EYE OF EUROPE

Showcasing Perspectives: A Stocktaking of R&I Foresight Practices in Europe

Eye of Europe

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Disclaimer: This is a draft report that is pending official approval by the European Commission

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1 Introduction

1.1 Background and Objectives of this study

Eye of Europe - The Research and Innovation foresight community

As a Coordination and Support Action funded by the European Union (EU), the project "Eye of Europe" aims to enhance the integration of foresight practices into Research and Innovation (R&I) policy making across Europe. Ultimately, the project envisions a more cohesive and influential R&I foresight community that contributes significantly, as a collective intelligence, to shaping and guiding policy decisions (Futures4Europe, 2024). To this end, Eye of Europe builds on existing initiatives and experiences to foster knowledge-sharing between foresight practitioners and policy makers, attract domain experts in foresight endeavours, and engage a broader audience in futures thinking. Nurturing futures4europe as the online home for the community and running various face-to-face events with different stakeholders will underpin these ambition (Futures4Europe, 2024).

The objectives of this stocktaking endeavour

On behalf of the Eye of Europe consortium, the DLR Projektträger (DLR-PT) conducted a stocktaking exercise to assess the organisation of foresight activities with a view to informing R&I policy in the ERA. This builds on the results of recent EU projects on R&I foresight. The report is based on the findings of a survey conducted as part of the previous Mutual Learning Exercise (MLE) on R&I foresight in 2022/2023. The mapping exercise was conducted using three main methods: an online survey, interviews with representatives of national foresight actors in Europe, and desk research.

The primary objective was to gain a comprehensive understanding of the diverse and innovative R&I foresight practices across the ERA and their impact on policy-making. Furthermore, we sought to understand how the identified actors are organised and how R&I foresight activities are implemented in diverse contexts and Member States. Finally, we aim to identify constraints, bottlenecks, and critical success factors in order to draw lessons for practitioners and for the wider European foresight community.

Scope and Limitations

The stocktaking exercise focused on foresight service providers and beneficiaries[1] in the area of R&I. It is acknowledged that there are various foresight actors and communities with a focus beyond R&I. However, our aim is to take stock of and eventually grow the *R&I* foresight community in Europe. The DLR-PT foresight team thus focused on R&I foresight actors in countries that are part of the European Research Area (ERA). Nevertheless, it could also gather evidence from foresight organisations in Australia, Albania, Türkiye, the United Kingdom and Moldova. The responses from these five non-ERA countries are not included in the statistics presented in this study. None of the questions in the survey were mandatory, which explains the different numbers of total responses added to the notes (n=…) below the statistics. While businesses have contributed to this survey, the focus of this stocktaking is on R&I foresight for policy-making.

[1] The term beneficiaries is used for clients and users that commission R&I foresight projects.

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1.2 Terminology

The Eye of Europe project aims to assess and expand the landscape of R&I foresight activities across Europe. It recognizes the existence of diverse communities engaged in conducting prospective analyses and forward-looking studies. All of these actors are welcome to join the growing group of experts from all countries in Europe and beyond on our platform Futures4Europe. For the report at hand, the DLR-PT team invited all actors that consider themselves foresight actors with an interest in R&I foresight initiatives to submit their survey responses.

Prospective analyses can take different forms and serve different purposes. As summarised by Attila Havas and Matthias Weber (both members of the Eye of Europe consortium) in the OECD Report "The Next Production Revolution: Implications for Governments and Business" (2017), the most common forms include forecasting, key technologies exercises, foresight or private sector strategic planning (p.301). Prospective analyses can take many different forms, varying in their specific objectives, thematic coverage, geographical scope, focus, methods and time horizons. They also vary in their breadth of thematic coverage (a focus on science and technology issues versus a broader focus on innovation and production systems) and their breadth of participation (limited to thematic experts versus broader participation) (ibid.). The two authors argue that participatory approaches enable a more diverse range of innovation and societal actors to contribute a more comprehensive set of knowledge, experiences, values, aspirations, perspectives and strategies to analyse complex technological, economic, social and potentially environmental changes. In some instances, however, narrower, expert-based projects may offer an advantage in terms of speed and cost-effectiveness (ibid., p.317). The platform Futures4Europe seeks to bring these communities together to provide a forum for exchange between these communities that conduct prospective analyses.

For the purpose of this stocktaking study, we follow the definition of R&I foresight provided by Cornelia Daheim in the MLE Report *R&I foresight: An Introduction to the Current State of Play: Thematic Report* (European Commission, 2023a): "we understand research and innovation (R&I) foresight as foresight activities, i.e., a disciplined analysis of alternative futures, for and in R&I systems. It can thus cover questions of how R&I itself might develop, but also how other trends, developments or possible scenarios might influence and become relevant for R&I. In this understanding, such activities can be technology foresight activities, but may also cover other topics. Such activities may be undertaken at different levels (e.g., at EU, national or regional levels) and by different types of organisations, e.g., by international organisations, by companies, in the public sector" (p.6).

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1.3 Methodology

The stocktaking report made use of a mixed-methods-approach, which consisted of extensive desk-research, an online survey as well as in-depth interviews.

Figure 1: The stocktaking process at a glance

1.3.1 Desk research

The DLR-PT foresight team conducted extensive desk research to identify and analyse previous stocktaking exercises. As part of this desk research, the team compiled and assessed a comprehensive list of existing literature, foresight networks and best practices used across Europe[2]. For example, we analysed resources such as academic articles or the findings of the previous Mutual Learning Exercise, which was organised by the European Commission. Especially the findings of the MLE report on *Institutionalising foresight capability and creating wide foresight communities in the R&I system* (European Commission, 2023) significantly influenced the development of the online survey. The survey conducted for the MLE Report analysed the approaches to institutionalisation of R&I foresight at national level in EU member states. This Eye of Europe study, conducted one year after, adds to these findings by showcasing the *implementation* approaches of R&I foresight projects by different actors in Europe. It moreover seeks to broaden the scope: while participants represented nine countries in the previous MLE, the Eye of Europe study draws on evidence collected from **43 R&I foresight actors from 16 ERA countries (in addition to 4 non-ERA members).**

The OECD's Strategic Foresight Unit's publication on *Foresight and Anticipatory Governance in Practice - Lessons in effective foresight institutionalization* was moreover helpful in understanding different approaches and practices in Strategic Foresight across Europe and beyond (OECD, 2021). The authors of this Eye of Europe study contacted foresight networks, such as the Foresight Europe Network and the Association of Professional Futurists, to inform them about the

[2] For further information, see e.g.
De Smedt, P. and Van den Broeck, F. (2024), POLICY BRIEF, Embedding Strategic foresight with a Multi-Level Perspective, United Nations University, https://cris.unu.edu/sites/cris.unu.edu/files/UNU-CRIS_Policy-Brief_2404.pdf;
Bovenschulte et. Al (2021), Regierungs-foresight- Stand und Perspektiven, iit perspektive, Working Paper, Institute for Innovation and Technology, Nr.59. Berlin, https://www.iit-berlin.de/publikation/regierungs-foresight-stand-und-perspektiven/
Törnurist, Piret; Hanson, Angela (2020): Anticipatory Innovation Governance: Shaping the future through proactive policy making. OECD Working Paper on Public Governance No. 44, Paris, https://oecd-opsi.org/wp-content/uploads/2020/11/AnticipatoryInnovationGovernance-Note-Nov2020.pdf
and all 5 Reports from the previous MLE: https://projects.research-and-innovation.ec.europa.eu/en/statistics/policy-support-facility/psf-challenge/mutual-learning-exercise-mle-ri-foresight

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Eye of Europe's stocktaking and endeavour to grow the R&I foresight community. This allowed us to build on existing knowledge, avoid duplications and have a solid evidence base for this report. The desk research was moreover used to identify R&I foresight experts and organisations, that were targeted with the dissemination of the online survey.

1.3.2 Online Survey

The DLR-PT foresight team designed an online survey, which was conducted in April, May and June 2024. The survey was distributed using the snowball principle, with the team initially contacting all partners within the Eye of Europe consortium. Each consortium partner was then invited to extend the survey to their respective networks and partners from previous foresight projects, particularly those conducted within an EU context. This method ensured that the survey reached individuals and institutions deeply embedded in R&I foresight practices and policy development, while also leveraging personal and professional networks to maximize engagement. All invitations were sent directly by our team or through intermediaries within the consortium. In total, the consortium sent out nearly 100 personalised invitations.

The survey was also shared through various established networks and platforms to reach a broader audience. The Mutual Learning Event "Foresight for Research & Innovation policy: emerging practices" in Bratislava, organised by the Eye of Europe consortium on 23 May 2024, helped to further disseminate the survey. In addition, all members of the Foresight Europe Network, which has over 300 foresight experts on its mailing list, and the European members of the Association of Professional Futurists (APF)[3] received the survey invitation. This approach not only amplified our reach but also diversified the pool of perspectives and insights collected.

1.3.3 Qualitative interviews

To gain further insight into the national R&I foresight ecosystems, actors, and approaches, the team conducted in-depth interviews with experienced representatives from European R&I foresight beneficiaries and providers. This helped the team to gather qualitative insights beyond the survey results. The DLR-PT team would like to thank Totti Könnölä (IF-Institute, Spain), Mikko Dufva (SITRA, Finland) and Maria João Sequeira (FCT, Portugal) for their insights which further enriched the analysis. The interviewees were chosen on the basis of different national backgrounds that reflect different foresight cultures.

[3] The APF has 400 members from 40 countries.

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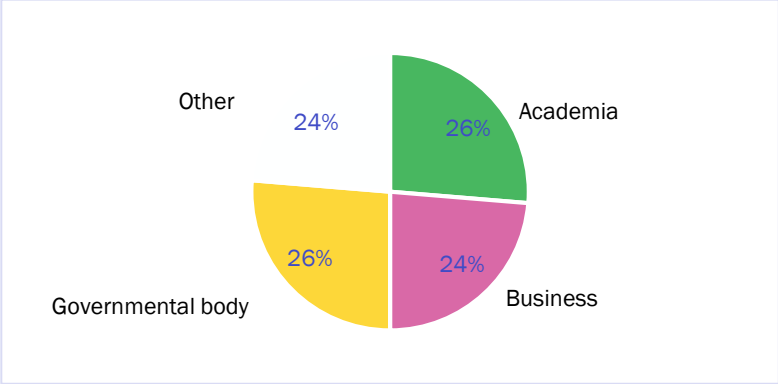
2 An overview of R&I foresight actors in Europe

The outreach efforts paid off and the response rate was very positive. The report contains the approaches, methods used and practices from 43 **R&I foresight organizations** across **16 ERA countries** and **4 non-ERA** countries (see Figure 3).

A profile of the survey's respondents

The response rate to the survey on **institutional set-up** was diverse, with a similar share of respondents from governmental bodies, academia and businesses. In addition, consultancies, project management agencies and NGOs contributed to the survey.

Figure 2. Who are the R&I foresight actors that responded to the survey?



Note: n= 38, Businesses that contributed to this stocktaking have done R&I foresight in a policy context.
other= consultancies, project management agencies and NGOs

In addition to the institutional background, we wanted to find out in which capacity these R&I actors stand vis-à-vis the foresight projects. 54% of respondents act as **service providers** for R&I foresight, 14% as **beneficiaries**, 8% as both beneficiaries and providers, and 24% do not work with R&I foresight at all but only with foresight in general.

87% of respondents had either **experience in coordinating foresight projects** (69%) or experience as a participant in foresight consultations (18%). 55% of respondents are experts in R&I, while 24% have extensive experience.

The R&I foresight actors have a vast experience in conducting these projects. On average, the organisations conducted **26 foresight projects in the last five years**, with 12 of these specifically focused on R&I. However, there are significant discrepancies among the organisations, ranging from one single foresight project to 400 projects.

The map of ERA member states below provides a first overview of R&I foresight actors in Europe, which contributed to this stocktaking exercise. It is acknowledged that the map does not contain all R&I foresight organisations and **we invite all organisations that are not included in the map to register their organisation's profile on the Eye of Europe's platform Futures4Europe.** On the platform, you can find a detailed overview of each of these actors, past and ongoing projects as well as the staffs' expertise on R&I foresight.

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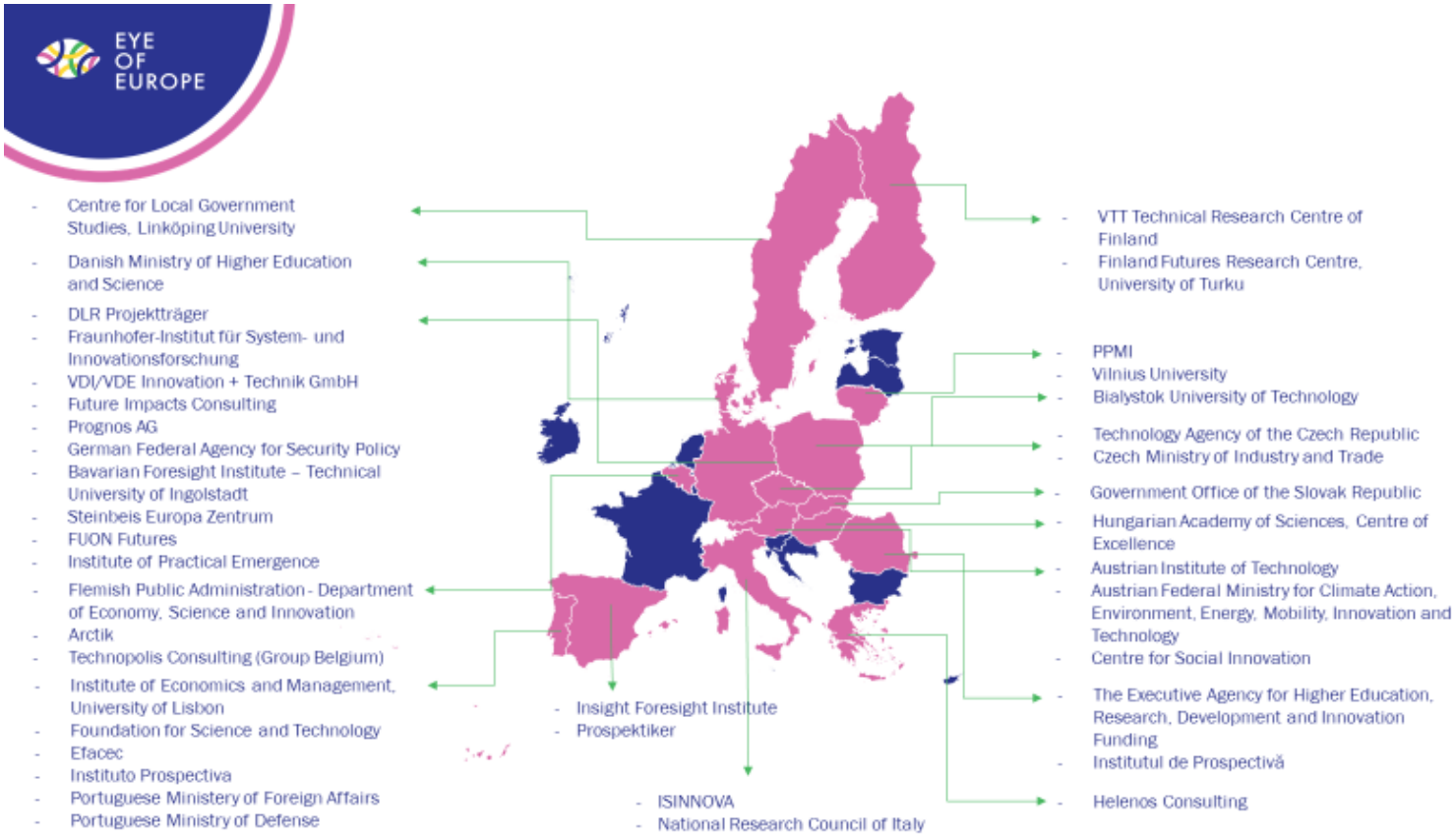
Figure 3. R&I foresight actors in Europe, which contributed to this stocktaking exercise



Note: Additional responses were received from a representative of the Government of New South Wales, the University of Technology in Sydney, and an Australian foresight consulting firm, SAMI Consulting (United Kingdom), The National Agency for Research and Development of Moldova & Başkent University in Türkiye.

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2.1 A selection of flagship R&I foresight projects in Europe

We asked respondents to identify one or more **R&I foresight projects they had carried out in the last 5 years**. This allowed us to compile a list of 54 different R&I foresight projects from ERA countries. This list reflects very well the **wide range of applications** for which foresight can be used in R&I. It includes projects that aim to anticipate technological and societal changes in order to **inform national/regional R&I strategies** and make them more robust:

Projects: *Strategic Foresight in the Western Balkans: Recovery on the Horizon*

On behalf of the European Commission, the International Service Facility conducted a foresight study in the Western Balkans. The study devised regional and national scenarios for 2035 in collaboration with stakeholders from the private sector, civil society, academia and government. The scenarios assist policymakers in establishing an environment conducive to innovation policies and determining priorities for strategic investments. Together with R&I experts from the region, R&I Roadmaps for each of the Western Balkans 6 was elaborated.

Romania's Sustainable Development Strategy 2030

The Strategic Research Agenda for Romania (2022-2027) was developed through a comprehensive process in 2021. This included expert panels, online consultations and input from citizens. Six thematic expert panels comprising 100 panellists were established to identify impact areas and provide future-oriented arguments. Over 2,300 stakeholders participated in a Dynamic Argumentative Delphi survey, which expanded on expert arguments and assessed impact areas. Additionally, two citizen workshops were conducted in 2022 as part of the European ProEthics project, ensuring a well-rounded approach that combined expert knowledge with broader public perspectives.

Some projects apply foresight to **deal with complex global problems** like climate change, cancer or rare diseases.

Projects: *Foresight on Demand: Climate Change Adaptation and Societal Transformation*

This foresight project was set up and implemented to provide the Mission Board for "Adaptation to Climate Change including Societal Transformation" with forward-looking evidence. The project comprised two main activities: a foresight workshop with key experts to map drivers/trends of climate change and barriers to adaptation, and a real-time online Delphi study involving more than 300 experts on key systems, social infrastructures, health, water, agriculture and food, and ecosystems.

Converging Technologies for Sustainable and Healthy Food

The global challenge of providing sustainable food security and healthy nutrition to a growing population requires a new approach in the coming decades. While current caloric production capacity could theoretically meet 2050 needs, issues like malnutrition persist due to mismatches in quantity/quality ratios and geographical distribution of production versus need. Innovation has the potential to increase local food production capacity, addressing specific regional demands and challenges posed by climate change. To achieve this, an interdisciplinary, forward-looking approach is necessary, considering entire food systems and chains. Concepts such as the "Smart Grid for Food Systems" and "Diversified Adaptable Food" developed by international experts provide a framework for addressing common issues and connecting food systems globally.

Others try to make sense of **new developments** like the digital transformation and analyse the social and economic impacts of these changes.

Projects: *Digital Divide*

A foresight project was conducted for the Danish Refugee Council over a six-month period. The project focused on the humanitarian sector and the potential impact of the Digital Divide. It employed foresight and futures thinking methods to explore how the Digital Divide might unfold for the humanitarian sector. The process included creating a research report on trends and weak signals, conducting training sessions on innovation and futures thinking, and organising workshops to co-create desirable futures. This approach aimed to provide insights and strategic foresight for the humanitarian sector in the context of digital challenges and opportunities.

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Participatory foresight on next generation online platforms

The project, entitled "Participatory foresight on next generation online platforms", is an investigation into the prospective impact of online platforms on European society and the economy. Online platforms are undergoing rapid evolution and are playing an increasingly significant role in our lives. The objective of this research is to provide the European Commission with insights that will inform its policymaking process. This will be achieved by identifying potential challenges and opportunities related to online platforms, as well as by strengthening the Commission's use of participatory foresight techniques. The project employs participatory foresight techniques, which involve bringing together stakeholders to envision different future scenarios.

Other projects have used foresight methods to **develop and design new products**.

Projects: Stem materials

A foresight exercise has been conducted to identify research paths to design a new generation of materials which can provide multi-functionalities. These material systems have been named "stem" in analogy to living cells, where a base of primitive units can be designed and assembled for self-reacting to external inputs. These materials will embed a concept of "internet in things," where their processing capacity will enable the systems to interact with the environment and express diverse functionalities. Stem materials do not yet exist, but many clues from different theoretical and experimental results suggest they can be developed, and because living organisms exist.

MFG4.0

The manufacturing industry is undergoing a digital transformation, with an increasing number of processes becoming automated and service-driven. This has the potential to result in significant shifts in the structure of industry and society. The MFG4.0 project examines these changes from a variety of perspectives to develop strategies that will enable Finland to adapt to and benefit from the transformation. One of the working packages examines trends and drivers of the future of automated manufacturing and Industry 4.0. The project consortium aims to develop tools for identifying emerging technology areas where new products can be created and for evaluating which areas are most suitable for Finland.

Unfortunately, it is not possible to present all 54 projects in this report. More details of each case can be found on the **Eye of Europe's platform** Futures4Europe. **If your organisation would like to present your R&I foresight project, you are encouraged to submit it to the platform using the easy-to-use** template. The Eye of Europe team will be happy to assist you and it will take no more than a few minutes.

2.2 Which stakeholders were involved in these submitted R&I foresight projects?

The type of stakeholder to be involved in an (R&I) foresight initiative depends, among other things, on its objective, scope and resources. As analysed in more detail in the section on success factors and bottlenecks, it is important to involve the stakeholders concerned in a continuous and meaningful way in order to increase the chances of effective uptake of the results of the R&I foresight initiative. Not surprisingly, scientists and experts (91%) and public bodies (91%) were involved in most of the submitted R&I projects. Citizens were involved in 31% of the projects submitted (Figure 4).

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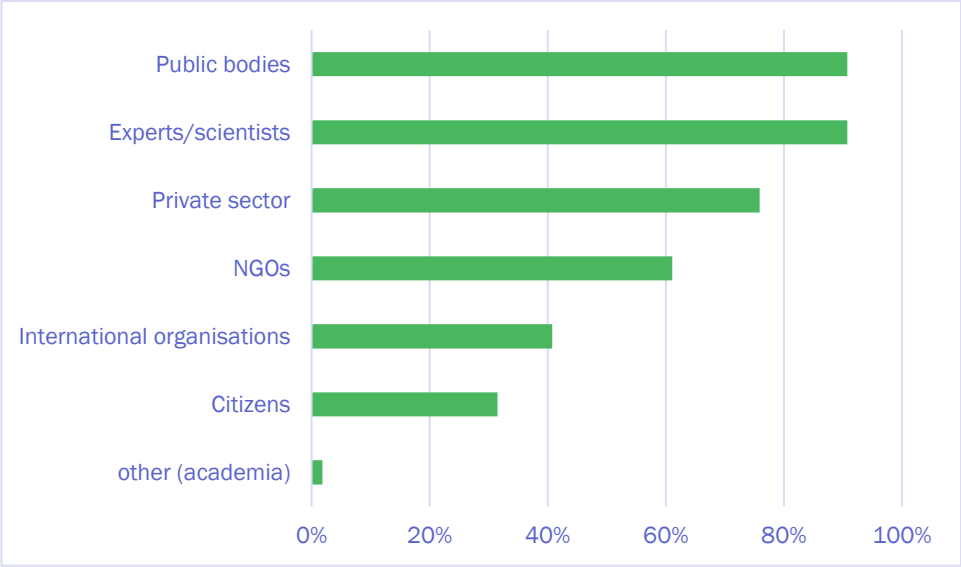
Figure 4. Which type of participants /representatives have been involved in these projects?

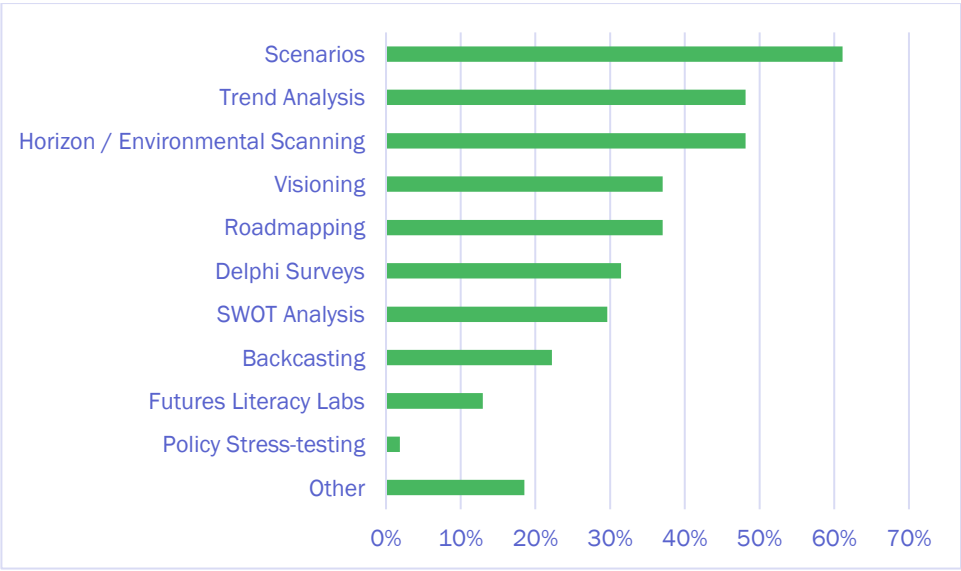


Notes: n=54 projects

2.3 Foresight methods used in these R&I foresight projects

The choice of appropriate methods for an individual foresight project depends on a number of factors such as objective, scope, resources, etc. In the case of the 54 projects submitted for this report, scenarios are the most commonly used method, used by 61% of projects, highlighting their importance in envisioning multiple potential futures. Trend analysis follows at 48%, highlighting its role in identifying patterns over time. Horizon/environment scanning (48%) and visioning (37%) are also widely used, highlighting their value in capturing emerging trends and creating a shared vision. Roadmapping, a common tool at the interface between strategic planning and foresight, is used in 37% of cases. Delphi surveys were used in 31% of the 54 projects submitted.

Figure 5. The type of methods used in R&I foresight projects submitted for this study



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Note: n=54 projects, survey respondents could indicate multiple methods per project

Less commonly used methods include SWOT Analysis (30%), Backcasting (22%), and other techniques (19%) such as wild cards analysis, focus groups or technology assessment surveys. UNESCO's Futures Literacy Labs as an explorative method were used in only 13% of cases. A striking finding is that Policy Stress-testing was only used in one case which was submitted[4]. Policy stress testing assesses the resilience of proposed policies to different future scenarios. It enables the design of robust policies that can withstand challenges and shocks (UNDP, 2022, p.46[5]).

3 Making the case for R&I foresight: An analysis of benefits for policy-making in Europe

Convincing senior decision-makers - whether in government or in other sectors - of the added value of R&I foresight methods remains a challenge. Although our interviewees noted that the appointment of a Vice-President of the European Commission with a clear mandate for strategic foresight has helped to make the case for institutionalising (R&I) foresight in national governments, **working towards a foresight culture in public administration** remains a challenging (but worthwhile) endeavour. The following analysis of the benefits that the R&I foresight projects have brought, according to European R&I actors, should help to make the case for using these methods in policy making. There is a wealth of additional research and publications[6] that assess the benefits of (R&I) foresight for policy-making. However, due to the focus of this stocktaking study, the chapter is based on the survey results and interviews conducted for the study.

One of the key benefits of foresight activities is their ability to **provide strategic direction for policy priorities**. For instance, one respondent noted that the R&I foresight exercise contributed to "strategic direction for policy implementation and **budget allocation towards social, economic and environmental needs**, which will help **solve fundamental current and expected future problems and challenges** in our country". Another case saw the project contribute to the "more effective **use of public resources for the support of R&D**". In Romania, the research agenda developed through the R&I foresight project has been adopted by Government Ordinance as part of the "National Strategy for Research, Innovation and Smart Specialisation 2022-2027". This is similar to the approach taken in the Czech Republic, where the outcomes of the foresight initiative informed the country's **Smart Specialisation Strategy**.

Foresight activities also contributed to **future preparedness and anticipation** by **identifying research gaps** and working with technological and socio-economic trends. In another case, R&I foresight methods fostered anticipatory thinking, as exemplified by the response highlighting "positive outlooks and the creation of desirable futures". **Capacity building and knowledge sharing** are significant benefits realised through foresight exercises in research and innovation projects. Respondents noted that many people, particularly from the public sector, had been exposed to such a methodology for the first time and had learned how to do it and how to use it. These activities have also allowed **specialised knowledge**

[4] It is worth noting that policy stress-testing is often not labelled as such, but rather takes place in combination with other methods and approaches (e.g. in the course of a roadmapping exercise) - also known as wind-tunnelling. Therefore, it cannot be ruled out that the survey results reflect this bias, due to the specific wording of the survey question.

[5] For another very useful handbook on Strategic foresight methods see European Commission (2023b), R&I foresight in Government: A Handbook for Policymakers, Final Report, https://op.europa.eu/en/publication-detail/-/publication/875850ec-68c2-11ee-9220-01aa75ed71a1/language-en/format-PDF/source-294303501

[6] See e.g. Van Woensel, L. (2021), *Evidence for policy-making: foresight-based scientific advice*, European Parliamentary Research Service, Brussels, https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690529/EPRS_BRI(2021)690529_EN.pdf
T. Könnölä, F. Scapolo, P. Desruelle, R. Mu (2011), *Foresight tackling societal challenges: Impacts and implications on policy-making*, Futures, Volume 43, Issue 3, 2011, Pages 252-264, https://doi.org/10.1016/j.futures.2010.11.004
Da Costa, O., Warnke, P., Cagnin, C., & Scapolo, F. (2008). The impact of foresight on policy-making: insights from the FORLEARN mutual learning process. Technology Analysis & Strategic Management, 20(3), 369–387. https://doi.org/10.1080/09537320802000146

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and specific tools used in foresight activities to be disseminated to a wide community. Similarly, one R&I foresight project has helped to "give visibility to foresight, contributing to greater awareness on the need to institutionalise R&I foresight and **creating bigger literacy through capacity building on foresight**". Innovation and the generation of new ideas are also facilitated by foresight activities, according to respondents.

One participant highlighted how foresight exercises "**revealed their** [the stakeholders'] **assumptions about the future**, had intense conversations about different futures and **stretched the stakeholders' imagination muscles**". Another R&I foresight actor noted that engaging stakeholders in foresight methodology organically, as a process directly embedded in the strategy building, is the most important advantage, as it ensures that the foresight exercise carries immediate **relevance and impact.** There are numerous examples of how actors, including the United Nations, have employed foresight methods in regions with political tensions. One of the R&I foresight projects highlighted these benefits, stating that it "brought together different stakeholders from all Western Balkans with politically tense relations to jointly discuss potential futures of R&I in the region." The R&I foresight project thus incorporates elements of "**science diplomacy**" and the **bridging of political divides**.

4 Critical success factors & constraints for R&I foresight

4.1 Critical success factors for R&I foresight projects in Europe submitted for this stocktaking study

What were the critical success factors that yielded these benefits, according to the R&I foresight actors in Europe that contributed to the stocktaking survey and interviews? While it is acknowledged that each of the submitted projects differs, some commonalities in the success factors can be derived. At the top of the list of critical success factors – mentioned by almost all respondents – is **high-level commitment and support from representatives in governments**. For foresight practices to be truly successful, respondents identified a mandate and subsequent uptake by decision-makers as crucial. Another factor frequently mentioned was **ensuring cross-sectoral stakeholder engagement**. Impactful projects submitted for this report have demonstrated the value of extensive engagement with a wide range of actors from different sectors, including academia, the private sector, politics and civil society. This includes not only the involvement of leading actors and experts, but also the effective mobilisation of a wide range of stakeholders, which contributes to the legitimacy and ownership of the processes. It is therefore crucial to ensure that not only that all stakeholders are invited, but also that the key stakeholders working on the issue are targeted. **Leveraging existing networks or databases of expertise** were mentioned as crucial success factors by some of the respondents, as they enable the **swift mobilisation** of the right experts. Our interview partners highlighted that while the outcomes of the foresight processes are important to the clients, the co-creative process to get there yields equally important benefits for those that are included in it. In the ideal case, this entails the decision-makers for whom these foresight initiatives are conducted.

How can we ensure that we reach the relevant stakeholders?

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Several respondents emphasised the importance of **defining and communicating a clear purpose** for the project and explaining **why it is important and worth stakeholders' time**. During in-person or virtual workshops, it may be beneficial to take this down to an individual level and allow participants to relate the purpose to their own work. That way, each stakeholder knows exactly "What's in it for me" and might stay more engaged throughout the duration of the project. In addition to the purpose, it is also important to **demonstrate that foresight can add value** in the context of today's R&I challenges. It is possible that the stakeholders may initially perceive their involvement as irrelevant. However, in the long run they may prove to be crucial. In this context, the R&I foresight organisations underlined that recent high-level visibility of foresight methods by the European Commission or the OECD have helped to make the case for the benefits of foresight for R&I.

It has been suggested that **facilitating direct interaction between participants in creative settings** has the potential to be beneficial, allowing for more dynamic and contextually rich foresight results. Furthermore, interaction has the capacity to create ownership and increase the likelihood that stakeholders will remain engaged throughout the process. Results from the projects submitted for this study show that it is important to allocate **sufficient time for interactive discussions**. Wherever possible, it is recommended that the **setting** be **in-person**.

Transparency of methods contributes to credibility. It is important to be clear about the purpose of the activity and the rationale behind it. What can foresight achieve and what are its limitations? It is also essential to ensure that participants are fully aware of what has been done, what is being done and what is planned for the future. It is essential to ensure that participants remain engaged throughout the process and do not become disillusioned or lose interest, according to the R&I foresight actors' responses.

4.2 Constraints and bottlenecks that impede R&I foresight projects

In addition to identifying critical success factors, we have identified some commonalities in the submitted R&I foresight projects in relation to constraints and bottlenecks that impede R&I foresight projects. One of the most frequently cited constraints is the **limited time and resources** available for such endeavours. Foresight initiatives often suffer from insufficient time for comprehensive analysis and stakeholder engagement. Furthermore, **budgetary constraints** can restrict the ability to conduct in-depth trend analysis and other essential foresight work.

Another significant challenge is **stakeholder engagement**. Mobilising and recruiting a diverse range of experts and policy-makers for participatory exercises can be a time-consuming and challenging process. Furthermore, there is often a **lack of commitment and buy-in from beneficiaries and stakeholders**, who may be reluctant to accept foresight as a valuable source of input.

Short-term thinking and resistance to change can also hinder the success of foresight activities. Public officials and policymakers are often preoccupied with immediate action plans, making them reluctant to embrace and use the long-term perspectives offered by foresight outcomes. Furthermore, stakeholders may find it challenging **to think freely and challenge their established beliefs**, making it difficult to explore alternative futures. Furthermore, **maintaining objectivity in horizon-scanning activities** and **avoiding the pitfalls of techno-optimism** can be challenging.

Another set of constraints that was cited by various R&I foresight actors is ensuring **relevance and uptake of R&I foresight results**. Representing diverse opinions, producing synthesised and easy-to-understand communication materials, and

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ensuring the effective use of foresight recommendations in policy-making has proven challenging in the case of the submitted R&I foresight initiatives. One of the most significant challenges in the uptake of foresight results is **their limited impact on decision-making.**

The majority of outputs from R&I foresight initiatives take the form of written reports. However, the surveyed experts noted that this **over-reliance on written summaries can limit the impact of foresight work**, as more engaging and immersive communication methods are often required. In one submitted initiative, the project team included speculative designers to co-create artefacts from the future that were continued to be exposed in festivals, workshops and events related to futures (see the box on Using speculative design in R&I foresight: The Futures Garden project in Chapter 8). The creation of such immersive experiences can therefore be an alternative approach to yet another report.

5 Foresight at sub-national level

A growing number of regions are actively engaging in structured and systematic strategic foresight practices to explore, anticipate and shape their future. Adopting a multi-level approach to strategic foresight represents a significant shift in governance, moving beyond traditional hierarchical models towards adaptive co-management and collaborative learning among multiple actors. This involves embedding strategic foresight in policy-making processes to cultivate a culture of anticipation and adaptability within government bodies and international networks (De Smedt and Van den Broeck, 2024). This notion is echoed by Kaplan et al, who argue that to be most effective, strategic foresight should be integrated into a multi-level system that takes account of global trends and promotes strategic interaction at different levels (2021).

In 2023, the Committee of the Regions (CoR) has published its first "Opinion of the European Committee of the Regions — Strategic Foresight as an instrument of EU governance and better regulation" (CoR, 2023). The document highlights the benefits of strategic foresight for local and regional authorities. Members emphasised the need for regions and cities to develop their own foresight capacities through appropriate dissemination and training activities for local and regional decision-makers and public authority staff. By promoting learning and involving citizens and local and regional authorities in horizon scanning, identifying weak signals and recognising long-term trends, the visibility and impact of foresight activities can be enhanced, helping to develop future options (CoR).

These foresight capacities at subnational level are equally important for R&I policies. A survey conducted by the Committee of the Regions (CoR) in 2021 revealed that 52% of local and regional authorities already had some form of foresight activity in place (ESPAS, 2023, p.9). Accordingly, there is a growing number of sub-national authorities engaged in comprehensive cross-sectoral foresight – including with a focus on R&I. The CoR's report "Embracing Uncertainty: Harnessing Strategic foresight for Regional and Local Progress" (ibid.) showcases examples of how subnational governments have used foresight in their policy-making processes:

Scenario Development and Strategic Planning

Regions across Europe are increasingly recognising the value of strategic foresight in shaping their future development. These sub-national entities are actively using a range of foresight approaches to improve their strategic planning and decision-making processes, including on R&I policies. A key application of foresight at the regional level is the development of scenarios for territorial development. The **Friuli Venezia Giulia** (FVG) region in **Italy** has produced the 2020 foresight Scenarios FVG Report, which outlines potential models for territorial development. These were developed in collaboration with the foresight agency Skopia and the University of Trento with Professor Roberto Poli as UNESCO Chair in Anticipatory Systems. Similarly, the **Helsinki-Uusimaa** region in **Finland** engaged in scenario-based reflection,

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considering alternative long-term futures that included themes such as the green transition, drivers of the economy, and local community spirit. The scenarios provided the Regional Council with reflections for its Regional Programme 2022-2025 and enabled it to prepare for an uncertain future and to influence it - for decision-making and for regional development activities. The **Italian** region of **Sardinia** exemplifies a comprehensive approach with its Regional Strategy for Adaptation to Climate Change 2021-2050 and Sardegna 2030 - Regional Strategy for Sustainable Development. The climate change adaptation plan, based on scientific data, outlines the most probable climate scenarios for various areas within the region through 2050 and offers future-oriented recommendations (ibid.).

Horizon Scanning and Trend Identification

Horizon scanning is an important foresight activity undertaken by regions. The German-speaking community of **Ostbelgien** employs this technique to identify emerging trends, such as citizen-centred digital government, as part of its visioning process for 2040. The **Hauts-de-France** region is implementing projects on the future of coastal areas, city centres, and industries, as well as foresight analyses on issues such as early school leaving and the evolution of working patterns (ibid.).

Participatory Foresight and Stakeholder Engagement

Participatory foresight processes are becoming increasingly common, with regions involving a variety of stakeholders in their future-oriented activities. Ostbelgien's foresight project includes workshops with citizens, stakeholders, and experts, resulting in a mission statement outlining the primary objectives that will guide how people in the German-speaking Community aspire to live in 2040. Sardinia's sustainable development strategy, created through a multi-stakeholder participatory process, aims to empower civil society and enhance the multi-governance system and addresses all facets of sustainability (ibid.).

Investing in (R&I) foresight capacities

To support these activities, regions are investing in foresight capacity building. Friuli Venezia Giulia, for example, provides strategic foresight training for regional directors, heads of unit, and even high school teachers. Some regions have gone a step further by setting up dedicated foresight units. The Hauts-de-France region has a team of 17 experts specifically dedicated to strategic foresight and regional development issues, providing full support to the local authorities in its territory (ibid.).

Together with the OECD, the Government of Flanders' (Belgium) Strategic Insights and Analyses unit within the Chancellery and Foreign Office published the guidebook "Strategic Foresight in Flanders: Foundational Elements, Strategic Drivers and Practical Guidance" (Vlaamse ovrheid, 2024). This blueprint [...] "introduces seven strategic foresight roles that set the objectives and highlight the potential value-creation brought by the envisaged transformation" (ibid, p.9). This blueprint outlines four functions developed by the Flanders Chancellery and Foreign Office to enable organisations and/or teams to engage in practice with Strategic Foresight. 1) Discover trends and disruptions 2) Explore Anticipatory intelligence 3) Map opportunities and challenges 4) Create impact and scale (ibid., p.14). The guide offers a practical overview for other regions that seek to use foresight methods to further their (R&I) reforms.

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6 Capacity-building needs in R&I foresight

Working towards and increasing foresight capacity in public administration (and society at large) remains an important goal, according to one of the R&I foresight actors interviewed for this study. Foresight capacity building courses are a key part of moving towards this goal. The survey results demonstrate a **clear recognition of the need for capacity building in foresight activities, with 94% of respondents acknowledging this necessity.** R&I foresight actors explicitly aim to work towards and increasing foresight capacity in public administration and society at large, and capacity-building courses are a key part of moving towards this goal.

The key areas for development and specific priorities identified include **methodological training**, with a strong emphasis on various foresight methodologies such as scenario planning, trend analysis, horizon scanning, and Delphi surveys. There is also interest in broadening the **range of methods used and bringing new staff into the skills pool**. Additionally, respondents highlighted the crucial role of **training in data analysis tools and techniques** to enhance the capacity to analyse and use data for foresight activities. Furthermore, respondents identified the development of **skills in stakeholder mapping, facilitation, and consensus building** as crucial to engaging a wide range of actors in the research and innovation ecosystem. As part of the Eye of Europe project, the consortium organised capacity-building courses for R&I actors in a multi-day training session in Bratislava, Slovakia in May 2024. Further training courses are scheduled to be held during the course of the Eye of Europe project in order to address the identified capacity-building needs.

The creation of dedicated foresight units and the sharing of methodologies between domain experts were suggested as potential solutions. Specific areas of focus include **responsible innovation and roadmapping.** The ability to **analyse complex information, identify patterns, develop strategic insights, and challenge assumptions** were identified as key by the R&I actors surveyed. **Effective management** of foresight projects requires a combination of **planning, coordination, and monitoring skills**, as well as an **understanding of ethical issues** and the **principles of responsible innovation,** according to the R&I foresight actors. There is a need for more people to be trained in foresight practices and to have hands-on experience in foresight activities, as general human resource capacity issues point to a lack of people dedicated to these tasks.

According to the R&I foresight organisations, it is vital to implement **effective communication skills and strategies** to translate foresight findings to various stakeholders, including researchers, policymakers, and the public. This should include developing mechanisms to **integrate foresight findings into the research funding process** and **establishing a network of stakeholders** for knowledge exchange and collaborative activities.

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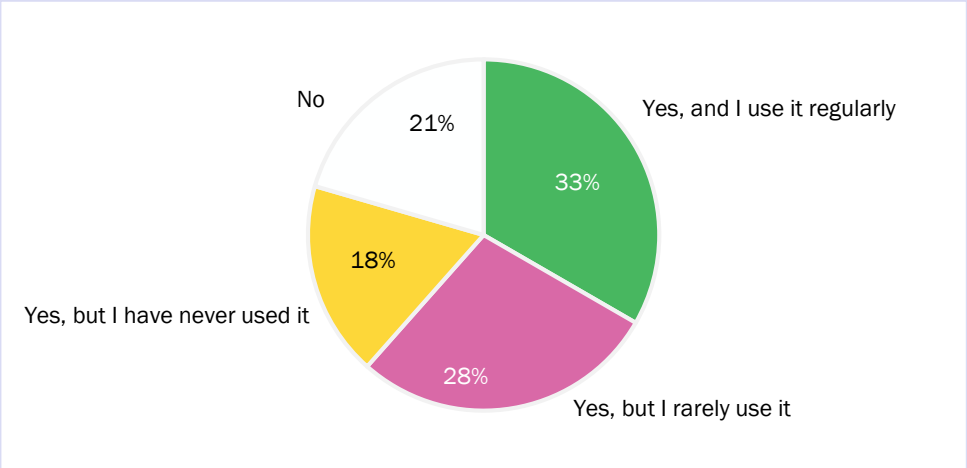
7 Building a European R&I foresight Community

The survey responses regarding the Futures4Europe platform have revealed several key insights about its usage, perceived utility, and areas for improvement. Only 33% of respondents use the platform on a regular basis, while 28% is aware of the platform, though rarely uses it. The Eye of Europe project aims to relaunch the website, fill it with noteworthy initiatives and keep it updated. This will provide an incentive for the 21% who are not aware of the platform and the 18% who have never used it to do so in the future.

Figure 6. Are you aware of the Futures4Europe platform?



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Regarding the platform's usefulness, some respondents find it beneficial for providing an overview of foresight projects, activities, and events. They appreciate its potential for creating a sense of community and facilitating future partnerships. To all R&I foresight actors who have not yet signed up to the platform, we would like to encourage you to join the community. To anyone who is not yet aware of the benefits of the platform, we have summarised them for you below.

Futures4Europe is the online hub for the R&I foresight community in Europe. The platform serves as a repository for diverse foresight projects, outcomes, educational materials, blog articles, and a communication gateway for ongoing activities and events. It welcomes foresight practitioners, related professionals, potential clients such as R&I funding agency representatives, Science & technology experts, and futures enthusiasts. Visitors can explore content, subscribe to the newsletter, while registered members can disseminate projects, results, and contribute blog posts. Joining is easy – click "Log in," set up an account, and start posting. As the community continues to expand, an upgraded version launching in fall 2024 will enhance visibility, multimedia content, and navigation.

In the framework of the Eye of Europe project, the consortium will organise various on-site events to provide fora for exchanges for the R&I foresight community. Until then, there are several conferences and other networks in which R&I foresight practitioners have the opportunity to exchange ideas and lessons learned.

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7.1 Examples of International and European (R&I) foresight Networks

Name	Short description	Website
Association of Professional Futurists	The Association of Professional Futurists (APF) is a global community of futurists, professionals dedicated to promoting the practice of strategic foresight and futures studies. Founded in 2002, APF provides resources, networking opportunities, and professional development for its members. The organisation aims to advance the practice of foresight through education, standards, and the sharing of best practices among its diverse membership, which includes consultants, academics, corporate strategists, and public sector professionals.	https://www.apf.org
World Futures Studies Federation	The World Futures Studies Federation (WFSF) is a global NGO established in 1973. Its mission is to advance futures studies and strategic foresight. It brings together individuals and institutions engaged in futures research, education, and policy-making. The WFSF promotes interdisciplinary dialogue and collaboration to address global challenges and create sustainable futures. The WFSF organises conferences, publications, and training programmes, which foster a better understanding of future possibilities and enhance the capability to anticipate and shape future developments.	https://wfsf.org
The Millenium project	The Millennium Project is a global think tank that connects futurists, scholars, business leaders, and policymakers to improve global foresight and decision-making. Founded in 1996, the project conducts research and produces reports on global challenges, opportunities, and strategies. Its flagship publication, the "State of the Future" report, integrates insights from its extensive network of experts and provides comprehensive analysis on a wide range of issues, from technological advancements to socio-economic trends. The Millennium Project also oversees the Global Futures Intelligence System (GFIS), an online platform for sharing foresight information.	https://www.millennium-project.org
Global Foresight Network by the World Economic Forum	The Global Foresight Network, initiated by the World Economic Forum (WEF), is a collaborative platform that brings together leaders and experts from various sectors to explore and prepare for future challenges and opportunities. The network aims to enhance global foresight capabilities by sharing insights, best practices, and innovative approaches to strategic planning. It leverages the WEF's	https://initiatives.weforum.org/global-

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	extensive network to facilitate interdisciplinary discussions and develop actionable foresight strategies that address pressing global issues, from technological disruptions to environmental sustainability.	foresight-network/home
Global Futures Society, Dubai Future Foundation	The Global Futures Society, established by the Dubai Future Foundation (DFF), is an initiative aimed at fostering a global community of futurists, innovators, and thought leaders. Its purpose is to advance the practice of strategic foresight and futures studies on an international scale. The society provides a platform for sharing knowledge, collaborating on future-oriented projects, and discussing emerging trends and technologies. The Global Futures Society facilitates the exchange of ideas and best practices through a series of conferences, seminars, publications, and networking events. These events enable members to anticipate and shape future developments across various sectors.	https://www.dubaifuture.ae/
UN Futures Lab (United Nations)	The UN Futures Lab is a collaborative network by the United Nations (UN) system and diverse stakeholders to integrate futures thinking and strategic foresight into the UN's planning, policy-making and decision-making processes. Through its Global Support Hub, the Lab provides frameworks, capacity-building programmes and tailored support to cultivate a more resilient and anticipatory UN. It actively fosters partnerships with governments, academia, civil society, the private sector and philanthropic organisations, facilitating access to strategic foresight capabilities and advancing the development of forward-looking. The Lab's team provides tailored support, equipping partners at global, regional and local levels with the tools and skills they need to proactively navigate and shape the future.	https://un-futureslab.org/
Global Futures Literacy Network (UNESCO)	The Global Futures Literacy Network is a wide-ranging international community that brings together futures researchers, practitioners and supporters from a variety of sectors, including academia, government, business and NGOs. Comprising entities such as the 20 UNESCO Chairs in Futures Studies and Futures Literacy and the High-Level Committee on Programs Foresight Network, this collaborative network facilitates the sharing of design practices, resources, ongoing work and progress updates. Through this collective effort, the network aims to advance the field of futures literacy, which focuses on developing the ability to envision and prepare for multiple potential futures.	https://www.unesco.org/en/futures-literacy/network?hub=404
OECD Government Foresight Community	The OECD Government Foresight Community is an initiative by the Organisation for Economic Co-operation and Development (OECD) that supports governments in integrating foresight into policy-making. It provides a platform for sharing insights, methodologies, and experiences among member countries. The community aims to enhance the capacity of governments to anticipate and prepare for	https://www.oecd.org/strategic-foresight/ourwork/

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	future trends and uncertainties. Through workshops, reports, and collaborative projects, the OECD Government Foresight Community helps policymakers develop more resilient and future-ready policies.	
Foresight Europe Network	The Foresight Europe Network (FEN) is a collaborative initiative that aims to enhance foresight activities and strategic thinking across Europe. It brings together policymakers, researchers, and practitioners to share knowledge, methodologies, and best practices in foresight. FEN organises events, workshops, and conferences to facilitate dialogue and cooperation on foresight-related issues. The network's goal is to improve the capacity of European institutions and organisations to anticipate and respond to future challenges and opportunities effectively.	https://feneu.org/
EU-wide Foresight Network	The EU-wide Foresight Network is an initiative by the European Union that aims to strengthen foresight capabilities across member states and EU institutions. It facilitates the exchange of foresight knowledge, tools, and practices to improve strategic planning and policy-making. The network brings together experts from various EU institutions to collaborate on foresight projects and studies that address long-term challenges and opportunities facing the Union. The network moreover aims to enhance the EU's ability to navigate future uncertainties and achieve sustainable development by fostering a culture of foresight.	https://commission.europa.eu/strategy-and-policy/strategic-planning/strategic-foresight_en#eu-wide-foresight-network

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7.2 Examples of national (R&I) foresight Networks

Country	Name	Short description	Website
GER	ZUKÜNFTE	The activities in the German-speaking area organised by ZUKÜNFTE aim to increase the reach and visibility of futures literacy. These activities include trainings and large meetings held both online and in person. One university group is engaged in exchanging ideas on futures literacy in teaching and research. Another group is focused on futures with and for young people. Additionally, there is a reading circle and a workshop on the ethics of futures.	https://stefanbergheim.com/
GER	Netzwerk Zukunftsforschung	The *Netzwerk Zukunftsforschung* (Network for Futures Research) is a forum for professionals from universities, non-university institutions, socio-political organisations and the private sector to collaborate on addressing this need. The Network's primary operational structure is through thematically oriented working groups. The Network and its working groups are open to academics and practitioners, and anyone interested in future-oriented research is welcome to participate. Members of the network are at liberty to establish such working groups, with the procedures for doing so set out in the working group guidelines.	https://netzwerk-zukunftsforschung.de/
GER	Informal foresight Network by the German BAKS	The informal Foresight Network, established by the German Federal Academy for Security Policy (BAKS), is a platform designed to foster collaboration and exchange among foresight practitioners – in government and beyond. It brings together experts from academia, government, the private sector, and civil society to discuss and analyse future trends and challenges. The network aims to enhance strategic foresight capabilities and support informed decision-making in security policy.	https://www.baks.bund.de/de/ueber-uns-kompetenzzentrum-strategische-vorausschau/foresight-veranstaltungen
POL	Polish Association for Technology	The Polish Association for Technology Assessment (PTOT) is dedicated to the advancement of new TA concepts and the enhancement of research methodologies and tools. PTOT is committed to innovation and improvement in technology assessment methods, integration of scientific communities, and the conduct of specialized research in early recognition and warning. It strives to establish non-profit entities for research, information processing, and public communication. PTOT also	http://www.ptot.pl/#about

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	Assessment (PTOT)	places great importance on fostering collaboration with legislative and public administration bodies to facilitate the practical application of assessment outcomes. It disseminates knowledge through education and publications, and it also seeks to enhance international collaboration to facilitate the exchange of experiences in technology assessment.	
PRT	Portuguese Network of Public Administration Planning and foresight Services (RePLAN)	RePLAN is an interministerial network coordinated by PlanAPP, focused on strategic planning, public policies, and foresight. Its goals are to enhance cooperation between government areas, promote best practices, harmonise planning tools, and ensure strategic alignment. Comprising representatives from various government sectors, it forms multisectoral teams for collaborative projects. The network is overseen by the PlanAPP director, who coordinates efforts with sectoral representatives.	https://www.futures4europe.eu/blogs/portugals-path-forward-key-insights-from-recent-foresight-publications https://www.planapp.gov.pt/apresentacao-replan/
PRT	R&I Futures Network	The R&I Futures Network in Portugal was established by the Fundação para a Ciência e a Tecnologia (FCT) to foster collaboration and knowledge sharing among diverse stakeholders. The network comprises 50 members from a range of sectors, including academia, the business sector, banks, consultancies, ministries (Environment, Science, Technology, and Innovation, Labour, and Energy), and civil society members (NGOs). The network's primary objective is to facilitate the exchange of results, news, and foresight initiatives, thereby promoting a culture of strategic foresight and innovation. The network's inception was preceded by a Mutual Learning Exercise (MLE) on the Policy Support Facility of Horizon Europe, focusing on institutionalisation.	https://www.futures4europe.eu/blogs/portugals-path-forward-key-insights-from-recent-foresight-publications

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7.3 Examples of networks with a focus on Technology Assessment

Name	Short description	Website
globalTA	The Global Technology Assessment Network (globalTA) is a non-profit organization that aims to develop a global framework and code of conduct for the assessment of the impacts of new technologies. It seeks to facilitate global cooperation for the assessment of emerging technologies in order to maximize their benefits and minimize the risks. Furthermore, globalTA supports adequate anticipatory governance of new technologies that may have significant impacts on the attainment of the UN Sustainable Development Goals.	https://globalta.technology-assessment.info/about-us
EPTA Europe	The EPTA partners provide advice to parliaments on the social, economic and environmental impact of new sciences and technologies. The common aim is to provide impartial and high-quality accounts and reports of developments in issues such as bioethics and biotechnology, public health, environment and energy, ICTs, and R&D policy. Such work is seen as an aid to the democratic control of scientific and technological innovations. It was pioneered in the 1970s by the Office of Technology Assessment (OTA) of the US Congress. EPTA aims to advance the establishment of technology assessment as an integral part of policy consulting in parliamentary decision-making processes in Europe and to strengthen the links between TA units in Europe.	https://eptanetwork.org/about/about-epta

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7.4 Examples of regular conferences on (R&I) foresight or with sessions dedicated to R&I foresight

Name	Short description	Website
Futures Conference (Finland)	Futures Conference is organised by Finland Futures Research Centre & Finland Futures Academy, University of Turku. It creates a multidisciplinary scientific platform where participants from diverse backgrounds convene to share and discuss new ideas concerning the futures of natural resources. The conference program consists of keynote lectures by leading experts, parallel sessions exploring various aspects of natural resource futures, and participatory workshops fostering interactive learning and collaboration. The event aims to generate multidisciplinary, stimulating, and critical discussions that promote networking among individuals with different perspectives, all united by their interest in shaping the future of natural resources.	https://futuresconference2024.com/
WFSF World Conference	The conference is organised by the World Futures Studies Federation (WFSF) and celebrated its 50th edition in October 2023 in Paris. This multidisciplinary conference brings together scholars, researchers, and practitioners from diverse fields to engage in a thought-provoking exploration of the concept of liminality and its profound implications for human experience, identity, and cultural dynamics. Through a carefully curated programme of presentations, interactive workshops, and engaging panel discussions, participants gain insights into the transformative nature of liminal spaces and transitions, generate innovative ideas, and foster a collaborative community dedicated to examining and shaping futures. The objective of this gathering is to facilitate cross-disciplinary dialogue and exchange, thereby pushing the boundaries of the understanding and advancing collective knowledge regarding the transformative power of in-between states and experiences.	https://wfsf2023paris.org/
EU-SPRI	The EU-SPRI conference is organised by the European Forum for Studies of Policies for Research and Innovation. The aim is to strengthen the vibrant but dispersed interdisciplinary community of researchers focusing on interdisciplinary dimensions related to policy and governance in the field of knowledge creation and innovation. Studies of Policies for Research and Innovation (SPRI) is a growing research field since the 1960s, evolving at the encounter of economics, political science, sociology, Science and Technology Studies, business administration, geography and history. The Eu-SPRI Forum was established in Paris in June	https://euspri-forum.eu/

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	2010 and currently comprises 19 member institutions. During the annual conferences, various regular sessions on R&I foresight are organised.	
Dubai Future Forum	The Dubai Future Forum is an annual event hosted by the Dubai Future Foundation at the Museum of the Future. It brings together a diverse range of professionals, including futurists, foresight practitioners, thought leaders, and experts from academia, various industries, and government, to anticipate challenges, imagine opportunities, share foresight, and shape the future. The 2022 inaugural event brought together over 1,000 individuals and close to 50 foresight groups and organisations. The Forum seeks to provide an international platform for futurists and thought leaders from diverse sectors to discuss insights and experiences, inspire and challenge one another, and build a long-lasting community by engaging on tomorrow's most pressing issues.	https://www.dubaifuture.ae/speakers-forum
ISPIM Innovation Conference	The ISPIM Innovation Conference is a leading innovation management conference organised by the International Society for Professional Innovation Management (ISPIM). It provides a unique forum for professionals, researchers, and managers to share their innovation experiences and learn from each other. The conference features keynote speeches, interactive sessions, and networking opportunities. The conference's program regularly includes sessions on R&I foresight.	https://www.ispim-innovation-conference.com/
OECD Government Foresight Community Annual Meeting	The OECD Government Foresight Community Annual Meeting is organised by the Organisation for Economic Co-operation and Development (OECD). It brings together government officials, foresight practitioners, and experts to discuss the role of foresight in public policy and decision-making. The meeting provides a platform for sharing best practices, exploring emerging trends, and fostering international collaboration.	https://www.millennium-project.org/oecds-government-foresight-community-conference-april-25-2024/

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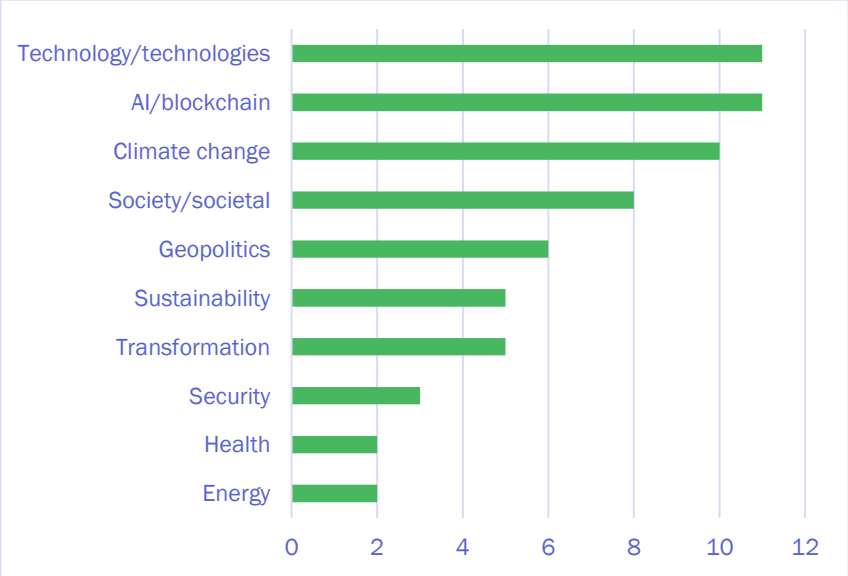
8 Outlook: The Future of R&I foresight in the ERA (and beyond)

8.1 Emerging challenges in R&I policy & the role of R&I foresight in addressing them

"Recent years have been a time of polycrisis for the EU" - This is how the European Parliament Research Service summarises the "Key issues in the European Council: State of play in March 2024" (p.55). These crises all have repercussions or direct influences on R&I in Europe. The great majority (94%) of R&I foresight actors in Europe who took part in the stocktaking survey and interviews noted that there are new or emerging challenges in R&I policy which require a foresight approach in addressing them. Artificial Intelligence as well as technology and its regulation are among the most frequently cited challenges in which R&I foresight should play a role, according to the R&I foresight actors surveyed for this report.

Figure 7 New or emerging challenges in R&I policy which require a foresight approach in addressing them



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8.2 Emerging Approaches and Methodologies in R&I foresight

The field of R&I foresight is undergoing constant evolution, with practitioners exploring and adopting new approaches and methodologies to enhance their ability to anticipate and shape the future. The survey responses highlight a diverse range of emerging techniques and areas of focus that are currently being explored within the R&I foresight community. One of the most prominent trends is the **integration of artificial intelligence (AI) and machine learning (ML) technologies** into foresight practices. Respondents reported applying machine learning tools to identify emerging trends, as well as leveraging digital tools and AI for horizon scanning. Additionally, there is growing interest in understanding the impact of AI on R&I and the role that foresight methods can play.

Experiential and immersive approaches are also gaining traction, with practitioners exploring the use of **serious games and gamification techniques** to immerse participants in future worlds and identify R&I needs. Experiential foresight methodologies aim to create more engaging and participatory experiences, fostering a deeper understanding of potential futures and their implications. **Speculative and design-based approaches**, such as Speculative Design, Deep Time, and Experience Design, are being explored as means to envision and communicate alternative futures. These methods often involve the creation of tangible artefacts or experiences that challenge assumptions and stimulate discussions about possible futures. The EU Policy Lab's "Futures Garden" (2024) project is an example of foresight enriched with speculative design.

Using speculative design in R&I foresight: The Futures Garden project

The Futures Garden, implemented in 2023, created alternative future scenarios through the use of fictional future artefacts that invite reflection and debate. The ultimate goal was to "revolutionise" policy-making by combining speculative design with creativity, empathy and analytical insight. The pilot addressed two main themes: "Dealing with Future Selves" and "Extending Human Perception to New Scales".

The first theme examined new ways of being, both individually and collectively. It explored new practices and technologies that enhance self-reflection and the sharing of emotions, which helped shape people's life choices and fostered a renewed sense of togetherness. The second theme explored the richness of non-human intelligences, expanding people's attention and appreciation of their unique sensory worlds and environments.

The project unfolded in several phases. The first phase, Horizon Scanning, involved the identification and curation of cutting-edge concepts, theories, practices and technologies that could reshape one's notions of future selves and expanded human perception. The team used literature from fields of psychology, biology, epigenetics, biotechnology, neuroscience, cultural theory and spirituality. In the speculative design phase, selected briefs were transformed into thought-provoking future artefacts in the form of short films, "Inwards" and "Symbiotic", in collaboration with two design agencies. Through these, the aim was to make the imagined futures more tangible, immersive and engaging.

The Citizen and Policy Engagement phase entailed reflections on the diverse societal implications of the scenarios and the aggregation of diverse perspectives and insights from EU citizens and policymakers. A series of eight workshops were conducted between late November and early December 2023. Ultimately, the project journey and outcomes were showcased on the dedicated website futuresgarden.eu.

Sources: https://www.futuresgarden.eu/; https://www.prospectiva.ro/futures-garden-creating-fictional-artifacts-through-speculative-design/

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Scenario development and analysis remain a core focus in R&I foresight, with practitioners **exploring new ways to combine qualitative scenarios with quantitative market estimates**. Furthermore, pathway approaches and seed-based scenario building techniques are being investigated as alternative methods for scenario development.

Issues of **representation and inclusion** are also gaining attention, with respondents highlighting the need to consider **how to represent future generations and nature** in foresight processes. This reflects a growing recognition of the importance of incorporating diverse perspectives and considering the long-term implications of R&I activities.

Debiasing techniques, which aim to identify and actively counteract biases in anticipatory assumptions, are being explored as a means to improve the quality and objectivity of foresight processes. Additionally, the concept of "paradox" is being investigated as a potential approach for challenging conventional thinking and embracing complexity. Thematic areas such as **sustainable consumption and human needs-centred R&I** requirements are also emerging as areas of focus. This reflects the growing importance of addressing societal challenges and aligning R&I activities with broader sustainability goals.

9 Conclusions

The report, entitled “Showcasing Perspectives: A Stocktaking of R&I Foresight Practices in Europe”, provides a stocktaking of diverse and innovative R&I foresight practices across the ERA and how they inform policy-making. The report was based on extensive desk research, an online survey, as well as interviews. It gathered information on the organisation of R&I foresight, impactful projects and their benefits for policy-making and critical success factors and bottlenecks in implementing these projects by 43 R&I foresight organisations. Since there are various noteworthy initiatives at subnational level, the report gave visibility to initiatives from the Friuli Venezia Giulia region, Helsinki-Uusimaa, Ostbelgien, Sardinia, Hauts-de-France and Flanders. It is acknowledged that there are several other governments and organisations at national and subnational level that conduct R&I foresight projects who are not mentioned in this study.

While there has been a surge in R&I foresight projects and organisations over the past decades, there are still significant challenges to overcome in terms of institutionalisation and fostering futures literacy in public administrations. The report and the Eye of Europe project as a whole provide a contribution to the ongoing debate on the specific capacity-building needs and new frontiers of R&I foresight, particularly in light of the dynamics that artificial intelligence brings to research and innovation. The report demonstrated that R&I foresight actors are embracing these new developments and are eager to experiment with new approaches and methodologies that seek to further enhance the impact of R&I foresight for more effective and anticipatory policy-making.

This stocktaking report is a snapshot of the status quo of R&I foresight actors in Europe. Yet new, innovative projects are currently being implemented as you read this report. As the Eye of Europe project consortium, we are committed to strengthening fora for exchanges among R&I practitioners with an interest in foresight methodologies. We invite all interested practitioners to join the vibrant R&I foresight community and create a profile to follow the lively discussions on our platform Futures4Europe to jointly shape the R&I agendas of tomorrow.

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11 Annex: Survey questions

Background- The Eye of Europe project

The Eye of Europe project will build a social infrastructure for piecing together existing conversations in foresight and amplifying them to create synergies. People make up the heart of this project, not just foresight practitioners but anyone who is intrigued by the future of their domains of expertise, as well as non-expert audiences. These individuals, representing a wide spectrum of interests, can dive into foresight projects, outputs, interesting scenarios, visions, and disruptive trends, to name a few.

Our platform, Futures4Europe, serves as a hub for this vibrant community, keeping the conversation about our collective future alive and enabling participants to learn from one process to another. It's all about creating a continuous loop of dialogue, learning and inspiration. By filling out this survey, you are making an important contribution to taking stock of the wealth of (R&I) foresight initiatives, which reflect the diversity of the European foresight Community!

Your responses will help us to:

- identify the **current and emerging links between R&I foresight activities** and policy making, as well as the **institutionalization approaches** of R&I foresight practices within organizations.
- **understand the current R&I foresight practices** within your organization, as well as any emerging trends or approaches.
- assess the level of interest among organizations in **participating in mutual learning activities** and **joining our R&I foresight Community & Network** for knowledge sharing and collaboration.
- **identify other relevant actors or stakeholders in the field of R&I foresight** using a snowballing approach.

Approach:

- The questionnaire is designed to **differentiate between types of organizations**
- We encourage you to respond based on your organization's experience and memory, **focusing on the last five years** and any perceived emerging developments in R&I foresight practices or needs.
- In order to gather comprehensive insights, the survey combines closed questions and open-ended questions to allow for **qualitative input** and detailed explanations.

The results will feed into the first Mutual Learning Exercise (MLE) in Bratislava, Slovakia, in May 2024 and the overall Eye of Europe project to strengthen the European R&I foresight Community. We would be grateful if you could complete the questions below by the deadline indicated - it is fine to provide all the information you have and to submit the survey with gaps.

Section 1 – General information about the respondent

Country:
Your name:
Name of your position:
Contact details (e-mail address):

Please indicate your level of knowledge of foresight (*only one answer*):

- No knowledge
- Basic understanding of foresight

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- Experience as a participant in foresight consultations (e.g., scenario or visioning workshop)
- Experience as a beneficiary of foresight projects
- Experience of coordinating foresight projects

Please indicate your level of experience in Research & Innovation policy:

- Limited or no experience
- Moderate experience
- Extensive experience
- Expert level experience

Section 2 – General information about the organisation

Name & website of the organisation/government you are working for:

Type of R&I stakeholder:

- Governmental body
- Academia
- Business
- Other, please specify:___

In the last five years, how has your organisation been involved in Research and Innovation (R&I) foresight activities? Please select the option that best describes your organisation's involvement:

- As a beneficiary or funder of foresight initiatives
- As a foresight service provider
- Involved both as a beneficiary/funder and as a foresight service provider
- No involvement in foresight activities within R&I

In how many foresight projects has your organization been involved in the last 5 years?

Of these, how many were specifically focused on Research and Innovation *(same scale as above)*?

Section 3. Key foresight projects

As a consortium of the Eye of Europe project, we are aware that there are plenty of (R&I) foresight projects out there. In the following, we would thus like to find out more about innovative (R&I) foresight projects which your organisation or government implemented or benefitted from. We invite you to share up to three projects. The survey will guide you through a few questions for each of the projects (name, methods used etc.).

Please describe the most important (R&I) foresight project your organisation implemented or benefited from:

- Name of the project
- Short description (200 words max)
- Link to the website with additional information

Which option best describes the role of your organisation in this project?

- Project beneficiary or funding organisation
- Key role in implementing the foresight activities
- Support role in implementing the foresight activities

Which type of participants /representatives have been involved (tick all that apply):

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- Public bodies
- Private sector
- Non-governmental organizations (NGOs)
- Experts/ scientists
- Citizens
- International organizations
- Other, please specify:___

How many people have been involved?

- Up to 20 people
- 21-50
- 51-100
- 101-1000
- More than 1000

Which foresight methods have been used?

- Trend Analysis
- Horizon / Environmental Scanning
- Delphi Surveys
- Scenarios
- Visioning
- SWOT Analysis
- Roadmapping
- Policy Stress-testing
- Backcasting
- Futures Literacy Labs
- Other, please specify: _____

- Which main benefits have you seen from carrying out these foresight activities (such as policy implications or process benefits)?
- What were the critical success factors that contributed to the impact of the foresight project?
- Which constraints and bottlenecks have you encountered in carrying out foresight activities, such as costs, mobilisation efforts, relevance of outputs or uptake of results?

Would you like to submit another foresight project?

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Section 4 - Interest in R&I foresight and it's new frontiers

How relevant do you consider foresight to be for informing Research and Innovation public policies at national or European level? (1=not relevant ; 10= very relevant)

Do you consider that there are new or emerging challenges in R&I policy which require a foresight approach in addressing them?

- No
- Yes, namely _____

Are there any emerging approaches or methodologies of R&I foresight which you are currently exploring?

Please indicate the main capacity building needs for the development of foresight activities in your organisation or government and where possible indicate specific priorities.

Section 5 - Building a stronger European R&I foresight community

In your opinion how important it is to have a strong foresight community in Europe? (1: not important at all; 10 of highest importance)

Which would be the main benefits of having an European foresight community? Please rank the following options according to their priorities:

- Sharing results from various foresight projects
- Access to a repository of domain experts
- Mutual sharing of foresight methods
- Increasing visibility of foresight in society
- Enable partnerships
- Other, please specify _____

Are you aware of the Futures4Europe platform:

- Yes, and I use it regularly
- Yes, but I rarely use it
- Yes, but I have never used it
- No

If previous answer was "Yes, and I use it regularly"; "Yes, but I rarely use it"; "Yes, but I have never used it":
Do you find the platform useful for your R&I foresight projects or contacts? What additional aspects or features would you like to see on the platform?

If previous answer was "No" : May we invite you to the Futures4Europe foresight Community portal, where your peers exchange innovative approaches, experiences and good practices on R&I foresight?

- Yes
- No

Are you part of any foresight-related networks? If yes, which ones?

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Have you attended a foresight conference in the last 5 years? If yes, which one(s)?

Section 6 – Any additional comments on R&I foresight in Europe

Who else should receive this survey? Either forward the following link to your contacts or kindly provide the contact details of other foresight practitioners. Thank you for your support in growing the foresight community in Europe!

Are there any projects, reports, events, or noteworthy foresight initiatives that you would like to share? Please include a brief description (max 300 words each) and a corresponding link to the website (if available).

Do you have any feedback or suggestions about the survey?

We appreciate your responses to the survey and look forward to welcoming you to our renewed Futures4Europe foresight Community Platform in the near future! If you have any questions, please do not hesitate to contact Simon Schmitz (S.Schmitz@dlr.de).

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