



Institutionalising foresight capability and creating wide foresight communities in the R&I system

Second Thematic paper

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Institutionalising foresight capability and creating wide foresight communities in the R&I system

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Second Thematic Paper

Paper by
Jennifer Cassingena Harper

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INTRODUCTION

As part of the Mutual Learning Exercise (MLE) on Foresight, the focus of this second paper (the first paper covered foresight activity worldwide) is on mapping the extent of institutionalised foresight in European Union (EU) Member States (MS) and identifying what is needed to advance it further. Thus, the aim of this paper is two-fold, firstly on developing an in-depth overview of institutionalised foresight capabilities specific to research and innovation (R&I) at national level within the EU, and secondly, to gauge the demand and direction for creating foresight communities in the R&I system at EU level.

The paper is structured in three parts:

Part 1 starts by defining institutionalised foresight and identifying its main configuration and elements at national and EU level. The roles of institutionalised foresight are explored in the context of the evolving rationales of R&I policy. The overview of country case studies and good practices provides important insights for guiding the institutional set-up, capacities, and resources.

Part 2: shifts the focus to the European level and to the current opportunities to revisit the efforts to build a European-wide foresight community, building on institutionalised foresight at national level. The evolving rationales for such a community are explored and three main building blocks are identified, namely benchmarking and mutual learning, capacity building to bridge the gap and setting up communities of practice.

Part 3: analyses the main findings of a survey undertaken as part of the MLE on foresight from October to November 2022, which was completed by participating Member States, namely Austria, Belgium (Flanders), Czech Republic, Estonia, Finland, Portugal, and Romania.

The key recommendations and conclusions from the second MLE foresight meeting held in Lisbon from 5-6 December 2022 are presented in Annex 2.

1. Part 1: Foresight in Government

This section defines institutionalised foresight and identifies its main elements. The roles of institutionalised foresight are explored in the context of the evolving rationales of R&I policy. The overview of country case studies and good practices provide important insights for guiding the institutional setup, capacities, and resources.

1.1. Defining Institutionalised Foresight

It is important to define the term "institutionalising", since it helps clarify the goals and benchmarks of this MLE. The term "institutionalising"¹ is the mainstreaming of an activity as standard practice either at the level of an organisation, or, more broadly, sector-wide (e.g., the public or private sector). Institutionalisation entails turning a practice into an institution or embedding the practice into a structured or highly formalised system.

The 2019 OECD report on Strategic Foresight for Better Policies defines institutionalised foresight as anticipatory governance, namely "systematic embedding and application of

¹ Oxford Dictionary

strategic foresight throughout the entire governance architecture, including policy analysis, engagement, and decision-making."² However, this relates to an ideal case based on a highly ambitious and challenging goal of achieving institutionalised foresight throughout government structures.

In this paper, a more modest and realistic definition is proposed, where institutionalised foresight is considered to be in place, when elements of it are functioning effectively to support robust and/or anticipatory policy making, e.g., training and regular scanning cycles and capacity building in one or two ministries.

The emphasis in this paper is on identifying the range of approaches adopted by MS to use foresight in a strategic, systematic way to support policy decisions related to R&I. The aim is to determine the extent to which (and how) these approaches have evolved, matured, and become institutionalised over time. The goal is to promote an open and ongoing exchange of experiences among MS on institutionalised foresight approaches, related good practices and success stories and the capacities and competences they entail.

1.2. Key Elements of institutionalised foresight

The OECD (2019) highlights the crucial role of foresight in a time of crisis, rapid change and deep uncertainty, emphasising that "all governments need to do more in order to build greater anticipatory capacity. Institutionalising the use of strategic foresight requires considering demand, capacity, institutions, embeddedness, and feedback". There are three main uses of strategic foresight³:

- for improved anticipation of opportunities and challenges,
- to support policy innovation, and
- for futureproofing and stress-testing future strategies.

The key elements for underpinning institutionalised foresight are described in more detail in Table 1.

Elements	Description	Sub-elements
1. Demand	Sustained high level demand for foresight at senior level of government helps to unlock resources and actions. Examples: Finland, Singapore	<ul style="list-style-type: none"> • Legislative commitments • Parliamentary oversight • Political commitments • Championing • Institutionalised demand
2. Capacity	The intellectual capacity and skills to address demand and implement strategic foresight thinking and apply it to policymaking. Beyond	<ul style="list-style-type: none"> • Foresight specialists • Policy researchers and programme managers (scans)

² OECD (2019). <https://www.oecd.org/strategic-foresight/ourwork/Strategic%20Foresight%20for%20Better%20Policies.pdf>

³ The OECD Report defines Strategic Foresight as structured and explicit exploration of multiple futures in order to inform decision-making

Elements	Description	Sub-elements
	skills, knowledge and tools, futures literacy/commitment, and an aptitude to tackle rapid change and high uncertainty.	<ul style="list-style-type: none"> • Policy analysts (policy design against multiple futures) • Auditors, public engagement specialists
3. Institutions	Institutional setup for effective mainstreaming and integration of foresight practices across all government departments and within central decision-making processes. Ideally one lead foresight unit to champion, conduct and coordinate foresight work across government. Examples: the EU, Canada, Finland, Singapore	<ul style="list-style-type: none"> • Individual government agencies • Other government institutions, e.g., auditors • Informal and formal networks, e.g., communities, focal points, intermediaries, and meetings among futurists
4. Embeddedness	Strategic foresight as integral and not an optional 'extra' to conventional decision-making, to be used at any point in the policy cycle, from scoping, design, and implementation to review and drawing together all relevant policy lines. Example: Slovenia	<ul style="list-style-type: none"> • Public servants (analysts, task teams, management) -senior public servants and politicians as well external stakeholders including quadruple helix
5. Feedback	Review of foresight systems to respond to feedback for making improvements and/or adjusting to change.	<ul style="list-style-type: none"> • Evaluation and impact assessment (value added and attribution) • Peer review • Communities of practice

Table 1: Key elements underpinning institutionalised foresight. Source: (based on OECD 2019 Report)

For achieving effective anticipatory governance, due consideration and investment are needed in the foresight (eco)system, including the demand and incentives for sustaining a foresight culture and the enabling governance architecture. Foresight culture is both the mindset and context which enables people and organisations to be better prepared for disruption and transitions such as socio-economic development and globalisation and the related positive and negative effects thereof. It can generate more proactive forward-looking approaches and new decision-making processes.⁴ Investment in interventions, such as foresight activities and processes, help to support and underpin institutionalised foresight as an ongoing future-oriented policy-shaping activity.

In institutionalised foresight, both systems and interventions, are shaped over time by a fast-changing policy context. This is increasingly affected by ongoing crises, triggered by geopolitical, technological, economic, societal, environmental and governance disruptions. These impact R&I, their context and enabling framework conditions (the R&I ecosystem), and related public policies and governance, including directionality, management of demand and supply, expected outputs and impacts, as well as openness and fair access to results. Shifting

⁴ European Foresight Platform <http://foresight-platform.eu/community/forlearn/why-do-foresight/benefits/>

public policy rationales and reactive and proactive corporate behaviour can also bring change. Where institutionalised foresight is positioned to work hand in hand with ongoing strategic policy processes at the highest levels of government, there are strong opportunities for foresight to play a key role in managing disruption and supporting major transitions. It can also help to bring on board public opinion and leverage private sector support for required shifts in R&I policy and other supporting policies. The rationales of government foresight need to be appropriately prepared to achieve this purpose.

1.3. History of technological foresight

Building on the first thematic paper (R&I foresight: An introduction to the current state of play) of this MLE, which indicated that R&I foresight has its origins largely in technology foresight, this section identifies the main phases of its early evolution.

The evolution of technology forecasting has unfolded in three main phases (Miles, 2008)⁵:

- Phase 1: 1930's technological forecasting evolved mainly in the US and became a more systematic effort and going "beyond the work of individual visionaries in science fiction and speculative analysis"⁶;
- Phase 2: during the second world war (WW2) and in the post-war years, in Europe, what was termed in French, 'la Technique'⁷ became widely used with a focus on social alternatives. The French approach to futures studies, 'la Prospective', was developed together with Godet's Greek triangle (anticipation, appropriation and action)⁸; and the Club of Rome published its Limits to Growth Report⁹.
- Phase 3: in the 1990's institutionalised technology foresight emerged in response to the need for tools for priority-setting; and with it came a mix of policy-related, prospective and participatory activity.

The history of technology foresight thus has its roots in the technological forecasting undertaken in the United States in the 1930's, which was used to analyse trends in technology invention and development¹⁰ and anticipate the impact on society. Initially, US studies helped to develop systematic approaches, tools, and techniques in technology forecasting. The first close forerunner of institutionalised technology foresight was the US Office of Technology Assessment set up in 1972 "as an arm of the U.S. Congress, to provide it with authoritative analysis of the complex scientific and technical issues of the late 20th century. Though a significant player in long-term analysis of technological change,"¹¹ it did not make specific reference to technology foresight. The first linking of technology and foresight was

⁵ Miles, I. Chapter 2 in the Handbook on Technology Foresight (2008)

⁶ Chapter 1 in the Handbook on Technology Foresight (2008)

⁷ WW2 proved a "vindication of what Jacques Ellul was to term "la technique" (1954), as methods such as operations research and statistical planning proved vital to the war effort" (Miles, 2008). Ellul defined la technique) as "the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity."

⁸ Godet, M (1994) From Anticipation to Action Paris, Unesco

⁹ Meadows et al (1972). Limits to Growth

¹⁰ 1937 National Resources Committee (NRC) report, Technological Trends and National Policy including the Social Implications of New Inventions, Washington, Superintendent of Documents, Washington, D. C

¹¹ Miles, I. (2010) The development of technology foresight: A review, Technological Forecasting and Social Change, Volume 77, Issue 9, Pages 1448-1456.

undertaken in Canada by the Science Council in the 1980's, and its approaches and tools¹² were an early forerunner of technology foresight programmes. The OECD also contributed to developing and spreading the concept of technology foresight (Jantsch, 1967).

In Europe, technology foresight had its roots in the 1960's in futures studies and systematic analyses of future prospects: Berger; de Jouvenel (France), Jungk (Austria), Galtung (Norway). As several observers noted "The European work tended to place less emphasis on technological change, and often drew on US studies for this element"¹³. Indeed, according to Miles (2008), there was more emphasis on foresight as being not only "holistic (rather than focused on a few highly specific trends) but also open to alternatives, able to consider qualitative and structural changes as well as more quantitative and continuous evolution".

In the 1980's a review of the use of futures methods in science and technology policymaking by Irvine and Martin (1984)¹⁴ led to the coining of the term "technology foresight". They noted the use of technology forecasting/foresight approaches in Japan, drawing on know-how gained from visits to the US, as part of Japan's drive to shift from being a technology imitator to a technology leader. Japan's approach reflected a marked shift from forecasting to technology foresight, as these were large scale exercises involving thousands of participants. In addition, they combined top-down and bottom-up approaches and addressed the 'demand' side of future economic and social needs, not just the science and technology 'push'.

In Europe, the Netherlands was the pioneer of European technology foresight programmes in the 1990's, developing foresight for strategic technology policy decision making, bringing in public and private stakeholders. National technology foresight programmes, involving a range of stakeholders, were initially set up in Germany, France, and the UK as large-scale ongoing exercises to shape the direction and implementation of R&I policy. These were emulated, albeit on a smaller scale, in the majority of European countries.

The EU played an important role in advancing technology foresight both internally within its own institutions and externally among the MS. Burgelman¹⁵ identifies four main periods in the development of technology foresight in the EU:

1. Early phase of exploratory studies and reports (1979–94) led by Commissioner Dahrendorff, the setting up of the FAST Programme; the European Parliament's Science and Technology Options Assessment (STOA) Panel; and the Forward Studies Unit in the Directorate-General (DG) Research of the European Commission;
2. The outsourcing of foresight to specific institutions (1993–2003) including the DG Joint Research Centre's Institute for Prospective Technological Studies (JRC IPTS); European Technology Assessment Network (ETAN) set up through the EU Fourth Framework Programme's Targeted Socio-Economic Research (TSER)¹⁶; Science and Technology

¹² Analysis of social and economic trends, market demands, funding, public attitudes, nation-wide surveys, expert interviews, workshops and panels (Miles, 2010)

¹³ Miles, I. Chapter 2 in the Handbook on Technology Foresight (2008)

¹⁴ Irvine, John. & Martin, Ben R. (1984). *Foresight in science: picking the winners*. London; Dover, N.H : F. Pinter

¹⁵ Burgelman, J.C., Chloupková, J. & Wobbe, W. Foresight in support of European research and innovation policies: The European Commission is preparing the funding of grand societal challenges. *Eur J Futures Res* 2, 55 (2014). <https://doi.org/10.1007/s40309-014-0055-4>

¹⁶ <https://cordis.europa.eu/article/id/10057-cordis-launches-new-website-for-etan-european-technology-assessment-network>

Policy Options (STRATA) programme in the Fifth Framework Programme which led to foresight projects including eFORESEE¹⁷, FORETECH¹⁸.

3. Setting up of an in-house foresight unit in the DG for Research and cooperation with national foresight institutions (2001–2006). In response to the Lisbon Agenda and the European Research Area (ERA), technology foresight was applied to improve R&I policies and ensure their consistency. The aim was to strengthen the strategic dimension of the ERA and build a vision on potential growth areas and future perspectives. The setting up of a platform for exchange of foresight practitioners and policy makers at European level materialised in 2004 with the European Foresight Monitoring Network (EFMN), an initiative financed by the European Commission in the framework of the Foresight Knowledge Sharing Platform¹⁹.
4. New institutional settings (2007–2018) with the launch of Europe 2020 and the Innovation Union, high level expert groups were set up, EFFLA and RISE, to advance the challenge-based approach. In 2015, an expert group on 'Strategic Foresight for R&I Policy in Horizon 2020' (SFRI) was set up with the remit to support the strategic approach to research programming under Horizon 2020. The expert group produced a number of reports addressing the provision of foresight intelligence and rapid response sense-making of signals relevant for strategic programming under Horizon 2020 and related R&I policies.²⁰ In 2018, DG R&I launched a multi-annual framework contract on foresight covering foresight in science, technology, research and innovation policy²¹. This has led to the setting up of the *Foresight-on-Demand*, a mechanism to respond to the demand from European Commission services for timely inputs to policymaking by drawing upon the best available foresight knowledge. Key activities have included horizon scanning, scenario building, deep dives, and the development of an online foresight platform.²²

With the onset of systemic crises in 2019 and concerns over open strategic autonomy, strategic foresight was included in the portfolio of the European Commission Vice-President Sefkovic. This has led to a stronger emphasis on institutionalised strategic foresight in the European Commission²³, and the preparation of an annual Strategic Foresight Report.

1.4. Evolving rationales of government foresight in R&I policy

In this section, the evolving rationales of government foresight activity linked to R&I policy are explored with the aim of identifying the main purpose, goals and expectations of policy makers in investing in such activity. The thematic focus of foresight, its applications and targeted impacts have shifted and grown over time in response to changing demand.

¹⁷ EFORESEE - Exchange of foresight relevant experiences for small european and enlargement countries <https://cordis.europa.eu/project/id/HPV1-CT-2001-60037/es>

¹⁸ FORETECH Technology and innovation foresight for bulgaria and romania <https://cordis.europa.eu/project/id/HPV1-CT-2002-60046>

¹⁹ The EFMN project consisted of monitoring Foresight activities relevant to European decision-makers at various levels in the field of research and innovation policy and producing policy briefs.

²⁰ <https://op.europa.eu/en/publication-detail/-/publication/8d3610c1-9c1b-11e7-b92d-01aa75ed71a1/language-en>

²¹ The 8meuro contract was aimed at addressing the need for quick inputs to policymaking. Drawing on the best available foresight knowledge, the contract involved the setting up a flexible 'Foresight-On-Demand' (FOD) mechanism, aimed at offering timely and effective support relating to emerging challenges and other policy needs that require rapid inputs from foresight in science, technology, research and innovation policy.

²² <https://www.foresight-on-demand.eu>

²³ https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_20_2154

The thematic focus of government foresight, also termed 'strategic foresight', has evolved from the 1930's, during which period it addressed military R&I to a current focus more on commercial and civil R&I. The different generations²⁴ of foresight mark key shifts in government foresight, from largely technology forecasts and market forecasts to a more social dimension of R&I policy, including societal challenges. The role of foresight in enabling and leveraging the R&I ecosystem gradually shifted to combine with other elements of strategic decision-making, taking on a more distributed foresight role rather than being directed by a single policy sponsor. The objectives of government foresight thus extended from improving the dynamics of the R&I system, to informing the design and implementation of policies and structures within the R&I system and the R&I dimensions of broader social and economic priorities.

In Europe, the shift from a broad technological priority-setting supported by national foresight programmes, towards a more focused and adapted set of applications, led to foresight becoming less of a stand-alone activity and gradually becoming more embedded in R&I policy overall. As a result, it has been applied to a shifting but growing set of R&I policy rationales, addressing market and government failures, including systemic and demand-side policies as well as smart specialisation²⁵. With the drive in Europe to increase public and private spending on R&I and its effectiveness, the expanding reach of R&I policy in terms of direct and indirect measures has had important implications for foresight, both as a strategic tool and building upon its priority-setting role. Indeed, foresight has become one of the strategic policy tools for engineering major changes in EU R&I policy, with significant impacts on MS R&I policies.

Foresight has proven instrumental in informing the design and implementation of R&I policy through three distinctive roles linked to targeted impacts:

- corrective (addressing systemic failures and policy lock-ins),
- disruptive (focus on crisis and transition); and
- creative (stimulating enabling conditions for new structures).

In its current incarnation, supporting multiple policy agendas, foresight's strategic potential has been further enhanced in support of increased R&I directionality as well as mission-driven, anticipatory governance and rapid response to crisis and disruption.

1.5. Main roles of institutionalised foresight in the R&I system

A diversity of approaches and experiences in MS and other advanced countries have contributed to an expanding role for government foresight. It is important to note that these approaches vary, depending on the country context and in response to country-specific roles assigned to foresight in R&I policy, as well as related demand, priorities, capacities and resources. Thus, in terms of the methods, skillset, positioning and institutional setup, and the role(s), there is no prescribed set of approaches in relation to R&I policy.

²⁴ Nesta Working Paper 13/16 November 2013

https://media.nesta.org.uk/documents/1316_impact_of_technology_foresight_final_version.pdf

²⁵ Paliokaitė, A., Martinaitis, Z., Reimeris, R. Foresight methods for smart specialisation strategy development in Lithuania, *Technological Forecasting and Social Change*, Volume 101, 2015, Pages 185-199,

Government foresight for R&I policy is currently used to address a range of goals, outputs and impacts. The roles foresight plays can be structured into two broad categories: strategic and instrumental. In the strategic role, foresight focuses on the future of R&I policy and the R&I policy system, supporting forward-looking reviews of the R&I system, with a sectoral or research infrastructures focus. In the instrumental mode, foresight is directed towards achieving R&I policy goals and serves as an instrument for implementing related policies. Table 2 highlights a broad range of applications at different levels and areas of policymaking. The extent to which foresight is embedded in the R&I system may not always be apparent.

Roles of Government Foresight	Range of foresight applications	Foresight policy support
<p>1. Foresight for/on the future of R&I Policy</p> <p>Advisory/Strategic Role</p> <p>Foresight addresses the question:</p> <p><i>What is the future for R&I policy and the R&I policy system?</i></p> <p>This helps policy makers in deciding on R&I Policy in the first place, i.e. the scale and R&I policy mix</p>	<ul style="list-style-type: none"> • National or regional R&I strategy • Holistic reviews of the R&I system/policy • Sectoral /field focus • Instrument/Infrastructure focus • Actor focus 	<p>Foresight supports these processes through:</p> <ul style="list-style-type: none"> • Strategic anticipatory intelligence • Scientific evidence • Policy innovation • Improved anticipation of opportunities and challenges
<p>2. Foresight as an Instrument for implementation of R&I Policy</p> <p>Instrumental role</p> <p>Foresight addresses the question:</p> <p><i>How to use foresight to achieve R&I policy goals?</i></p> <p>This helps to improve the effectiveness of R&I policy and its implementation.</p>	<ul style="list-style-type: none"> • Missions and grand challenges • Articulation of demand for R&I • demand/supply side measures • Smart specialisation; • PPPs; • Clusters • Networking of actors • Wider public engagement • Capacity building 	<ul style="list-style-type: none"> • Futureproofing and stress-testing future strategies • R&I directionality • Priority-setting • Rapid response / crisis management disruptions/transitions

Table 2: Main roles of institutionalised foresight in the R&I system. Source: adapted from Casingena Harper, J. (2013).

1.6. Link to scientific evidence

One of the key roles foresight plays in relation to R&I policy, is that it helps to channel scientific evidence into policy discussions. According to Störmer et al. (2020), “The inclusive, interdisciplinary and participatory nature of foresight allows bringing all relevant experts and stakeholders together. An essential benefit of this practice is to make it possible for the experts to use and apply their knowledge in the most appropriate way to support the

polymaking process".²⁶ Thus, a key advantage is the link it provides to scientific evidence and its effective incorporation in forward-looking R&I policies.

The drive to improve the evidence base for European R&I policy has emerged strongly in recent years, particularly in the context of ongoing systemic crisis, complex societal challenges ('wicked problems') and to support the green, digital and social transitions that are underway. The current emphasis is on evidence-informed policies rather than evidence-based, due to a recognition that policies can and should be informed by a range of inputs and not based on a single source alone.

Foresight distinguishes between four types of knowledge, as famously summarised by the former US Defence Secretary Donald Rumsfeld in 2002: known knowns, unknown knowns, known unknowns, and unknown unknowns. Foresight practitioners use these as the basis for developing a comprehensive overview of probable, plausible, and possible futures. This also helps to flag gaps in the evidence base which need to be addressed. In this context, foresight provides an important tool for sense-making (drawing together, making sense of and rationalising) different sources of evidence, and creating collective futures intelligence that is robust. This facilitates transdisciplinary approaches, joined-up policies and most importantly consensus-building by engaging a range of stakeholders and perspectives, from academic research to citizen science.

Indeed, the human capital dimension is emphasised in the European Research Area (ERA) Policy Agenda (2022-24) as a key resource and input in driving the transitions: "Digital, green, economic and social transitions will have a great impact on how human capital is used and how it will drive the future of work. R&I across disciplines can provide robust evidence for designing future-proof policies that fully grasp the new opportunities offered by technology".²⁷

The next section focuses on the importance of the institutional set-up, including the positioning of institutionalised foresight in national R&I systems and the extent to which resources are made available in a consistent way.

1.7. Institutional setup, capacities and resources

The size and location²⁸ of a country, the maturity of the policy context and the level of internationalisation are key parameters, influencing the extent to which foresight plays a role in government. The scale, positioning and style of the institutional setup of foresight in support of national R&I policy depends on a set of related factors. These include the policy culture (open or closed and extent to which policy innovation is encouraged), existence of a foresight 'champion', futures literacy²⁹ and making dedicated resources available over time, including foresight capacities and competences inside and outside government.

²⁶ Störmer, E. et al. (2020) Chapter 12 - Foresight – Using Science and Evidence to Anticipate and Shape the Future, Editor(s): Vladimír Šucha, Marta Sienkiewicz, Science for Policy Handbook, Elsevier, Pages 128-142.

²⁷ https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_era-policy-agenda-2021.pdf

²⁸ linked to the peripherality

²⁹ According to UNESCO, futures literacy is a capability or skill which allows "people to better understand the role of the future in what they see and do. Being futures literate empowers the imagination, enhances our ability to prepare, recover and invent as changes occur."

[https://en.unesco.org/futuresliteracy/about#:~:text=What%20is%20Futures%20Literacy%20\(FL,and%20inve nt%20as%20changes%20occur](https://en.unesco.org/futuresliteracy/about#:~:text=What%20is%20Futures%20Literacy%20(FL,and%20inve nt%20as%20changes%20occur)

The visibility of such resources and the extent of the foresight systems in place as well as ongoing interventions may be limited as government agencies often operate in silos where information is not shared. The outsourcing of foresight expertise and the lack of attribution of these inputs to the policy design process is another constraining factor. Dreyer and Stang (2013)³⁰ in reviewing foresight capacities in government, highlight the fact that they "tend to be scattered across departments and not always made public", which restricts their study. However, some key features can be identified, which have been adapted in Table 3 below.

Beyond national, regional and local (including cities) governments, foresight capacities can be dispersed across academia, the business sector, and the non-governmental and non-profit voluntary sector. There is a range of entities which act as hosts and/or agents of foresight institutions. Technology foresight capacities are often embedded in university faculties, research infrastructures, research institutions, policy think tanks, R&D policy consultancies, innovation agencies, R&D performing companies including innovative start-ups, individual experts, etc. All of these stakeholders often contribute to technology foresight, R&I policy and related processes in different capacities. On the one hand, some may respond to demand, by providing general and domain-specific expertise, know-how, training, publications, and other services. Some may also play a role in generating demand by outsourcing technology foresight work, expertise, and training. These agencies are important in providing external and profile-specific perspectives, original thinking and facilitating the flow of know-how and expertise across the public and private sectors and from national to local level.

Features	Description	Examples
Haves and the have-nots	The extent of foresight capacity in government depends on the availability of resources. This can be affected by a range of factors: country (government) size and level of development, the extent to which the government is well-resourced, and consistent investments in foresight capacity and activity even in times of austerity.	Despite small size, Finland and Singapore invest significantly in foresight. However, wealthy regions and local governments, for example in Germany (Bavaria, Baden-Württemberg and Rhineland-Palatinate) are more likely to engage in own foresight activities.
Military vs. civilian	Countries with large defence budgets are more likely to invest in institutionalised foresight and to dedicate significant resources to related programmes.	This is the case for the US, but also UK, France, and Canada. Key applications of foresight relate to exploring global security scenarios, and the anticipation of risks to national sovereignty.
Positioning	The positioning of foresight setups can vary with implications for the role of foresight in the policy cycle. Some setups benefit from being linked to different parts of governance, whether the executive, the parliament, or the judiciary system.	The EU benefits from having foresight units in the executive and the parliament. Finland, Estonia, and the UK have links to the parliament and executive.
Centralised vs. decentralised models	The degree of centralisation in government foresight set-ups	UK, Singapore, France, the Netherlands have central foresight

³⁰ Dreyer, I. and Stang, G. (2013) Foresight in governments – practices and trends around the world. https://www.iss.europa.eu/sites/default/files/2.1_Foresight_in_governments.pdf

Features	Description	Examples
	varies, from the setting up of dedicated foresight units /agencies to more decentralised, diffused structures. The central agencies can provide the lead, serving often as a point of reference and/or coordination, while decentralisation allows independence in organising own foresight activity.	units taking the lead on government efforts and responding to requests from central policy bodies. Finland, Germany, ³¹ the US, Italy, and Switzerland have more decentralised set-ups.
In-house capacity vs. external experts	Developing in-house foresight capacity has the advantage of building know how, skills and learning that can be shared throughout government. However, external expertise can prove important as a source of new insights and expertise garnered from the private sector. External expertise may be required for more disruptive exercises to break policy lock-ins and advance policy innovation.	Canada, Singapore, Switzerland, France and the UK have largely in-house foresight capacity and outsource expertise as required. Germany may be used as example of the opposite, with foresight building largely available through external capacities including advisory groups.

Table 3: Key features of institutionalised foresight. Source: adapted from Dreyer and Stang (2013)

³¹ While Germany's model is decentralised across different ministries, it is centralised at the federal level, with Länder are only partly engaged in foresight.

Country	Foresight is well-resourced and widely used	In-house or arms-length implementation	Central government foresight agency	Foresight in multiple departments	Established regularity of programmes/reports	Predominantly 'vision' planners
Australia		x		x		
Brazil		x				x
Canada	x	x	x	x	x	
China		x			x	x
Finland	x	x	x	x	x	
France	x	x	x	x	x	
Germany	x	x		x	x	
India					x	x
Indonesia						x
Italy				x		
Japan	x	x		x	x	
Mexico						x
Netherlands	x	x	x	x	x	
Norway		x				
Russia						x
Singapore	x	x	x	x	x	
South Africa				x		x
South Korea	x	x			x	
Sweden	x	x	x	x	x	
Switzerland		x			x	
UK	x	x	x	x	x	
US	x	x		x	x	

Table 4: Foresight activities in survey countries - key features³². Source: Dreyer and Stang (2013).

1.8. Lessons for successful institutionalised foresight

Based on a set of country case studies covering Finland, Estonia, Germany, the Netherlands, as well as the European Parliament, a recent OECD study³³ draws several lessons for the successful institutionalisation of foresight. Relevant points for the current MLE are summarised below:

- Success stories such as Finland cannot be easily replicated in other countries since foresight ecosystems adapt to national institutional and societal structures. National context shapes the foresight ecosystem.
- Buy-in, championing and proximity to high-level decision makers (including parliamentarians) is a key prerequisite. "Estonia and Finland are different models that include significant engagement of parliamentarians to build buy-in from across the

³² adapted from Dreyer and Stang (2013) Page 24 - The aim is to develop these categories further and adapt them to the R&I area.

³³ OECD (2021). Foresight and Anticipatory Governance in Practice. Lessons in effective foresight institutionalisation. https://www.oecd.org/strategic-foresight/ourwork/Foresight_and_Anticipatory_Governance.pdf

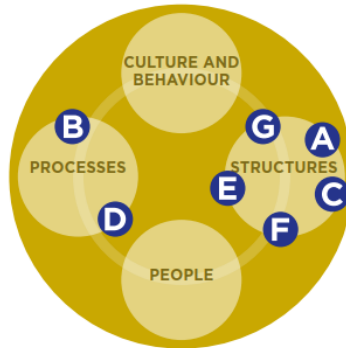
political spectrum... and may ensure greater long-term support for foresight"(OECD, 2021).

- The provision of adequate consistent resourcing as well as the need for public servants to receive training and support in developing foresight capacity. Countries with highly institutionalised foresight systems have invested in growing foresight within public service, for example Finland has in-house foresight capacities within various government ministries.
- Successful foresight ecosystems depend on a network of foresight contacts in each ministry as well as large professional networks of foresight practitioners that are brought together through sustained government investments in capacity building and joint foresight activities.
- Preserving the 'challenge' function of foresight by retaining a degree of independence from the political establishment, as in the Netherlands or Germany. This refers to the need for foresight teams to be reasonably independent in conducting foresight, for broader exploration also of uncomfortable scenarios. These can provide useful insights for challenging prevailing assumptions. The positioning of the foresight setup, in proximity or at arm's length from political power is also relevant here.
- The need for inclusive processes incorporating diverse perspectives and disciplines.
- The need for timely response to demand and the delivery of relevant and practical foresight results.
- Evaluation and demonstration of the impact of foresight on policy is challenging but important, creating opportunities for quality control, learning, iteration of foresight activity, in turn supporting further investments. For example, Finland and Estonia monitor the impact of foresight on political discussions and parliamentary debates.

A 2021 study³⁴ by the School of International Futures (SOIF) on effective systemic foresight in government produced a set of case studies on Canada, Finland, the Netherlands, Singapore, and the United States. The case studies indicate a long history of investments in foresight capacity and infrastructure, lasting over multiple administrations, championing, and support from the highest levels. For each country it maps the features of a sustainable foresight ecosystem including the culture and behaviour, overall processes, as well as structures and people. As examples from Europe, the case studies for the Netherlands and Finland are reproduced below.

³⁴ SOIF Ltd (2021). School of International Futures. Features of effective systemic foresight in governments around the world. Case studies.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/985253/effective-systemic-foresight-governments-case-studies.pdf

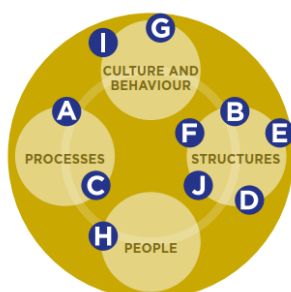
Netherlands Case Study



- A. Foresight is largely ministerial or sectoral with significant de-centralisation. Cross-ministerial coordination is facilitated through the Council of Ministers.
- B. There is evidence of the use innovative approaches to foresight in some Departmental teams. For example, the Ministry of Foreign Affairs has tried using 'Foresight Tournaments' to support policy development.
- C. The Central Planning Bureau (CPB) for Economic Policy Analysis is an independent body within the Ministry of Economic Affairs and Climate, which maintains its own research agenda. It works with political parties (cabinet and opposition), government ministers, parliamentary members and factions and the Dutch Cabinet to provide reports about the past, present and future.
- D. Group Decision Rooms allow planning councils, government departments, social organisations, scientific institutions and private companies (e.g., Unilever) to come together and consider mid to long-term policies.
- E. The Netherlands Organisation for Applied Scientific Research (TNO) is an independent research organisation that supports government ministries to foster innovation in thematic areas such as healthy living or the circular economy. It supports industry and academic engagement.
- F. The Netherlands Institute of International Relations Clingendael, the Hague Centre for Strategic Studies (HCSS) and the Rathenau Institute are third sector bodies that explore emerging and upcoming issues often related to security and international relations, as well as science and technology.
- G. The Netherlands Scientific Council for Government Policy (WRR) is an independent advisory body, established under an Act of government. It provides advice on long-term strategic and cross-sectoral issues that have political or societal relevance. Reports can be commissioned or self-generated. They are delivered by Council members and reports are made public.

Box 1: Netherlands Case Study - Systemic foresight in government country case studies (SOIF, 2021).

Finland case study



- A. Government Report on the Future produced by government including engagement with the public, third sector, private sector and universities.
- B. Parliamentary Committee for the future has approval role for the Report on the Future and uses it to signal strategic priorities for the next Government term. The Committee also produces its own futures reports on key issues.
- C. Ministries required to produce their own futures reviews to inform government programming.
- D. Financially and politically independent think-tank, Sitra, reports to Parliament, with a remit to fund research and innovation, to do its own work and to provide insight to government and other actors on the long-term.
- E. Government Foresight Group promotes foresight at a national and network-wide level to link foresight and decision-making processes.
- F. National Foresight network coordinated by Prime Minister's Office and Sitra, connects Government Foresight Group with foresight hubs across private sector, academia, regional councils and the wider research and innovation system. Including hosting foresight Fridays, national seminars and thematic events.
- G. Government participates in international foresight activity, including the Network of Institutions for Future Generations H. Finland Futures Research Centre in the University of Turku dedicated to futures studies in academia. There are also many actors seeking to popularise futures thinking and change making, for example the Future Makers project by Sitra.
- H. There are mixed views on the level of conflict or competition within the system as a result of capacities and networks having some overlapping roles.
- I. Foresight initiatives also exist at regional level (municipalities, regional councils, etc.).

Box 2: Finland Case Study - Systemic foresight in government country case studies (SOIF, 2021).

The key takeaways of this study are summarised and adapted below:

- consider foresight institutionalisation from an ecosystem³⁵ perspective, giving due account to the national socio-cultural and political context as this is critical to ensure lasting integration into policymaking;

³⁵ This approach focuses on the main elements of the ecosystem and the networks bringing these elements together. For example, an innovation ecosystem is a network of people, entities, markets, policy, culture, finance, resources and structures that co-evolves to catalyse new products, ideas, methods, systems, and even ways of life.

- focus on a unit or department as the means for enhancing the value of specific projects or teams;
- create sustainable long-standing foresight capabilities helps to ensure foresight work makes the strategic contribution that it can;
- develop the best mix for the country context, depending on what is already in place, taking into account the appetite for activity and which aspects of the foresight ecosystem are most in need of development;
- invest in a healthy foresight ecosystem which creates demand for futures work while at the same time ensuring quality supply, and self-nurturing;
- ensure coordination between all actors in a government system; gaps between parts of the foresight ecosystem undermines its strength and sustainability.

Foresight ecosystems share a common set of elements including culture and behaviours, systems, processes, and skilled people. These elements need to be mutually reinforcing that together provide the type of ongoing, long-term thinking required of today’s policymaking.

The report provides important insights on how to develop the ecosystem in phases (see Figure 2 below). Those seeking to develop or enhance foresight capacities do not need to tackle the whole ecosystem at once. Instead, the ecosystems approach allows for policymakers working across government, or within particular units to make strategic and culturally appropriate choices about where to intervene or invest in what is often a long journey to sustainable, impactful foresight work.

Figure 1. An ecosystems approach to foresight. The foresight ecosystem (light blue) is nested in the government and socio-cultural contexts. This ecosystem is enabled through a set of capability features that can be considered at all levels: at the system level, the department, team or individual levels, to help build and sustain the foresight ecosystem,

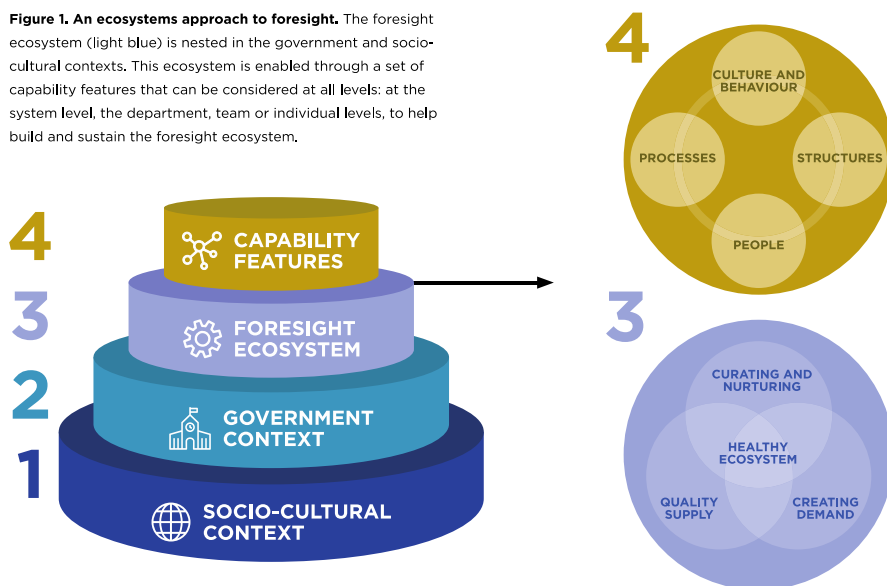


Figure 1: Building the Foresight Ecosystem in Phases Source: SOIF (2021).³⁶

³⁶ SOIF (2021). School of International Futures. Features of effective systemic foresight in governments around the world. Executive Summary.

Having identified key configurations, elements, and approaches in developing and sustaining institutionalised foresight at national level, in the next section, the discussion focuses on building European wide foresight communities.

2. Part 2: Building a foresight community across Europe

In this section, the emphasis shifts to the European level and to current opportunities to revisit the efforts to build a European foresight community, building on institutionalised foresight at national level. The evolving rationales for such a community are explored and three main building blocks are identified, namely benchmarking and mutual learning, capacity building to bridge the gap and setting up communities of practice.

2.1. Rationales

The growing importance of strategic foresight and its role in EU policy in response to ongoing crises provides a clear rationale for building a strong European foresight community to support R&I policy. The November 2021 Council Conclusions on the future governance of the ERA³⁷ include the explicit acknowledgement of the need for foresight analysis. In particular, this should contribute to attaining the objectives and targets defined within the ERA, the social dimension and upholding of European values. From the EU perspective the foresight community can provide the means for leveraging the foresight competences at MS level, while strengthening both EU and national policy development capabilities, and providing opportunities for harmonisation and collaborative initiatives. From the MS perspective, such a community provides the means for knowledge sharing, capacity building, collaborative partnerships, and gaining access to wider strategic intelligence as well as anticipatory governance. The community can also be used as a springboard for joining and building global strategic foresight initiatives in R&I.

Efforts to develop the building blocks of a European foresight community were initially based on benchmarking MS institutionalised foresight capabilities, including programmes, competencies, training and related activities. The EU-funded Framework Programme 6 project ForSociety ERA-Net³⁸ (2004-8) focused on the ambition of achieving coordination among national foresight programmes, while also supporting benchmarking, a foresight culture and skills development activities. A complementary activity was to establish of a European Foresight Platform³⁹ (EFP) to provide a repository of toolkits and short briefs on foresight exercises undertaken mainly in Europe. A range of foresight projects funded under FP's 5, 6 and 7 allowed for ample opportunity for European collaborative projects, contributing to the development of a community of foresight experts. The Foresight Wiki⁴⁰, a web-based collaborative project using wiki technology for developing a future studies and foresight community of practice (CoP), has allowed members to collaboratively produce articles, collectively owned by the FORwiki community.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984927/effe ctive-systemic-foresight-governments-executive-summary.pdf

³⁷ <https://www.consilium.europa.eu/en/press/press-releases/2021/11/26/new-pact-and-governance-structure-for-the-european-research-area-era/>

³⁸ <https://cordis.europa.eu/project/id/11832>

³⁹ <http://foresight-platform.eu/community-2>

⁴⁰ set up in 2010 through an initiative of the Romanian Executive Agency for Higher Education and Research Funding and developed during the project [Quality and Leadership for Romanian Higher Education](http://www.forwiki.ro/wiki/Community_Portal). http://www.forwiki.ro/wiki/Community_Portal

Recent strategic foresight initiatives include the EU-wide Foresight Network⁴¹ which works on two levels, bringing together the Ministers for the Future and their senior officials. Other foresight initiatives underway provide important building blocks for the European foresight community, including the EU Foresight-on-Demand⁴² project (a mechanism for rapid respond to demand for inputs to the policy-making by drawing on best available foresight knowledge including online platform, deep dives) and the Foresight Europe Network of the Millennium Project.⁴³

2.2. Key building blocks

Building block 1: Benchmarking and mutual learning

The European foresight community experiences to date highlight the importance of engaging the MS directly in such activities. Thus, it is possible to distinguish between mapping, benchmarking and participatory mutual learning activities involving policymakers, including:

- mapping activities, such as the European Foresight Platform (2010); OECD STI foresight mapping 2021; SOIF study systemic foresight in governments around the world (2021);
- benchmarking activities to support mutual learning among governments: the ForSociety ERA-Net; and DG Research surveys.

The mutual learning approach provides a robust mechanism and a sound basis for developing a European foresight community, as such a community can evolve most effectively through the championing and commitment of MS R&I policymakers. The latter are well placed to articulate the **demand** for foresight to provide the links between institutionalised foresight at national and EU level. The vision for a European foresight community, its scope, visibility, and profile start at this level.

Building block 2: Capacity building to bridge the gap

A second important building block is capacity building and bridging the gap between MS institutionalised foresight capability. This ensures the **supply** of high-quality foresight expertise, exercises and outputs. The main players include foresight experts, whether independent or working in government, academia, other public/private agencies and NGOs. Foresight researchers and experts provide an important link to what is happening in government, as well as in other policy areas beyond R&I, and beyond government in education, industry and society. They are responsible for a range of tasks, e.g., challenging policy lock-ins, policy innovation, futures skills development and futures literacy as well as evaluation and policy learning activities.

Building block 3: Communities of practice

The setting up of communities of practice bringing together policymakers and practitioners is an important means of institutionalising foresight at European level. Communities of practice evolve in response to a common concern or set of challenges, by sharing best practices and creating new knowledge to advance a domain of professional practice and combine face-to-

⁴¹ https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight_en#eu-wide-foresight-network

⁴² <https://www.futures4europe.eu/>

⁴³ <https://feneu.org/members-competences/>

face meetings with web-based collaborative environments. The potential evolution and scope of foresight communities of practice is captured in the figure below (Gheorghiu, 2022⁴⁴).

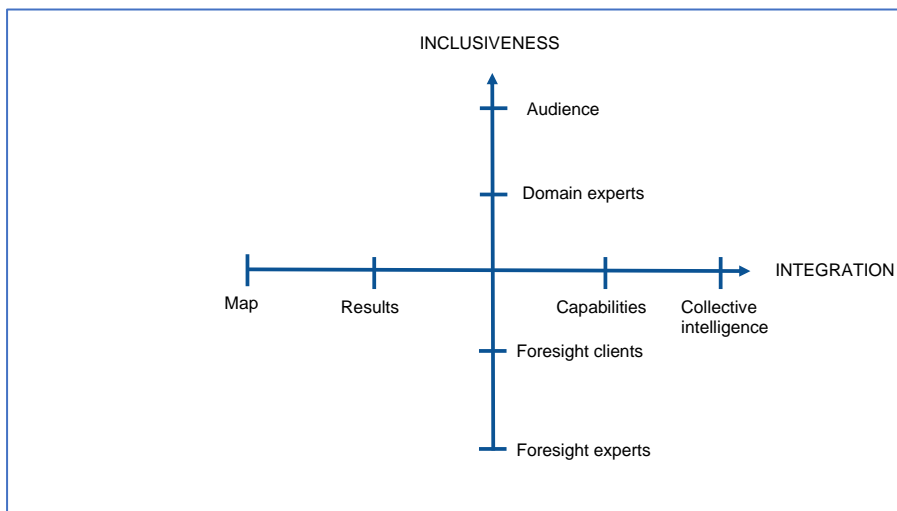


Figure 2: Inclusiveness and integration. Source: Gheorghiu, R. (2022)⁴⁵

This indicates a gradual progression along the horizontal axis from mapping of foresight activities and results towards the building of capabilities and collective intelligence. In parallel, along the vertical axis, there is a progression from primarily the use of foresight experts and foresight clients to include more domain experts, stakeholders and the wider audience. This highlights the need for a balanced approach between integration and inclusiveness. It indicates a path for moving from intra-professional collaboration to bring in the (demand) market perspective and clients, towards gradually developing a platform for services by engaging domain experts. The end goal is to develop a societal infrastructure by reaching a peak of inclusiveness.

A dedicated community of practice (CoP) for the foresight experts could focus on the tools needed for capacity building, for example customising the foresight competency model⁴⁶, which provides a framework for advancing current practices through a numerical assessment.

⁴⁴ Presentation MLE 2nd meeting held in Lisbon 2022

⁴⁵ Presentation given at the second MLE Foresight Workshop in Lisbon 2022

⁴⁶ Hines, A., Gary, J., Daheim, C., & van der Laan, L. (2017). Building Foresight Capacity: Toward a Foresight Competency Model. *World Futures Review*, 9(3), 123-141.

<https://doi.org/10.1177/1946756717715637>

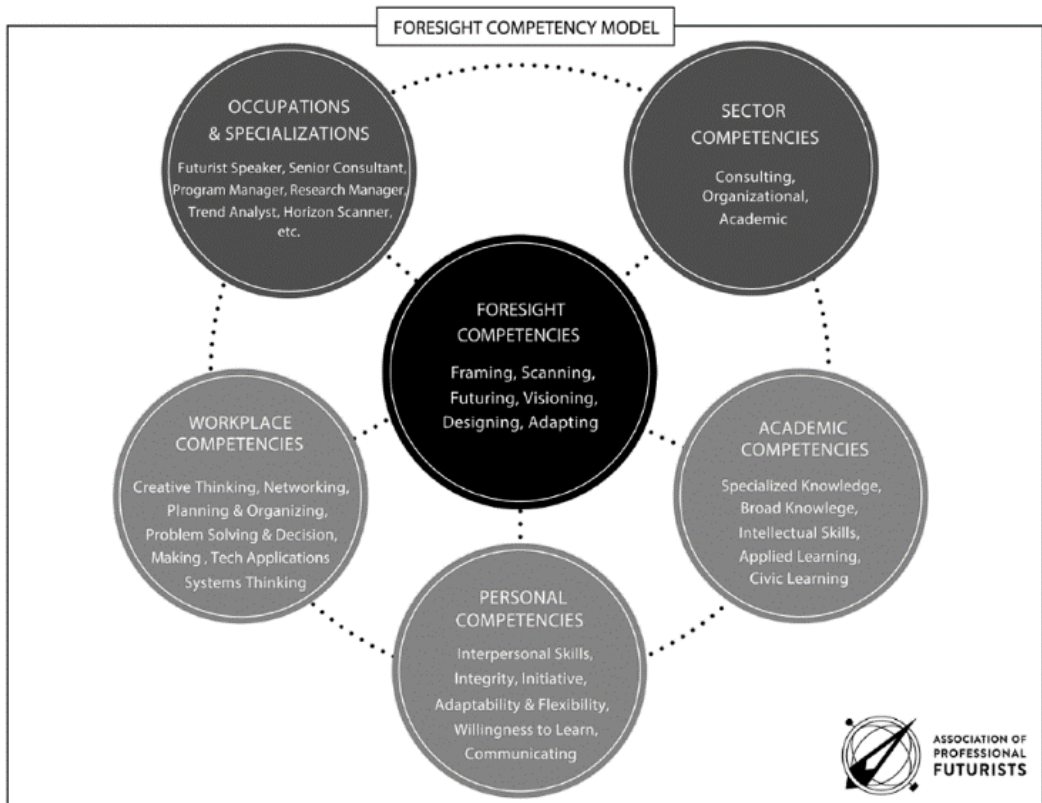


Figure 3: Foresight Competency Model (Hines et al. 2017). Source: Hines et al. 2017⁴⁷

In part 3, the results of the MLE survey provide key insights on how policy makers see the European foresight community evolving and what is required to make it work.

3. Part 3: MLE Member State survey on topic 2: Main findings

This part analyses the main findings of a dedicated questionnaire-based survey (Annex 1) undertaken as part of the MLE on foresight from October to November 2022. The survey was completed by the MS participating in the MLE, namely Austria, Belgium (Flanders), Czech Republic, Estonia, Finland, Portugal and Romania. However, it is worth noting that the survey is based on information the participants were able to compile in a limited time-frame when answering the survey. Thus, there could be additional activities in these countries which were not mentioned in the survey responses.

The purpose of the survey was to gather up-to-date and detailed information and insights from MS :

- to allow for an updated overview of the current level of foresight capabilities in government in support of R&I policy; and

⁴⁷ Hines, A., Gary, J., Daheim, C., & van der Laan, L. (2017). Building Foresight Capacity: Toward a Foresight Competency Model. *World Futures Review*, 9(3), 123-141.

- to gauge the extent to which foresight communities in the R&I ecosystem can serve as building blocks for a strong European R&I foresight community.

3.1. Level and extent of government foresight capabilities in the R&I system

The foresight capability linked to R&I policy varies in the participating MS, from one entity in Romania, two in Flanders, three in Austria, four in Portugal, over five in Estonia (all Ministries have a foresight capabilities), six in Czech Republic and over eight entities in Finland. However, the number of in-house personnel varies across the entities in the six MS. In five MS there is a lead entity (except Finland), which points toward a level of coordination. In terms of the positioning, the entities involved are generally ministries and public agencies, the parliament (Austria, Estonia, and Finland) and also include, public research organisations (Austria, Estonia, and Finland), an advisory body (Flanders) and academia (Portugal and Estonia).

MS ⁴⁸	Ministry/public entity	Positioning Judiciary; executive parliament	R&I domain/ role (General/thematic, funder /user of R&I)	In-house or outsourced foresight (size)
AT	1. Austrian Institute of Technology Center for Innovation Systems and Policy PRO (lead) 2. Austrian Parliament 3. Federal Ministry of Defence, Landesverteidigungsakademie (LAVAK) / Austrian Defence Academy	1. Executive (& framework contract with Parliament) 2. Parliament 3. Executive	1. R&I policy, various thematic domains 2. General 3. Security/ Cybersecurity	1. ~ 25 2. Outsourced
BE	1. Flemish public administration - Department chancellery and foreign affairs (DKBUZA) (lead) 2. VARIO Flemish public administration – Department of Economy, Science and Innovation	1. Ministry regional authority -support to government departments 2. R&I policy advisory body to Flemish minister competent for R&I or for the Flemish Parliament	1. Transformative innovation policy for all departments; Coordination and monitoring of the Recovery and Resilience initiatives 2. R&I policy, including foresight exercises	1. In-house 5+ 2. In-house 5+1 and outsourcing experts
CZ	1. Government Office (GO)(lead) 2. Ministry of Industry and Trade (MIT) 3. Ministry of Education, Youth and Sports (MEYS) 4. Ministry of Environment (ME) 5. Technology Centre Prague 6. Czech Environmental Information Agency	1-4 Executive 5. Private non-profit 6. subsidised organisation of the Ministry of the Environment	1,2,4 Thematic and Funding 3 General and Funding 5. General 6. Environment	1.-4 Outsourced 5,6 In-house
EE	1. The Foresight Centre (lead) 2. Estonian Institute for Sustainable Development/Stockholm Environment Institute Tallinn Centre 3. The Institute of Baltic Studies (IBS) 4. Tartu University - Centre for Applied Social Sciences (CASS) 5.. All ministries	1. Public entity Parliament 2. & 3. Non-profit R&I policy organisation 4. Public Entity 5. Executive	1. General 2. Thematic (value chains, environment, green transition and other related topics) 3. & 4. General 5. Thematic, based on their governance area	1. to 4. In-house 5. Outsourced
FI	1. The Committee for the Future	1. Parliament	1. General 2. General	1. Outsourced

⁴⁸ MS country acronyms in this column AT - Austria; BE - Belgium; CZ - Czech Republic; EE - Estonia; FI - Finland; PT - Portugal; RO - Romania

MS ⁴⁸	Ministry/public entity	Positioning Judiciary; executive parliament	R&I domain/ role (General/thematic, funder /user of R&I)	In-house or outsourced foresight (size)
	2. National Foresight Network coordinated by The Prime Minister's Office and the Finnish Innovation Fund Sitra 3. Research and innovation council 4. Sitra 5.. Business Finland 6. Academy of Finland 7. VTT 8. GTK, Technical universities, Etna, VATT and Statistics Finland, Consultancies	2. Prime Minister's Office, Ministry, Agencies 3. Council 4. Independent Agency 5. Agency and company 6. Agency 7.. Gov research organisation 8. Information providers for R&I	3. User of R&I foresight information 4. and 5 Thematic, funder 6. Thematic, Funder, user of R&I 7. Thematic 8. Thematic, information providers	2. Network ⁴⁹ 3. Outsourced 4. In-house experts 5. Four inhouse foresight experts + outsourced 6. No in-house foresight resources 7. In-house foresight resources and technology research resources
PT	1. Fundação para a Ciência e a Tecnologia (lead) 2. Agência Nacional de Inovação 3. PLANAPP 4. ISEG	1., 2, 3. Executive 4. Academia	1. R&D Funder 2. Innovation Funder 3. Cross-cutting to all public policies, including R&I 4. Economics and Management	1. Past competencies and plans to rebuild them 2. Emergent 3. Emergent 4. In-house
RO	UEFISCDI	Public agency	Executive R&I funding agency	Inhouse 10 persons

Table 5: MS foresight capabilities (according to survey results)

⁴⁹ Coordinated by The Prime Minister's Office and the Finnish Innovation Fund Sitra. Includes Business Finland, Academy of Finland and ministries.

The main domains addressed by these entities relate broadly to R&I policy and to a range of thematic areas depending on the entity. The profile and roles of these entities varies, including R&I policy bodies, public R&I funding organisations, foresight clients or organisers and academia.

In terms of foresight capability and expertise, all the country respondents indicate that they have in-house experts, ranging from 25 in Austria, 10 in Romania to emergent in Portugal. In Austria, Flanders, Czech Republic, Estonia and to a lesser extent Finland, there is a regular outsourcing of expertise.

3.2. Main purpose of foresight activity in government

Member States were asked to indicate the purpose of the foresight activity and to identify relevant foresight activities in government in relation to R&I policy, by identifying the main outputs. All the responding MS highlight ongoing foresight activities linked to the first three goals, namely strategic intelligence, R&I directionality and priority-setting. Austria, the Czech Republic and Estonia indicate ongoing activities on anticipatory intelligence, while Austria, Estonia and Belgium (Flanders) indicate ongoing activities linked to rapid response to crises.

In terms of the frequency of these activities, MS responses vary, indicating that:

- In Austria, activities range from biannual to continuous and are linked to specific reports while others are project-based or on request actions for crisis management exercises;
- In Flanders activities range in frequency from every eight years on the monitoring reports to 2-3 times a year in the expert groups;
- In the Czech Republic a frequency ranging from ad hoc /on demand to every two, five or 10 years with ongoing capacity building;
- In Estonia, the frequency is based on demand for the various types of foresight activities;
- In Finland, strategic intelligence activities are carried out during each electoral term, where R&I directionality is carried out annually (R&I roadmap metrics) and in support of continuous priority-setting;
- In Portugal, the frequency of strategic intelligence is linked to programming cycles;
- the activities in Romania range from every seven years linked to, for instance, smart specialisation strategies, to occasional activities, linked to public administration strategies and horizon scanning reports.

Main purpose of Foresight Activity	Country	Foresight methods used	Main outputs
Strategic intelligence	All	AT: Horizon scanning, web mining BE: Three horizons monitoring; Horizon	AT: Monitoring report to parliament; internal monitoring reports

Main purpose of Foresight Activity	Country	Foresight methods used	Main outputs
		<p>scanning; scenario analysis; strategic foresight dialogues</p> <p>CZ: Horizon scanning, trend analysis, expert workshops, scenario building</p> <p>Fi: Scenarios and STEEP</p> <p>PT: SWOT</p>	<p>BE: Monitoring recovery & resilience; support RRP progress reporting</p> <p>CZ: National and regional S3; national RDI priorities; strategic plans (regions, municipalities)</p> <p>EE: National strategies, strategies of the ministries in their areas of governance, action plans and implementation plans</p> <p>Fi: Report of the future</p> <p>PT: An analysis of the Portuguese research and innovation system</p> <p>R: National S&I and smart specialisation strategy</p>
R&I directionality	All	<p>AT: Transition scenarios, Back casting</p> <p>BE: Interviews, workshops for validating external expert reports, network events, e.g. colloquium on transformative innovation policy for disseminating evidence based policies, dissemination events e.g., mission oriented policies, regional network events, regional stakeholder platform for EU R&I policy</p> <p>CZ: Focus groups</p> <p>PT: Focus groups/structured brainstorming workshops</p>	<p>AT: Reports and policy briefs to ministries, agencies, associations</p> <p>BE: Transformative innovation policy reports and advisory publications (ongoing); analyses of new EU policies (EU missions) to be applied in local /regional contexts; panel discussions with expert stakeholders</p> <p>CZ: National R&I programmes e.g., Mobility etc.</p> <p>Fi: R&I roadmap</p> <p>PT+ R: National smart Specialisation Strategy; thematic agendas</p>

Main purpose of Foresight Activity	Country	Foresight methods used	Main outputs
Priority-setting	All	<p>AT: Participatory scenario development road mapping</p> <p>BE: Expert groups ('captains of industry' and 'captains of society'); delphi method; experimental combination of R&I funding statistics for diverse topics and weighted stakeholder preferences</p> <p>CZ: Horizon Scanning; trend analysis; expert workshops; road mapping</p> <p>Fi: Horizon scanning, scenarios, visioning</p> <p>PT: SWOT; structured brainstorming</p>	<p>AT: Strategy documents, roadmaps</p> <p>BE: Clusters and spearheads foresight 2015 (2008); S3: Flanders in transition report VRWI foresight 2025 (2012-2014); Horizon Europe budget lines prioritisation and partnerships selection</p> <p>CZ: National priorities of RDI; national RIS 3 Strategy</p> <p>Fi: Thematic strategy (focus areas for Business Finland and Growth opportunities for Finland) Mission activities, Programs; Flagship research; VTT thematic focus areas (beyond 2030)</p> <p>Ro: Public administration strategy; fishery and aquaculture strategy</p>
Anticipatory intelligence/ crisis /disruption	Austria and Estonia	<p>AT: (Exploratory) scenario development; Horizon scanning</p> <p>CZ: Horizon scanning; expert workshops; scenario building</p> <p>EE: Current state review, emerging changes, multiple scenarios, qualitative and quantitative data analysis</p>	<p>AT: Futures briefs; monitoring report</p> <p>CZ: Strategic Framework Czech Republic 2030; State environmental policy 2030</p> <p>EE: National strategies, strategies of the ministries in their areas of governance, action plans and implementation plans</p>
Rapid response / crisis management / disruptions/transitions	All except Portugal and Romania	<p>AT: on demand</p> <p>BE: Two expert groups (economic and social recovery committees)</p>	<p>AT: Crises management exercises</p> <p>BE: Expert group reports with recommendations to the RRP (rapid response progress) reporting</p>

Main purpose of Foresight Activity	Country	Foresight methods used	Main outputs
Other (public/stakeholder engagement)		AT: Online platform BE: Nominated experts for producing advice reports, validation workshops with stakeholders	AT: Blogs, online debates, online workshops BE: Validated expert recommendation reports R: Various horizon scanning report

Table 6: Main purpose, methods and outputs of foresight activity. Source: Responses to the MLE foresight topic 2 survey.

3.3. Current level of support and resources

MS were asked to indicate the extent to which foresight activities in government are present and supported. Table 7 reflects a mixed picture on the four types of support.

Level	Championing	Support and resources (financial and human)	Networking and coordination	Training and capacity building
High	Estonia Portugal Romania ⁵⁰	Estonia Romania	Estonia Finland Portugal	Portugal Romania
Medium	Belgium (Flanders) Finland	Austria Belgium (Flanders) Czech Republic Finland	Belgium (Flanders)	Czech Republic Estonia Finland

⁵⁰ in relation to UEFISCDI, the Executive Agency for Higher Education, Research, Development and Innovation Funding. UEFISCDI has coordinated the elaboration of three R&I strategies (2007-2013, 2014-2022, 2022-2027), each based on very large foresight consultations, each adopted by governmental decision.

Level	Championing	Support and resources (financial and human)	Networking and coordination	Training and capacity building
Low to none	Austria Czech Republic Romania ⁵¹		Austria Czech Republic	Austria Belgium (Flanders)

Table 7: Extent of government support and resources.

By MS, the situation can be summarised as follows:

- Estonia enjoys a high level of support on the first three types and medium support for training and capacity building.
- Portugal also indicates a high level on all four types, except in terms of human and financial resources. In terms of championing, a new organisation has been created at PM (Prime Minister) level, and networks are to be developed. Training capacity exists and there is a willingness to invest in capacity building.
- Romania indicates a high level on all four types except in terms of networking and coordination and a low level of championing on the part of the General Secretariat and World Bank. Support in terms of financial and human resources is available through structural funds and Horizon Europe projects.
- Finland indicates a high level of support on networking and coordination and a medium level of support on the rest.
- Belgium (Flanders) indicates a generally medium level of support except for low to no support for training and capacity building.
- The Czech Republic indicates a generally medium level of support except for low to no support on championing and networking.
- Austria indicates overall very limited championing of foresight in government policy with some exceptions. There is also very limited exchange and networking, although this could be strengthened in the context of EU missions (from 2023 onwards). There is hardly any systematic training on the use of foresight (possibly in the future at the academy of public administration); mainly relying on learning by collaboration for the time being. Apart from these generally low levels of support, there is medium level support in terms of financial and human resources.

⁵¹ in relation to General Secretariat of the Government and World Bank which in 2022 coordinated the elaboration of the National Strategy for Fishery and Aquaculture 2022-2030, a project aimed at increasing strategic thinking in various ministries.

3.4. Success stories and good practices

The participating MS were asked to provide examples of successful foresight activities in government and to indicate key good practices, design features and levers generally critical for success.

Country	Success stories	Good practices
Austria	<ol style="list-style-type: none"> 1. LAVAK: continuous horizon scanning activities 2. Parliament: standing framework contract with regular monitoring reports. 3. On ambient assisted living, foresight activities of Ministry for Technology and Innovation supported the generation of guidelines for technology development during the last ten years. 4. AIT: Integration of foresight in strategy development processes at different policy levels/areas, e.g.: Industrial: Austrian Materials 	<ol style="list-style-type: none"> 1. Results of foresight activities of Austrian parliament cited as they are open access and communicated as graphical abstracts and policy briefs. 2. National: IKKRITI: Integrale Konsequenzanalyse für kritische Infrastrukturen (IKKRITI - Integral consequence-analysis for critical infrastructures KIRAS Sicherheitsforschung) 3. Local: Amstetten Smart Living (News - Amstetten Smart Living - AIT Austrian Institute of Technology)
Belgium (Flanders)	<ol style="list-style-type: none"> 1. Foresight 2025 (by VRWI/VARIO) to identify investment priorities for the Flanders Smart Specialisation Strategy 2014-2020, building on policy ambitions in EU2020 strategy and regional government action plans. 2. Strategic foresight dialogues Flanders – Netherlands (by DKBUZA) 	<p>Resilience core indicators (by DKBUZA)</p>
Czech Republic	<ol style="list-style-type: none"> 1. National Priorities of Oriented Research, Development and Innovation in the Czech Republic The process of identification of national priorities of research, development and innovation in the Czech Republic in 2011 was a unique project using forward-looking tools and methods. 	<p>Highly participatory, multi-stakeholder; main benefit of the RDI priorities is their problem orientation and close relevance to broader social, economic and environmental needs. The following principles were set out to ensure a successful contribution: problem-orientation, future-orientation, priorities as targets, sustainability, feasibility, consensus, and fluidity. The identification of national priorities of oriented R&I and D was based on combinations of several approaches, penetrating through the whole process of identification of RDI priorities including: (1) backward vs. forward-looking approach, (2) top-down vs. bottom-up approach, (3) expertise vs. participatory approach</p>
Estonia	<ol style="list-style-type: none"> 3. Estonian Research and Development, Innovation and Entrepreneurship Strategy 2021–2030 where foresight was used to some extent to set priorities and provide focus. 	<p>A tool for focus area implementation is a roadmap, which is the result of a stakeholder engagement process where foresight also plays a significant role. An engagement process is a series of targeted discussions where several topics are discussed to come to an agreement.</p>

Country	Success stories	Good practices
	<ol style="list-style-type: none"> 4. Smart Specialisation Areas were defined using foresight 	
Finland	<ol style="list-style-type: none"> 1. The Futures Research Centre in Turku, 2. The Committee for the Future, supported by the research centre, was established in parliament 1992, 3. Next steps were taken in 2004 when the National Foresight Network coordinated by The Prime Minister's office and the Finnish Innovation Fund Sitra. The network plays a key role in Finland's foresight system by bringing together foresight data producers. 4. Business Finland foresight activities are global and carried out with close links with industries and research organisations. 5. VTT (Technical Research Centre of Finland) and Academy of Finland provide key technology roadmaps and research highlights and Business Finland provides markets perspectives. Most of the foresight activities at this level are carried out with stakeholders between the innovation ecosystem on agency level (Business Finland, VTT, Academy of Finland, industry participants and industry associations, Sitra). 	<p>Since 1993 government has submitted a report on the future to the parliament during each electoral term, aiming to identify issues that are important for decision-making.</p> <p>Finland ranks among the very best when considering institutionalising foresight in general. In R&I foresight institutions are scattered and holistic view of R&I foresight is challenging to provide. The RDI system in general is relatively well defined but the foresight system in this context is still under development. While ministerial foresight is general and sets the outlines also for R&I domains, more operational R&I foresight is carried out on agency level on project basis.</p> <p>While there are outlined growth areas and priorities supported by foresight (Business Finland, VTT, Academy of Finland), there is no coordinated national level R&I foresight established yet.</p>
Portugal	<ol style="list-style-type: none"> 1. National smart specialisation strategy: a comprehensive SWOT analysis of the Portuguese R&I system. Focus groups/structured brainstorming from all sectors of performance of the R&I system. 2. Capacities and training human resources in foresight techniques and tools. There is a success story in the specialised courses of ISEG, a regular activity for the last 16 years and can be showcased. 	<ol style="list-style-type: none"> 1. Good capacity and application of foresight techniques in the Ministry of Environment, applying prospective scenarios to environmental issues and to the long-term policy process.

Country	Success stories	Good practices
Romania	<ol style="list-style-type: none"> 1. UEFISCDI has coordinated the elaboration of three R&I strategies (2007-2013, 2014-2022, 2022-2027), each based on very large foresight consultations, adopted by governmental decision. 2. In 2022 Prospectiva has facilitated the foresight process preparing the elaboration for the National Strategy for Fishery and Aquaculture 2022-2030. 	<p>Timeliness in planning; customised training for managing expectations, horizon scanning as inputs in the process, strong support from the Agency for Fishery and Aquaculture for the participatory approach, transparency of results consolidated and circulated after each phase.</p>

Table 8: Examples of Member States (MS) success stories and good practices.

3.5. Capacity building priorities

MS were asked to indicate the main types of capacity building needs for developing foresight activities in government in their country in relation to R&I policy and where possible to indicate specific priorities. Secondly, MS were asked how they can contribute e.g. in terms of institutions, activities, experiences, expertise themes, etc.

The types of capacity building needs were ranked in the following order of priority from high to low:

- Developing a foresight community (national);
- Improving networking and coordination across government;
- Building and/ or strengthening institutionalised foresight structures (except for Austria, Czech Republic);
- Training in foresight approaches, methods, and futures literacy (except for Romania);
- Links with relevant foresight communities abroad (except for Austria); and
- Domain expertise (except for Austria and Romania).

3.6. Building a strong European R&I foresight community

"To build a stronger network of R&I foresight actors that has visibility and is cohesive will be an important asset to all of us"(Luisa Henriquez, Portugal⁵²).

The participating MS were asked to indicate the main benefits for their country and for Europe of a reinforced network of R&I foresight actors. In addition, they were asked to indicate the best ways of promoting and supporting a strong European R&I foresight community.

Benefits and Goals	Examples
Main goals	<ul style="list-style-type: none"> • Improving the quality of foresight activities • Supporting organic capacity building
Joint foresight to address common European challenges	<ul style="list-style-type: none"> • Common (European) future visions/perspectives to contribute to more coherent policies • Developing of shared agendas to tackle the challenges of the future, facilitating in this way a wider impact of the foresight exercises • An "Agora" for debating and sharing agenda-setting proposals • Strengthening research for achieving Sustainable Development Goals (SDGs)
Access to shared tools and resources	<ul style="list-style-type: none"> • Developing a large common pool of domain experts with future literacy and maintained interest in foresight • A pool of experts that can participate in joint work related to a given agenda or to work as experts in per country

⁵² Extract from Portugal's reply to the survey

Benefits and Goals	Examples
	<ul style="list-style-type: none"> • Shared access to the results of R&I foresight (e.g., horizon scanning, forecasts, scenarios, visions) and good practices to build capabilities at national level • A toolkit on foresight tools and techniques and methodologies • The network should act as an informal platform for member entities with experience or interest in strategic foresight. • A Reinforced network provides both the ground and opportunities for gaining access to necessary knowledge, different perspectives, sharing of experiences, approaches, and tools to strengthen the overall capacity for the application of foresight at the national level • A platform for feedback and discussions is crucial for foresight application in the most holistic way
Targeted, Accelerated Learning and Organic capacity building	<ul style="list-style-type: none"> • Learning from other countries how to embed foresight in policymaking • Understanding the benefits of foresight for the governance of change • Sharing practices for integrating foresight into the policy cycle • Sufficient possibilities for knowledge sharing and transfer to ease the process • Increasing the culture of forward-thinking within government through the sharing of foresight-related information and experiences that results from membership in this network
Collaboration with other governments	<ul style="list-style-type: none"> • Creating synergies between public administration representatives and external foresight experts is an advantage • Cooperation is the most resource-efficient way to tackle challenges that encompass a lot of different stakeholders. • A reinforced foresight network creates opportunities for collaboration and partnership between the countries • Government best practices can be transferred, combined, applied • Knowledge transfer of strategic foresight insights and evidence-based anticipatory policy-making practices is an encouraging prospect to strengthen reform in policymaking • Diversify views on some national topics through the use of collective thinking about the future in the case of joint foresight activities
Wider engagement of stakeholders	<ul style="list-style-type: none"> • Increased chances of communication towards society • Take strategic foresight out of “narrow circles” and engage more (external) experts and stakeholders in the effort to strengthen the focus on long-term transformations

Table 9: Main benefits and goals of a reinforced European network of R&I foresight actors.

The participating MS made a number of key recommendations for promoting and supporting a strong European R&I foresight community, including the need to clarify the vision and role of such a community and its benefits and value-added for the R&I system. In addition, participating MS highlighted the need for the commitment of resources to support the community, including appropriate investments in training and capacity building, communication and public engagement and networking and connection. Annex 4 presents the detailed recommendations.

Annexes

Annex 1: List of references

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Annex 2: Key insights and recommendations from the Lisbon meeting

The MLE foresight second meeting held in Lisbon, Portugal between 5-6 December 2022 provided a number of important insights on how to acknowledge and build on existing foresight capabilities at national level, by developing an ecosystem approach and bringing together the players across the public and private sector in collaborative settings. The meeting report provides a set of detailed recommendations. These include the importance of building multiple partnerships from global to local levels to address specific themes (energy, security) but also broader R&I challenges, including transition and linking R&I policies. In terms of capacity building, the main challenge is increasing the involvement of R&I actors by broadening the scope of foresight activities and ensuring the provision of dedicated foresight training, particularly for policy makers. There is a need to improve opportunities for learning and spreading information, to create an ecosystem around foresight and to build a community of practice. This needs to be connected to strategic planning, in which R&I activities should also be embedded.

As part of the process of building a national community of practice, it may be useful for Portugal to start by carrying out a light mapping exercise of institutionalised foresight/foresight-type activity underway at national level. Next, a manageable structure can be set up that can engage with the higher levels of policymaking, starting with the leaders, politicians and professionals. The emphasis needs to be on the importance of the foresight process as much as the outputs it generates. It is important to extend foresight into the policy implementation phase in order to apply the knowledge. In order to ensure sustainability, it is important to have a budget to finance various institutionalised foresight activities and to have a person or organisation that can act as the so-called spider in the web. Portugal has developed a range of foresight experiences shaped by its context and while it can continue learning from other countries, it can be creative in building its own foresight approaches, for example linked to planning and regulation.

There is a need to bring systematic foresight into policymaking to provide strategic intelligence and allow a more long-term perspective. When investing in institutionalised foresight, the Lisbon meeting discussions identified a number of dos and don'ts, for example that foresight is not about selecting a specific technology to invest in but rather how to position R&I in policy. In this context, it is important not to risk overburdening R&I policy by managing expectations. Foresight should be foreseen in the preparatory stage of developing a strategy, as a visioning process before the strategy development. It allows the opportunity to engage people and to set the expectations regarding foresight. However, benchmarking may put pressure to start installing foresight activities and there is a need to first focus on the demand before the supply. The experience with including foresight in the development of Smart Specialisation Strategies (S3) has been more focused on existing/ current R&I strengths/capabilities in the region/country rather than exploring future smart specialisation capabilities. There is a need to address this in the current regulation, and to expand the coverage to S3 by using the better regulation guidelines.

The building of a European R&I foresight community needs to be based on the setting up of dedicated communities of practice linking the European, national, and local levels. The evolution of this community is framed by the twin trajectories towards increased inclusiveness and integration. The discussion on the European foresight community should also include the national level, not only the European level when discussing the importance of foresight. The question was raised if strategic intelligence can rely on planning and priority-setting and if capacities should be concentrated.

The Lisbon meeting addressed the question of how best to organise institutionalised foresight for R&I policy at national, European, regional level for a particular purpose, notably through strategic intelligence, R&I directionality and rapid response. The discussion focused on

appropriate foresight approaches based on their purpose and how to maximise impact in organising foresight capacities and skills. Key insights include the following:

Implementation is key in a foresight process, a failure of the methodological approach is that some explorative scenarios become normative scenarios. It is better to choose a normative scenario based on a foresight process.

It is good to have a balance between in-house and outsourced foresight capacity.

In relation to R&I directionality, scenarios were identified as an important tool for a shared understanding of the dynamics and trajectories of future change and the factors that will influence these changes. Scenarios can thus facilitate the development of a common vision and shared R&I goals.

Roadmaps are a proven tool for implementing transformational R&I policies.

The final interactive session focused on critical success factors for institutionalised foresight. The Finnish example highlighted the fact that a foresight process is not complex, but it needs time and people to understand the process. A key milestone was when parliament confirmed that foresight is a good way of working, which was further supported by various ministers. It needs a few bright minds initiating it and keeping it alive, but also a market that is developing foresight services, and spreading foresight in companies. Investment can be a driver to integrate foresight into policy making. Many countries produce lists of mega trends, but what makes the differences is that in Finland they are co-created by a group of stakeholders as their own project and as a basis for taking action.

The discussion addressed good practices, design features and other levers for success. Barriers to good practices of citizen engagement are:

- a poor relationship with policy makers,
- not informing citizens on R&I questions,
- not empowering citizens,
- lack of motivation (no links to challenge, budget and decision makers).

Success factors are related to:

questions of methodological approach, public consultation, real participation or co-creation of collective policies, and the selection/choice of citizens.

Responsibility is a critical aspect of success. In terms of appropriate design, an ecosystem is recommended, since it is more self-organized and less reliant on top-down direction/support.

The complexity of the ecosystem differs and there is a need to position foresight strategically in the system. In Eastern Europe, this is not well developed, while in other countries, one can find more mature business foresight.

The discussion also highlighted the need for functional systems: the worse the system, the more foresight is needed. Foresight is tacit knowledge in the mind of participants, but people need to feel close to the decision making. Foresight needs to evolve to meet the needs and demands, while keeping up with all changes and disruptive environments.

Annex 3: MLE Member State (MS) survey on topic 2

Topic 2: “Institutionalising foresight capabilities and creating wide foresight communities in the R&I system”

Background

The purpose of this survey is to provide:

- an updated overview of the current level of foresight capabilities in governments in support of R&I policy and
- the extent to which foresight communities in the R&I ecosystem can serve as building blocks for a strong European R&I foresight community.

The results will feed into the MLE Discussion Paper on this theme and provide an important basis for discussion at the forthcoming MLE Topic 2 event in Lisbon (5-6 November 2022).

We would appreciate it if you could complete the questions below by the deadline- it is fine to supply whatever information is available to you and to submit the survey with gaps.

Deadline for submission: 9 November 2022 COB to be able to include them in the Discussion Paper and the interactive exercises.

Section 1 – General information about the Respondent

1. Member State (MS)
2. Institution/organisation
3. Name of the country representative

Section 2 - Level and extent of government foresight capabilities in the R&I system

1. In your country, how is foresight institutionalised in the R&I system?

Please list the main entity below in the table - if there is more than one entity, please complete for each entity.

	Name of entity	Type Ministry/public entity	Positioning Judiciary/executive /parliament	R&I domain and role (General/thematic, funder /user of R&I)	In-house or outsourced foresight (size)
<u>example</u>	Prime Minister Chancellor	Ministry	Executive	General	Four In-house foresight experts + outsourced
1 (lead)					
2					

2. What is the main purpose of foresight activity in government?

Indicate the purpose of the foresight activity and identify relevant foresight activities in government in relation to R&I policy. Identify the main outputs.

	Main Goal /purpose of Foresight Activity	Lead entity	Frequency	Foresight methods used	Main outputs (e.g. National R&I Strategy, e.g., Smart Specialisation Strategy)
1.	Strategic intelligence				
2.	R&I directionality				
3.	Priority-setting				
4.	Anticipatory intelligence/ crisis /disruption				
5.	Rapid response / crisis management / disruptions/transitions				
6.	Other				

3. Current level of support and resources

Please indicate the extent to which foresight activities in government are present and supported

Level	Championing	Support and resources (financial and human)	Networking and coordination	Training and capacity building
High				

Level	Championing	Support and resources (financial and human)	Networking and coordination	Training and capacity building
Medium				
Low to none				

4. Success stories and good practices

Please provide examples of successful foresight activities in government works? Please indicate key good practices and design features, and what were levers or generally critical for success.

Section 3 - Capacity building Priorities

1. What are the main types of capacity building needs envisaged in the short to medium term?

Please indicate the main capacity building needs for developing foresight activities in government in your country in relation to R&I policy and where possible indicate specific priorities.

How can your country contribute e.g., in terms of institutions, activities, experiences, expertise themes, etc.?

	Level of importance (rank 1-5)	Priorities (specify your country's short to medium term needs)	Expertise (please indicate where and how your country can contribute e.g. <i>in terms of institutions, activities, experiences, expertise themes, etc.?</i>)
Building and/ or strengthening institutionalised foresight structures			
Training in foresight approaches, methods, futures literacy			

	Level of importance (rank 1-5)	Priorities (specify your country's short to medium term needs)	Expertise (please indicate where and how your country can contribute e.g. <i>in terms of institutions, activities, experiences, expertise themes, etc.?</i>)
Domain expertise			
Improving networking and coordination across government			
Developing a foresight community (national)			
Links with relevant foresight communities abroad			

Section 4 - Building a strong European R&I foresight community

- 1. *What benefits are there for your country and for Europe in a reinforced network of R&I foresight actors?*
- 2. *What are the best ways to promote and support a strong European R&I foresight community?*

Section 5 – Any additional comments on institutionalising foresight capabilities in your country

Leave any other comments you might want to share on experiences, needs or challenges concerning Institutionalizing foresight capabilities.

Annex 4: Recommendations for the European R&I foresight community

In their replies to the MLE Survey on Topic 2, the participating MS made the following recommendations for promoting and supporting a strong European R&I foresight community:

1. Vision

- clear definition of foresight and its benefits for R&I system; clear role of the community in this process and the possible outcomes.
- ensure value-added of having one or multiple networks for R&I foresight community, to avoid unnecessary duplication of efforts or even burden to MS.
- building a common foresight infrastructure in Europe (going beyond individual projects and informal networks). Institutionalisation would be important
- Not forgetting that a strong EU community has global eyes, not only continental ones.

2. Resources

- A network/platform needs continuous support; this is still missing in Europe
- Knowledge of individuals, projects and organisations involved in foresight
- Increased investments in research on cognitive collaboration and futures thinking, futures literacy for other groups than prospective foresight experts (e.g. future politicians, domain experts)

3. Training and capacity building

- Organising trainings and practitioners' meetings to develop common understanding on foresight and present new methods and tools
- Community of practice (CoP) will increase the anticipatory capacity of European countries. A CoP could be a good complement to the stronger network. CoP could have a variable geographic geometry according to the needs of the countries or the topics. The current Horizon Europe WIDERA call for proposals for a Coordination and Support Action for the setting up of a strong European R&I Foresight Community, could be an effective way to develop such a community of practice, including learning, sharing and collaboration, in given tools and themes
- Developing an online community of domain experts participating in various foresight consultations and developing a reputation mechanism associated with it
- Exploring fair ways of paying consulted experts even in short consultations (e.g., online consultation, workshops)

4. Clear communication and public engagement

- Regular and clear communication (seminars, newsletters?)
- Creating a single-entry point for foresight initiatives

- Appropriate promotion to set up two-way communication in the sense of innovation demand on the part of the users of foresight and delivery of qualified documents on the part of the network for their implementation in political and corporate decision-making
- Promoting public futures literacy not as distinct new theory/skill, but embedded in or associated with the artefacts (pictures, short movies) that propose explorations of the future

5. Networking and connection

- enhanced EU networking on good practices for foresight community building (series of online workshops, conferences, sharing reports, producing summaries of studies, etc.)
- Knowledge and experience transfer events. Hands-on solutions to existing challenges, experience, and ideas from others (for example, a foresight is needed for a specific challenge – how to address this? what methods to use?)
- Events integrating various foresight cultures (incl. futurists, SF authors, regional authorities organising entrepreneurial discover for smart specialisation)
- involvement (not necessarily permanent) of relevant stakeholders in the foresight network; in particular the main policy makers and business representatives to gain awareness of the possibilities of foresight to contribute to strategic planning and gain confidence in the network's ability to produce qualified outputs.

GETTING IN TOUCH WITH THE EU

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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.

This paper has been prepared in the context of the Mutual Learning Exercise (MLE) on research and innovation foresight (R&I foresight), a process led by the European Commission DG RTD. The paper aims to develop an in-depth overview of institutionalised foresight capabilities specific to research and innovation at national level within the EU, and to gauge the demand and direction for creating foresight communities in the R&I system at EU level.

Studies and reports

