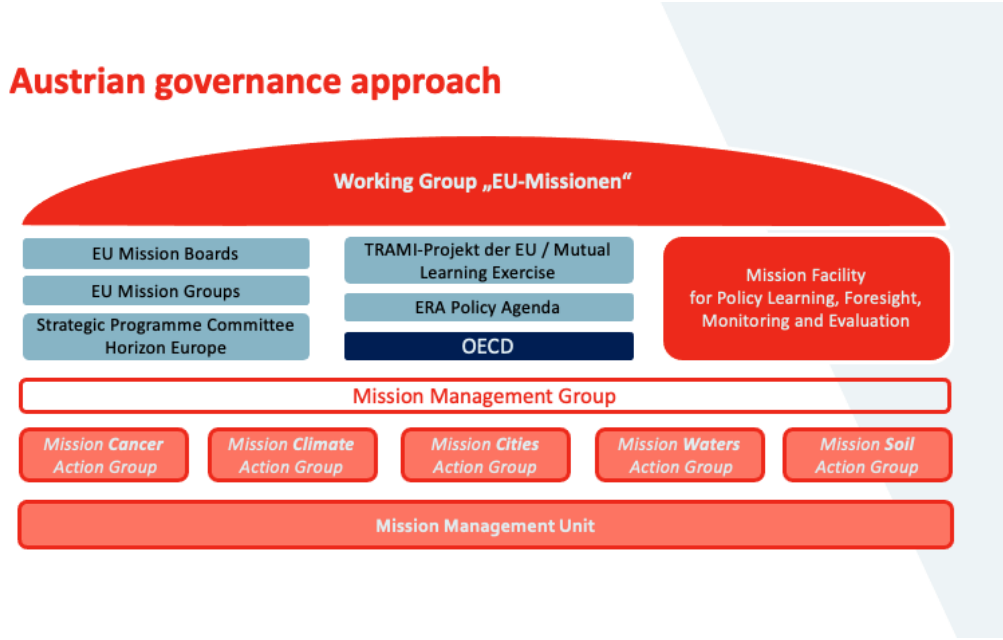

Figure 1: Austrian governance approach to mission policy;

Source: C. Naczinsky presentation MLE workshop Bucharest, 9 November 2023Good examples on mission policy

[31] Commission Expert Group to support the monitoring of the EU missions, (2024), European Commission, DG Research and Innovation.

Other good examples of WGA aspects of mission-oriented initiatives discussed during the MLE came from various countries:

- The Czech Republic's piloting of two missions (climate change, health and security) as part of their smart specialisation strategy. The definition of the mission themes was based on national and regional priorities rather than a copy of the EU missions. Areas of synergies with the EU missions were explored and mapped out. The Czech approach mobilised both horizontal (across policy domains) and multi-level governance mechanisms (at national and sub-national levels) to design and implement the missions.32

- In the Netherlands the 'Topsectors Innovation Policy' originally launched in 2011 was redesigned in 2019 to become **mission-oriented** Topsectors and Innovation Policy. The governance change that was needed for the new focus was a stronger top-down agenda setting to align the polices to the public interests. The agenda was set by the cooperation of the lead Ministry of Economic Affairs with five other ministries (e.g. health, infrastructure, agriculture, nature and food quality) to define the challenges that will solve societal issues and improve the competitiveness of companies. The involvement of stakeholders and particularly the private sector in the agenda setting is very strong as well. Existing policy instruments were given a societal challenge focus and the policy mix adapted to underpin the change of direction.

- The Romanian RRP had planned the establishment of a number of competence centres at public research organisations, with the main objective to foster collaboration with the private sector and to reduce the fragmentation of the national R&I system. The Romanian Ministry of Research, Innovation and Digitization had originally proposed the establishment of these competence centres, but not with a mission approach in mind. Inspired by the EU mission policy approach the ministry decided to align the planned competence centres that were to be established in 2022, to the EU's mission approach and published an open competitive call for the competence centres matching the thematic domains of the five EU missions. Today five competence centres are established on the themes of Cancer, Adaptation, Oceans and Water, Climate-neutral and Smart Cities and Soil. All of them have considerable private sector financial involvement.

- The Slovak Republic started with a mission approach in one thematic area where a strong societal consensus to develop a novel approach was anticipated: health. On this theme, the Innovation Authority VAIA applied an extensive stakeholder engagement process, to map out the perspectives from a variety of stakeholders directly involved with the theme. VAIA also made an effort to bring in new perspectives of stakeholders not often heard in these R&I policy processes. As a mission approach was new to the country, VAIA experimented with new methods and did smaller pilots to engage more public support and to commit actors to be involved in the health mission activities.

The latter examples demonstrate that a stronger collaborative policy triggered by a mission approach, does not necessarily ask for extensive changes in the governance structure or R&I funding mechanisms. Policy makers had the agility to mobilise existing structures and policy instruments to reducing the silos between sectoral policy domains and between policy

32 See for a detailed review of this Czech approach: Reid A., Steward F., Miedzinski M., *Aligning smart specialisation with transformative innovation policy. Lessons for implementing challenge-led missions in smart specialisation,* Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/359295, JRC134466.

makers and stakeholders. It also demonstrates the power of taking small steps and piloting new approaches to slowly build on stronger actor and stakeholder commitment in these mission type initiatives.

5. Lessons learned

The WGA is key to address transformative and complex policy issues and design coherent policy mixes. The approach gives powerful incentives and tools to foster cross-policy coordination and collaboration to tackle challenges and opportunities with more impact. A WGA allows to create more synergy between policy interventions, to mobilise a larger set of stakeholders and through more directionality, increase the impact of R&I on addressing societal challenges.

The MLE demonstrated that:

- There are many modes and tools available to engage in WGA-like R&I policy making, whether through the establishment of dedicated governance structures, collaborative processes or the design of joined up policy instruments. As shown by the examples in this report, many good practices are in place to demonstrate how this can be applied in different national and sub-national contexts.

- Some countries are more conducive to WGA approaches than others, mostly due to a long tradition of overarching long-term policy visions, inter-ministerial collaborative processes and open and transparent stakeholder engagement.

- Countries with unstable and relatively low levels of R&I funding have more challenges to collaborate across ministries and often lack the overarching long-term transformative agenda that sets the joint goals for all government departments, where R&I can contribute to wider policy challenges.

- In some countries there is still room for improvement for structural reforms that would make them more conducive to taking a truly cross-cutting policy approach. While there are advancements in breaking down the walls between science and research policy on the one hand and innovation policy on the other, for a transformative innovation policy more steps need to be taken.

- The implementation of WGA approaches asks for R&I programmes that are designed and implemented by cross-departmental units that tackle the urgent challenges jointly. In addition, it needs coherence and consistency of the policy mix. Governments should ensure that the combination of policy instruments avoids duplication, overlap, conflicting targets or unbalances.

However, WGA is **not a panacea for all cases,** as WGA can be complex, labour intensive and likely to slow down decision making. Hence, countries need to be selective and use WGA when it genuinely adds value to the desired policy outcomes. Moreover, as coordination and collaboration take time and human efforts, it should not be expected that WGA will happen spontaneously or for the purpose of collaboration per se. Those involved need to be convinced (by evidence) of the added value of the approach in achieving policy objectives with more impact.

Each challenging policy topic calls for different constellations of government entities and stakeholders and rarely does it need the involvement of the entire government. Mapping out

what constellation of actors fits the policy challenge and what role research and innovation (R&I) policy plays in this constellation is a necessary first step to start crosscutting policy approaches.

The historical characteristics of policy systems and prevailing political cultures mean that some countries have policy environments that are more conducive to WGA than others, as became clear across the range on countries participating in the MLE. On the basis of the many exchanges in the MLE, the lessons are that the key ingredients for an effective WGA are a) cross-silo governance structures, b) collaborative policy culture and open processes and c) relevant capacities in government institutions.

The country visits in the MLE allowed us to present and discuss a wide range of policy tools used across Europe that support more collaboration across policy silos. The Table below lists a number of these tools and governance structures that could be applied to stimulate WGA.

Type of WGA activity	TOOLS
Involvement of highest political level	• Cross-party parliamentary working groups on long-term position of R&I. • Awareness building events with national and sub-national parliaments. • Broad R&I advisory councils reporting directly to parliament.
Involvement of high-level government decision makers	• Government to set overarching, long-term policy agenda and targets including a transformative innovation agenda. • Prime Minister takes leading role in high level R&I councils. • Establishing cross-governmental Task Forces for a small number of urgent priorities. • Support institutional capacity building and training across the government system to enhance collaborative processes and systematic stakeholder engagement processes.
Cross-departmental policy making	• Creating institutionalised cross-departmental units of specific policy topics. • Developing and implementing cross-ministerial R&I programmes. • Develop policy mixes and policy portfolio approaches to cover key dimensions of complex policy challenges. • Bringing together (opposing) stakeholders from in a policy domain and setting up stakeholder platforms.

Type of WGA activity	TOOLS
	• Defining pooled resources for a topic that is only allocated across ministries for joined up policy plans. • Shared research and innovation agencies that report to multiple ministries on cross-ministerial topics.
Multi-level governance involvement	• Co-develop R&I and transformation agendas with regional governments, authorities and intermediaries to foster local and regional eco-systems. • Encourage policy collaboration, good practice exchange and resource pooling across regional and local communities. • Raise awareness building of WGA at sub-national policy level (workshops, show cases, pilots etc.).
Preparation and strategic intelligence for WGA approaches	• Data collection on R&I activities, beneficiaries, and other stakeholders in a WGA domain. • Mapping exercises of relevant policies in a specific domain, within and outside the R&I policy effecting the transformation targets in a thematic domain and prioritising them for further action. • Develop data systems for policy portfolio approaches to identify existing R&I results and expertise as well as identifying gaps. • Apply foresight approaches to develop policy strategies, preferably jointly with all relevant departments.
Monitoring and evaluation	• Develop broad monitoring and evaluation frameworks, intervention logics and indicator set to assess the achievements of WGA and tools in the short, medium to long-term. • Appoint (independent) advisory body to monitor and assess this with sufficient resources to implement this task.

Table 14: Type of WGA Activity

Nevertheless, having these types of WGA friendly **structures in place is not a sufficient condition** for effective collaboration. **Policy culture and collaborative processes are important as the oil that makes the governance structures work well.** A strong political leadership helps set a shared vision providing the framework for joined up policies and setting the role of R&I to achieve that vision. For these (high-level) governance structures to work in a coherent and holistic manner, there is a need for **political leadership that supports, enables and if necessary, directs** ministries, agencies and other institutions to work collectively towards shared goals.

Trust is another key ingredient which can be built up by inclusive and systematic actor engagement throughout the policy cycle.

The WGA should be supported by the appropriate **strategic intelligence** (mapping of competences, R&I activities, policy options, foresight and so on) to develop evidence-based policies, and have evidence-based discussions when engaging a diverse set of stakeholders. Developing data systems to support evidence-based dialogues between government entities and with stakeholders improves transparency and the likelihood of constructive discussions. There has been little attention to monitoring and evaluation of WGA approaches, with the exception of the evaluation of specific approaches such as the Austrian mission governance approach which includes a mission facility for policy learning which has monitoring and evaluation as one of its tasks. The examples of joint programmes such as the Pilot-E programme in Norway and the Challenge Driven Innovation programme in Sweden are evaluated, but more so on the achievements of the programme and its projects and less so on their effect on governance of R&I policy. The development of WGA evaluation frameworks would be an important task to be elaborated in the near future.

In countries where the existing (legislative) governance structures and political cultures are less conducive to stable WGA processes, more flexible initiatives such as inter-ministerial bodies, working groups between agencies could contribute to maintaining continuity of collaborative processes in times of frequent political changes. Experimentation with more coherent policy mixes, mobilising stakeholders such as the private sector in industrial roadmaps or civil society in missions are also WGA-like options that do not require major reforms. A good starting point for WGA that does not necessarily need more complex governance changes is the development of more coherent policy mixes and portfolios as discussed in chapter 4.

The MLE identified several **barriers to implementing WGA** in policy practice:

- In some countries the ministerial responsibilities for R&I are anchored in legislative frameworks that prevent working across policy silos. This could lead to the effect that sectoral ministries have little experience, capabilities and political interest to engage in joint strategies where R&I can play a role in contributing to sectoral policy goals.

- In countries with unstable and/or low levels of public funding for R&I, the competition for funding and fear of losing money to other policy domains can have a negative effect on the willingness to collaborate across different ministries and agencies.

- R&I funding resources, such as those from the European Regional Development Fund (ERDF), are often specifically tagged to a narrow set of objectives and target groups. Mixing policy objectives and types of recipients in instruments is often not allowed.

- Across the entire policy arena different priorities and even conflicting objectives can exist that hamper a unified policy approach to specific challenges. In particular, if ministries work with different groups of stakeholders that have a (unequal) political influence, joint strategies might be more difficult to develop, particularly if there is no common governmental vision.

- The processes needed for WGA require human resources and capabilities in the public sector that, particularly in countries with limited R&I investments, are not always sufficiently available. Activities such as comprehensive stakeholder engagement need specialist expertise and facilitation skills not always present in the public sector. Without

sufficient resources to acquire or outsource those skills this type of activity may represent a significant burden.

Supra-national factors have played **a positive role to support WGA processes** across all EU countries. Particularly the expectation to address the twin transition to underpin Recovery and Resilience Plans, the inspiration from the EU R&I mission approach and the smart specialisation strategies asking for multi-level governance have been important triggers. The diverse EU funding mechanisms to EU Member States could be better aligned to support more holistic policy interventions that cross multi-level governance levels and policy domains.

Throughout the MLE there was a strong awareness that the implementation of WGA in public policy, and specifically in R&I policy, is strongly influenced by the national context and the historical governance structures. While all participants acknowledge this, the exchange of good practices, methods and processes of policy making, and stakeholder engagement provided inspiration and ideas for the future. As discussed in chapter 2, WGA can be applied at the highest political and policy level using semi-permanent structures and legislation, but also by means of more provisional and even informal cross-policy collaborations and joined up policy instruments.

As was highlighted on many occasions during the MLE, a WGA approach is encouraged by the holistic manner that the European Commission has addressed the sustainable development goals (SDGs) and set up the EU missions and the ERA Actions under the ERA Policy Dialogue. As the WGA is a novel approach, the Commission is in a unique and influential position to disseminate their own governance experiences in adopting WGA. Learning from good examples **and** the administrative and operational barriers to its implementation would be very helpful for all countries taking the WGA route.

Immediate take aways by the five MLE participants

In **Bulgaria** the MLE highlighted the issues of both a highly fragmented R&I system and the instability of R&I funding in that system. This situation hinders a more long-term, holistic and problem-oriented focus as an ingredient of a WGA across several policy domains. As Bulgaria was preparing the design of a national Research and Innovation Council in the early stages of the MLE, the extensive discussions and comparisons of the national councils in the second country visit (Slovak Republic, June 2023) provided useful insights. In addition, lessons from the interactive workshop on design thinking methods as part of the policy design process were applied in Bulgaria to map out an approach for the diaspora of scientific and technological skilled people. This is a critical issue in Bulgaria as well as in other MLE countries (Malta, Romania and the Slovak Republic).

In **Finland,** the MLE discussions confirmed the importance of developing a shared vision amongst stakeholders to reach common targets, such as the agreement that Finland becomes carbon neutral by 2035. However, even in Finland, where there is a strong culture of collaboration and trust between institutions, there are unclear responsibilities and conflicting priorities that can stand in the way of a WGA. The MLE demonstrated that smaller or even grassroots initiatives can have a powerful influence on a particular challenge, so it is not necessary that in all cases more formal and ‘heavy’ governance structures are put in place to make an impact.

In **Malta** the MLE inspired the team to engage in more experimentation with WGA-like initiatives even if the outcomes might be uncertain. Following the recommendations of a previous peer review of Malta’s National R&I landscape, Malta is exploring new structures for coordination among different

Immediate take aways by the five MLE participants
entities and streamlining of its R&I governance. Other elements of the whole-of government approach are present in Malta's new National R&I Strategic Plan 2023-2027, which includes the launch of a pilot national-level mission, regular reviews of R&I support instruments to ensure complementarity and a more balanced policy mix between supply-side and demand-side. These initiatives will contribute to a more long-term vision on R&I policy. Various discussions held during this MLE, and lessons shared will be helpful in supporting the implementation of these initiatives. Discussions held during the workshops on engaging the private sector and society in the policy cycle were very interesting as a learning topic. The MLE also proved valuable in enhancing self-awareness, particularly on issues such as the importance of building trust and the associated challenges.
The MLE participants from the **Slovak Republic** appreciated the learning on experimentation on WGA-like initiatives and the importance of trying out novel instruments and initiatives, many of which were presented in the MLE workshops. Some of the lessons on applying WGA to missions will be helpful in the development of their national mission on health that is in preparation. In addition, the MLE examples of strong ties of R&I policy makers with (working groups or individual members) of the national parliament could help to strengthen the long-term support for R&I policy in the Slovak Republic. Furthermore, the positive recognition of the extensive stakeholder engagement activities that were conducted is support of R&I strategic planning by the other MLE participants was very helpful.
For the participants from **Romania** the discussions on the role of high-level Councils on R&I were very useful as the country is in the process of introducing a similar national committee. As discussed during the MLE visit in Bucharest, Romania established an Inter-ministerial Committee for Science, Technology and Innovation, based on one of the PSF Country recommendations. To quote the Romanian participants *"The MLE exercise was an excellent opportunity to take stock of current and planned policies and best practices in the field of research and innovation at national level and to exchange experience, promote mutual learning between policy makers and national authorities in order to develop and implement a transformative research and innovation policy with a Whole of Government Approach. In conjunction with the discussions held during the country visits with various stakeholders and European Commission's experts, the MLE WGA technical reports will certainly be of real use for policy makers in Romania."*

Table 15: Immediate take aways by the five MLE participants

The MLE was extremely useful for all participants to illustrate and discuss the broad spectrum of WGA features and possibilities. It has illustrated that forms of WGA can be applied and adapted in many circumstances and contexts. The exercise has strengthened networks between the participating policy makers for exchange of good practices and discussion of possible solutions to common challenges.

References

Arnold, E., Barker, K.E. (2022): What past changes in Swedish policy tell us about developing third-generation research and innovation governance, in: Benner, M., Marklund, G., Schwaag Serger, S. (eds.): Smart Policies for Societies in Transition. The innovation challenge of inclusion, resilience and sustainability, Edward Elgar, Cheltenham: 59-86.

Bianchi, G., Matti, C., Pontikakis, D., Reimeris, R., Haegeman, K.H., Miedzinski, M., Sillero Illanes, C., Mifsud, S., Sasso, S., Bol, E., Marques Santos, A., Andreoni, A., Janssen, M., Saublens, C., Stefanov, R. and Tolias, Y., (2024) Innovation for place-based transformations, Bianchi, G. editor(s), Publications Office of the European Union, Luxembourg, doi:10.2760/234679, JRC135826.

Christensen and Laegreid (2006), The Whole of Government Approach, Regulation, Performance and Public-Sector Reform, Working Paper 6-2006, Stein Rokkan Centre for Social Studies.

Commission Expert Group to support the monitoring of the EU missions, (2024), European Commission, DG Research and Innovation.

Council of the European Union, WK4612/2022, Note to the ERAC Delegates Meeting 12-13 April 2022.

European Commission, (2020), Delivering on the UN's Sustainable Development Goals – A comprehensive approach, SWD(2020) 400 final.

European Commission, Directorate-General for Research and Innovation, ERA industrial technology roadmap for low-carbon technologies in energy-intensive industries, Publications Office of the European Union, 2022, https://data.europa.eu/doi/10.2777/92567

Geels, F. (2004) From sectoral systems of innovation to socio-technical systems, Insights about dynamics and change from sociology and institutional theory; Kemp, R. and Loorbach D., (2006) Transition management: a reflective governance approach.

Geels, F. and R Kemp, (2007) Dynamics in Socio-Technical Systems, Typology of Change Processes and Contrasting Case Studies.

Guzzo, F., C. Gianelle (2021), Assessing smart specialization: governance, JRC Report, EUR 30700 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-37673-6, doi:10.2760/48092, JRC123984.

Jacob, K. & Volkery, A. (2004). Institutions and Instruments for Government Self-Regulation: Environmental Policy Integration in a Cross-Country Perspective. Journal of Comparative Policy Analysis: Research and Practice, 6:3, 291-309. DOI: 10.1080/1387698042000305211.

Lægreid, P., Verhoest, K. & Jann, W., (2008), The Govenance, Autonomy and Coordination of Public Sector, Public Organization Review, 8(2): 93-96.

Mulgan, G (2008) The Art of Public Strategy, Oxford University Press.

OECD, (2005), Governance of Innovation Systems, Paris, https://doi.org/10.1787/9789264011038-en

OECD, (2022), Tackling Policy Challenges Through Public Sector Innovation, Paris.

Perri, 6, D. Leat, K. Seltzer and G. Stoker (2002), Towards Holistic Governance: The New Reform Agenda, Palgrave, Basingstoke.

Reid A., Steward F., Miedzinski M., *Aligning smart specialisation with transformative innovation policy. Lessons for implementing challenge-led missions in smart specialisation,* Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/359295, JRC134466.

Schwaag-Serger, S., E. Wise, E. Arnold (2015), National Research and Innovation Councils as an instrument of Innovation Governance, Vinnova Analysis 2015:07, Stockholm.

List of all Thematic Reports published as part of this MLE, which can be found on the PSF portal info pages for this MLE:

First Thematic Report: Introduction and overview of the Whole of Government Approaches in Research and Innovation, January 2023.

Second Thematic Report: New policy designs and instruments for a Whole of Government Approach in R&I, July 2023

Third Thematic Report: New ways of actors' engagement for the Whole of Government Approach, September 2023

Fourth Thematic Report: Green Transition: Implementation of Industrial Technology Roadmaps through the Whole of Government Approach, December 2023

Fifth Thematic Report: New governance structures for the Whole of Government Approach, January 2024.

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct centres. You can find the address of the centre nearest you online (european-union.europa.eu/contact-eu/meet-us_en).

On the phone or in writing

Europe Direct is a service that answers your questions about the European Union.
You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696,
- via the following form: european-union.europa.eu/contact-eu/write-us_en.

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website (european-union.europa.eu).

EU publications

You can view or order EU publications at op.europa.eu/en/publications. Multiple copies of free publications can be obtained by contacting Europe Direct or your local documentation centre (european-union.europa.eu/contact-eu/meet-us_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex (eur-lex.europa.eu).

EU open data

The portal data.europa.eu provides access to open datasets from the EU institutions, bodies and agencies. These can be downloaded and reused for free, for both commercial and non-commercial purposes. The portal also provides access to a wealth of datasets from European countries.

The final report on the Whole of Government Approach (WGA) for Research and Innovation policy covers the Mutual Learning Exercise (MLE) that took place between November 2022 and March 2024 with five participating countries: Bulgaria, Finland, Malta, Romania and the Slovak Republic. The MLE allowed the participants to explore the background and features of WGA and its key role to address transformative policy challenges posed by the Sustainable Development Goals. Moreover, many good examples from across and outside the EU of how government institutions have managed to bridge the silos between government structures and processes are described in the report, as well as modes to reinforce stakeholder engagement. The findings include a list of possible WGA tools to apply for different policy situations. The MLE showed that applying WGA is not an easy and straightforward task. All countries face barriers to strengthen collaborative approaches across policy sectors and develop joined up strategic approaches to societal challenges. The exchange of good policy practices during country visits provided the MLE participants with valuable learning opportunities. The report synthesises the highlights of these lessons and good practice examples.

Studies and reports

Publications Office
of the European Union