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Foresight – Using Science and Evidence to Anticipate and Shape the Future

Authors: Eckhard Störmer, Laurent Bontoux, Maciej Krzysztofowicz, Elisabeta Florescu, Anne-Katrin Bock, Fabiana Scapolo

Key takeaways: Applications of foresight for policymaking

The fundamental premise of foresight is that while the future cannot be predicted, it can be actively influenced or created. Many tools and methods have been developed to achieve this. The Joint Research Centre (JRC) has applied its know-how in foresight specifically for the benefit of the European Union (EU) policymaking, but many of the tools and approaches it has developed have shown their usefulness in wider contexts. A special effort has also been made to make foresight practical and its results accessible. Foresight usually follows a step-by-step approach, covered in more detail in the chapter:

- Definition of scope.
- Detection of signals of change and trends (e.g., horizon scanning).
- Analysis of uncertainties, cross-impacts, actors, etc.
- Understanding possible evolutions of drivers, trends and many others; exploring implications (e.g., through scenario building).
- Generation and evaluation of strategies to deal with possible future developments.
- Communicating results (done in many ways, e.g., scenario reports, serious games, etc.).
- Monitoring of scenario assumptions, developments, trends, weak signals, etc.

Foresight helps creating anticipatory governance capacity and awareness about future-related issues. It enables policymakers to make prudent long-term decisions, helps revealing the need for policy action and channel evidence into policy discussions.

Key approaches developed and used at the JRC are as follows:

- *Horizon scanning*: for alert and detection of weak signals;
- *Megatrends monitoring and analysis*: to understand the implications of long-term trends;
- *Scenario building*: to develop a systemic understanding of complex issues;
- *Speculative design*: to illustrate specific future applications of technologies;
- *Serious games*: to help people experience the consequences of possible futures.



The fundamental premise of foresight is that while the future cannot be predicted, it can be actively influenced or created.



The role of public policy is to create a desirable future. However, public policy is also about taking decisions as an authoritative response to a public issue to pursue specific government goals, considering the political priorities of the moment and being programmatic, as it expresses a proposed set of actions (Althaus et al., 2017). A question then arises about how to be authoritative when acting to shape a future that does not exist yet.

This is why public policy should take into account consciously a future time dimension even if its focus is on immediate public concerns. Often, the implementation of policy actions lies in the midterm future; electoral programmes, coalition agreements, Multiannual Financial Frameworks and others set targets and objectives for political decisions and actions in the next legislative time horizon. These actions then have a longer term impact as new regulations, funding or tax schemes are usually conceived with an open time frame. This requires taking a long-term perspective when they are developed.

However, there are strong political incentives to focus on immediate public concerns. In the words of Al Gore (1992, p. 170) *'the future whispers while the present shouts'*. Jonathan Boston (2016, p. 5) interprets this as follows: *'The future is politically muted for many reasons. Not only does it lack a strong voice, but it also lacks a vote'*. Debates around issues such as many environmental problems, climate change and social issues illustrate this 'presentist bias' (Boston, 2016). The problems of biodiversity losses, sea level rise or dysfunctionalities in the pension systems are often not recognised as relevant today; the effects of an irreversible loss of pollinators, mass destruction through extreme weather events or widespread old-age poverty resulting from a continuing business-as-usual policy might only be seen in the next decades.

Wicked Problems and Policymaking in a VUCA World

Few would disagree that the world of the 21st century is a VUCA world. Volatility, uncertainty, complexity and ambiguity (VUCA) surround us to a degree that has never before been faced by humankind. This creates an acute need to find ways to deal with them. Even if, by nature, VUCA elements are unpredictable, a well-prepared and resourced foresight approach can provide surprising levels of understanding about what could happen and how to deal with it (Da Costa et al., 2008). Short-sightedness, narrow-mindedness, simplistic lines of thought, linear thinking and lack of understanding of the past are probably the worst enemies of policymakers in a VUCA world.

Problems in a VUCA world are mostly complex, open-ended and intractable, or in other words *'wicked'*. Their nature, and therefore the solutions proposed to address them, is strongly contested. As a consequence, many policies and programmes developed to address wicked problems fail because of unforeseen side effects or difficulties in coordination and monitoring (Head, 2008). Sustainable development issues, very much in the limelight currently, are typically seen as wicked problems (Pryshlakivsky and Searcy, 2012).



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The Call for Anticipatory Thinking in Policymaking

Examples from recent history show what a lack of anticipation can lead to. If Kodak, once a market leader in photography, had considered the then emerging digital photography in its business strategy, it might have been able to defend its strong market position, instead of filing for bankruptcy in 2012 (Lucas and Goh, 2009). In a similar fashion, a closer and open-minded look at emerging trends might have given an opportunity to preempt, coun-

teract or better prepare for the economic crisis of 2008 or the EU migration wave in 2015. The size and urgency of the problems humankind is facing today call for overcoming the presentist bias to address the VUCA world in which we are living.

At the EU level, the European Commission has developed a ‘Better Regulation Toolbox’ and ‘Better Regulation Guidelines’ (SWD (2017)350) as a response to this challenge. They recognise the usefulness of foresight and forward-looking tools to generate ‘evidence-based better regulation’¹ and, for the first time, foresight for EU policy is now officially one of the priorities of the von der Leyen Commission. While evidence is available for past and present developments (statistical data, scientific reports, etc.), there is no such thing as facts about the future as the future does not exist. The challenge is therefore to generate meaningful (and useful) knowledge about the future by interpreting facts about current developments and use imagination about the future (Duvka, 2020; EFFLA, no year). The ability to do that can make a significant difference to the impact of policies.

A Quick Methodological Overview of Foresight

What Is Foresight?

Foresight is a systematic participatory process, creating collective intelligence about the medium- to long-term future. It is aimed at informing present-day decisions and mobilising joint actions,² key features to support policymaking. Building on decades of experience shaping the field, Sardar & Masood (2006) defined foresight as ‘the art of anticipation based on the science of exploration’. Foresight helps to understand the possible future consequences of current trends, to detect new signals of change and to determine their potential developments. It facilitates the development of systemic understanding and generates plausible and coherent pictures of the future ranging from alternative scenarios (normative or exploratory) to vision building. Foresight also helps to understand both incremental and disruptive changes.

By being interdisciplinary and participatory, foresight facilitates the identification, analysis and understanding of the consequences of drivers of change from a 360° perspective, considering

¹ A similar call for forward thinking to achieve high quality of policymaking is part of the toolbox for public administration of European Member States (Hauser, 2017).

² Definition adapted from JRC-IPTS (2008).



societal, technological, environmental, economic and political drivers. It usually starts from a general perspective and zooms stepwise into the issue at stake. By design, it overcomes the limitations of selective sectorial perspectives ('tunnel thinking') and of limited data availability by relying on multiple perspectives and diversity of knowledge. As such, it is a powerful way to make use of all relevant sources of knowledge, in particular scientific evidence, to support decision-making.

Foresight sees the future as something to shape and gives actors knowledge to use when taking action. It is about making sense of the world to equip decision-makers to navigate the future and to shape it. Foresight works best not as a one-off exercise but as a regular practice across organisations. There is therefore value in institutionalising it, as some governments (e.g., Singapore, the UK, Finland, etc.) have done.³

The Main Functions of foresight for Policymaking

According to [Boston \(2016\)](#), there are five main intervention logics for governments to introduce strategic foresight activities and address the presentist bias.

1. **To create anticipatory governance capacity** to plan for the long-term and exercise foresight. An enduring linkage must be created to ensure the uptake and use of insights generated through foresight in day-to-day policymaking ([Cuhls, 2015](#)). This includes changing the motivations of policymakers (i.e., values, norms, preferences and priorities), activating future-oriented interests and concerns and incentivising policymakers to give greater weight to long-term considerations.
2. **To create awareness about future-related issues** that can be known to some but not to policymakers. The 360° perspective of foresight helps to open up the understanding of influences that arise from drivers not being in the focus of the daily work. To tackle particular long-term policy questions, policymakers need to have a safe space to think about future consequences and strategies, being for the time of the analysis insulated from short-term political questions.
3. **To enable policymakers to make prudent long-term decisions.** The deliberations held through inclusive participatory foresight processes bring together the relevant stakeholders and help build a shared understanding of possible long-term impacts of today's decisions. This includes establishing new coordinating mechanisms to enable decisions that would otherwise not be possible.
4. **To reveal the need for policy action.** The awareness of possible cumulative effects and disruptions that arise from the systemic perspective brought by foresight makes explicit the interactions of drivers and can bring to light looming policy problems.
5. **To channel (scientific) evidence into policy discussions.** 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 policymaking process.

³For an overview on strategic foresight capabilities in different countries, please see [Boston \(2016\), Chapter 12](#).



Typical Implementation Steps of Foresight for Policymaking

Foresight uses a large toolbox of methods which can be applied in a step-by-step approach:

1. Definition of the scope. The objective and the scope of the foresight exercise need to be defined clearly. The objective is relevant for the development of the tailored approach and the structuring of the results as well as for the inclusion of participants in the process. The scope of the exercise clarifies the system boundaries of the issue to address. It needs to be defined and communicated clearly to guarantee that all participants have the same understanding and that the analysis and discussions stay focussed.
2. Detection of signals of change and trends (e.g., horizon scanning), identification of drivers. Defining the scope goes hand in hand with identifying relevant drivers of change. A 360° perspective, covering scientific, technological, economic, environmental and policy drivers, is important to be comprehensive and to shed light on possible blind spots on the issue. This reveals potentially important drivers to all participants from areas they are not familiar with. It is a key step to generate a systemic understanding of the issue by all.
3. Analysis of uncertainties, cross-impacts, actors, etc. A strong understanding of the system, including relevant actors and interlinkages in addition to drivers, is necessary in most foresight processes (e.g., economic factors need to be connected with social and environmental impacts). This generates some complexity and requires analytical thinking. Tools can help visualise the discussions and uncover underlying assumptions.
4. Understanding the possible evolution of the drivers, trends, etc., and exploring their implications. Scenario building in interactive workshops is an often used approach there.
5. Generation and evaluation of strategies to react to the possible future developments.
6. Communicating the results in scenario and trend reports, interactive workshops and explorative engagement exercises (e.g., serious games). To generate impact, foresight projects must provide results at the right time and their results need to be presented in a clear and attractive way. For this, an 'ambassador' can be useful to reach relevant potential users and launch a dialogue on necessary policy instruments ([Rhisiart et al., 2017](#)).
7. Monitoring of scenario assumptions, of developments of drivers and trends, or weak signals ([Wiggert, 2014](#)). This step has an alert function, raising awareness on development directions that were identified as important, resulting in increased preparedness.

In the participatory process, experienced facilitators are needed to help the participants share their knowledge, expectations and analyses. They must also keep the discussions focussed so as to remain within the scope of the project and deliver what is needed to achieve the objectives.

Many tools are available for the different steps, relying on one or more of the following approaches: literature reviews, scanning, extrapolation, modelling, elicitation of expertise through panels, interviews, surveys (e.g., real-time Delphi), participatory exercises (e.g., citizen panels, futures workshops) or creative speculative fictioning and design, gamified approaches, etc. ([Popper, 2008](#)).



Making Foresight Useful for Policymaking

Foresight is a rich field with a large toolbox that provides ample space to tailor forward-looking approaches to a wide range of policymaking needs and to generate genuinely novel knowledge about the future. The deliberative processes used in most foresight approaches are at the heart of future knowledge generation and of knowledge integration in policy processes.



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Prerequisites to Run a Good Foresight Exercise

Good foresight processes are participatory and require being run by a competent team to cover three important aspects.

1. **Methodological expertise:** This is needed to select the appropriate combination of tools, design the interfaces between the different tools, tailor the approach to the specific needs of the project and run the process successfully. As each foresight project has a different context, scope and objectives, the foresight approach has to be designed for purpose. Foresights for policy projects are most of the time transdisciplinary as policies rarely function in isolation and usually concern a wide variety of stakeholders.
2. **Recruitment skill:** As foresight is based on collective intelligence, it requires the know-how to define accurately the expertise/perspectives landscape required to cover the topic at stake, the capacity to identify the people needed to create this landscape and the capacity to effectively bring these people together. Foresight projects typically need expertise not only from the concrete issue at stake but also from connected sectors (e.g., upstream or downstream), as well as people who can influence the issue are influenced by it or understand well some of its key drivers.
3. **User involvement:** As the purpose of foresight is to influence decision-making in the present, the relevant policymakers need to participate in key steps of the process, gain ownership of the results and be able to use them in the policy process. As they are often under time pressure, ensuring their meaningful participation, even with limited time commitments, requires strong convincing power.

Practical Examples of Foresight Methods Applied for Informing Policymaking

- *Horizon Scanning: A Cross-Cutting Detection and Analysis of Weak Signals*

Horizon scanning is a systematic examination of information from a wide range of sources (e.g., news, scientific publications, conference proceedings, blogs, etc.) to identify early signs of future developments. It provides timely awareness of what is new or changing. It is used as a sort of radar to identify upcoming challenges and opportunities. Through collective sense-making of the scanned signals and validation through further research, issues that could lead to changes in behaviour, strategy or policy are identified. The added value of horizon scanning



is to flag issues at the margins of current thinking that may have a large future impact. It helps organisations adapt and prepare for the future.

Horizon scanning can help bridge the gap between anticipatory thinking and evidence-based decision-making by drawing the attention of decision-makers to emerging issues of potential long-term importance (early warning). It requires credible results and the right type of communication, best achieved through an inclusive process, a clear purpose and a broad range of expertise. For optimum use, horizon scanning output must reach decision-makers at the right time: too early they are not recognised as a priority, too late they are not recognised as new (Krzysztofowicz et al., 2018).

The European Commission's JRC has set up a horizon scanning process to identify and monitor emerging issues and weak signals of change that might have significant future implications for the EU (Fig. 1).

- *Megatrends Monitoring and Analysis: A Systemic Look at the World*

Megatrends are long-term global driving forces that are observable in the present and are likely to continue to have a significant influence for a few decades. They are witness to large-scale transformations with a broad scope. Future developments of megatrends could affect not only their own fields (e.g., education, security, etc.) but also fields that do not seem to be affected at first sight. Because of their large scale, megatrends require monitoring and anticipatory thinking to be better prepared for the future. By their nature, their existence tends to be the object of a broad consensus and is well-documented. They are also considered in most foresight exercises.

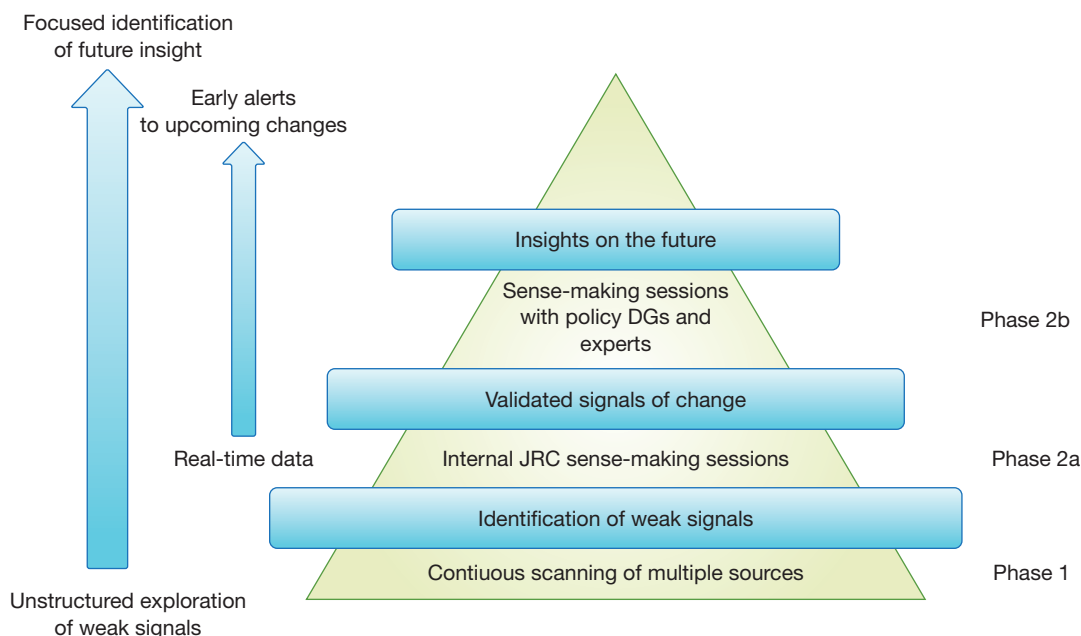


FIGURE 1 JRC horizon scanning process.



To use the power of megatrends analysis for policy fields, a structured approach is recommended. The systematic analysis of each megatrend's long-term impacts on a political issue allows a multidisciplinary 360° perspective, looking at the issue from societal, technological, economic, environmental and political perspectives (STEPP). A systemic view helps to avoid blind spots that might result from a thematic perspective. It is a form of anticipatory thinking useful to prepare and develop policies and strategies with a mid- to long-term perspective (Fig. 2).

JRC approach: Megatrends Hub

The lack of well-curated reference sources and the diversity of studies, perspectives, topics and users of megatrends resulted in a very inconsistent way of referring to them and required repeating their documentation every time a new study was started: a strong hurdle for their use in policymaking.

To address this situation, the JRC created the EC Megatrends Hub,⁴ a publicly available reference repository of megatrends. The aim of this dynamic foresight knowledge management infrastructure is to foster the use of megatrends for long-range thinking. It presents a coherent set of megatrends defined by the JRC together with a group of foresight experts from around Europe, selected and framed to tackle a broad variety of global issues. Some focus is given to Europe to facilitate the understanding of their relevance for EU policy. The characterisation of these megatrends is systematically updated by the JRC Competence Centre for Foresight.

The Megatrends Hub covers 14 megatrends: (1) diversifying inequalities; (2) climate change and environmental degradation; (3) increasing significance of migration; (4) growing consumerism; (5) aggravating resource scarcity; (6) increasing demographic imbalances; (7) expanding influence of the East and South; (8) accelerating technological change and hyperconnectivity; (9) changing nature of work; (10) diversification of education and learning; (11) shifting health challenges; (12) continuing urbanisation; (13) increasing influence of new governing systems and (14) changing security paradigm.

For each megatrend, the hub provides concise information on current developments and forecasts, indicators to measure change, potential implications as well as European Commission and other resources for additional references. All the information is compiled using authoritative sources.

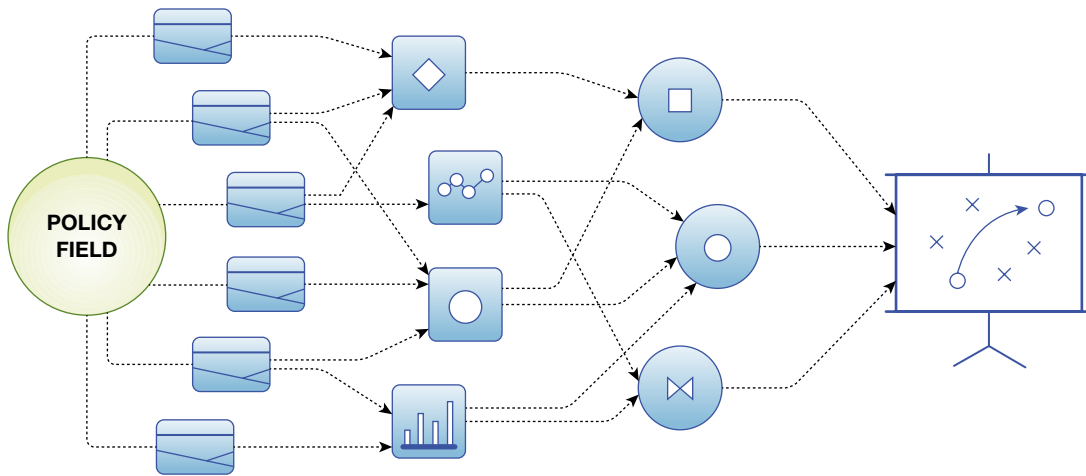
⁴https://ec.europa.eu/knowledge4policy/foresight_en.

JRC approach: Megatrends Workshop

To maximise the usability of the Megatrends Hub, the JRC Competence Centre on Foresight has developed the 'Megatrends Implications Assessment' tool (EU Policy Lab, 2017). This tool allows anyone interested in an issue to assess quickly (half a day) the potential long-term impact of each megatrend on this issue in a systemic and multidisciplinary 360° perspective. The workshop format of the tool offers a short, easily accessible and user-friendly form of engagement useable by many in an EU policy context and beyond. Fig. 3 describes the steps of the workshop.

- *Scenarios: In-depth Systemic Analysis of Possible Future Worlds*

For policymaking, scenario building exercises are often requested when there is a need to define a long-term policy for a new domain, when there is a major reframing of a policy area or when there is a major review of a legislation or policy (e.g., an EU REFIT programme). In such a context, a scenario process generates a robust systemic understanding of changing conditions in the selected domain and puts in evidence the key domains of uncertainty. This builds a sound basis for the development of forward-looking political strategies.



MEGATRENDS AFFECTING A POLICY FIELD

All megatrends are assessed as of their potential impact—direct or indirect to the policy field addressed.

Example

Public health is influenced by climate change-related heat waves that mainly affect elderly people in urban areas. Demographic change and increasing urbanisation are reinforcing this issue.

> IMPLICATIONS

Implications – opportunities or threats – are identified by assessing potential future changes.

Example

Urban heat islands are spreading and getting more severe; more elderly hospitalized; energy use increase.

> POLICY IMPLICATIONS > STRATEGY

The implications are affecting different policy areas. The policy implications are a call for coordinated action.

Example

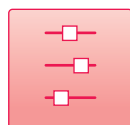
Set standards for building insulation, regulation for urban micro climate planning, research for energy efficient cooling, etc.

Elaboration of policy actions that feed into a new or adapted strategy.

Example

Translate the implications into policy actions and develop a strategic action plan.

FIGURE 2 The megatrends implication analysis approach.



SET UP

Meet with representatives of participants before to understand their request and understand the policy field. Carry out a short research on the policy fields and a first megatrends analysis.



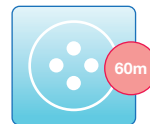
1. WELCOME & INTRO

Introduce foresight and anticipatory thinking; explain the megatrends concept and how they are used to analyze the policy field; aim and agenda of the meeting; icebreaker as first easy exercise.



2. PRIORITIZING TRENDS

Selection of relevant megatrends for the policy field using a matrix.



3. ANALYZING IMPLICATIONS

Implications of the selected megatrends for the policy field are discussed and arranged in clusters. Policy implications are identified.



4. FINAL DISCUSSION

Summary from main facilitator to make the outcome clear; questions and final comments from participants; next steps and potential follow-up initiatives

FIGURE 3 Overview on the megatrends implication analysis workshop.

Scenario analysis is based on a systemic approach. It identifies the relevant drivers of change (see Fig. 4) of the system being considered and analyses the interplay between the respective drivers. This helps to develop a deep understanding of the logic of the various possible future developments. Scenarios are plausible and consistent with the combinations of developments that build multidimensional pictures of the future. They create the conditions to generate a

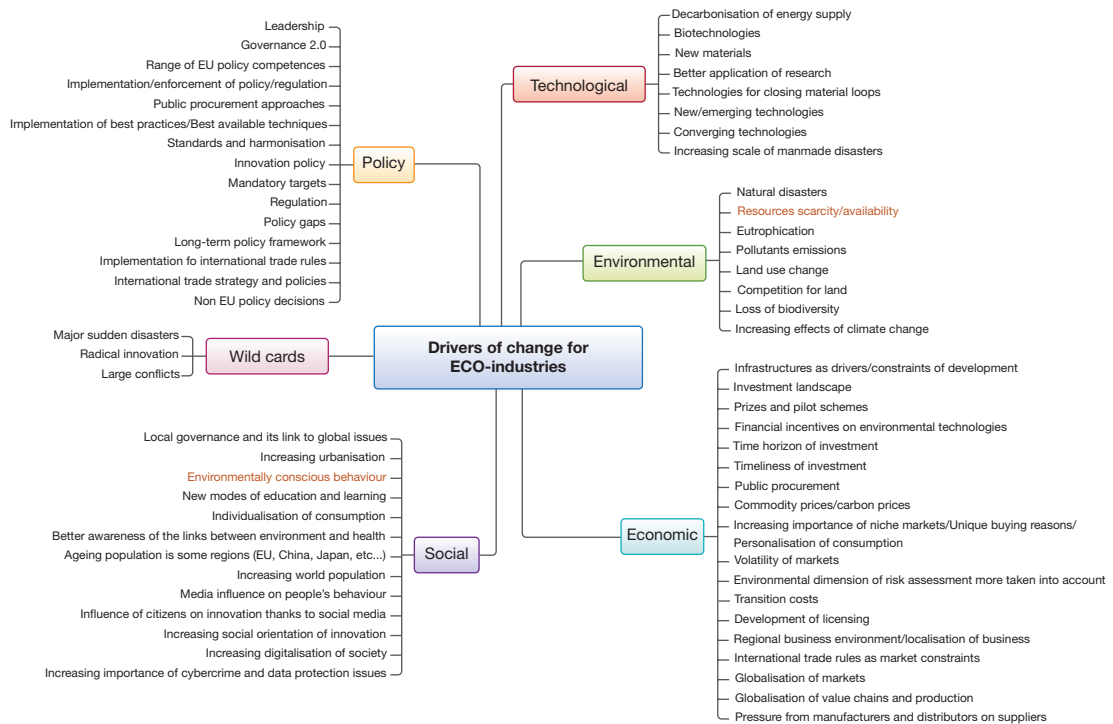


FIGURE 4 Drivers of change for eco-industries. (Source: JRC data for [Bontoux and Bengtsson \(2015\)](#))

deep understanding of the system of interest (e.g., the EU, the transport system, an institution, etc.). Future scenarios are often exploratory, laying out a variety of plausible developments to feed strategic reflections. They can also be used to generate visions and define a desirable future.

Future scenarios are a powerful means to deal with complexity by being analytical and focussing on the most relevant drivers of change. They are an approach of choice to deal with uncertainty; by creating a portfolio of clearly defined alternatives, they allow participants to build precise images of the diversity of opportunities and threats according to the evolution of key parameters that can be traced back to the present (Fig. 5). Scenarios provide a forward-looking knowledge base to derive implications for different stakeholders or policy fields. These implications are a basis for deriving possible options for action. Two important advantages of the scenario process are to overcome participants' preconceived ideas on an issue and to reveal trade-offs between options for political action and for different affected groups. The scenario process can take into account different system alternatives as possible solutions and diverging value considerations (Truffer et al., 2010).

One important success factor for a scenario process is the inclusion of relevant stakeholders (affected and involved) in addition to participants with diverse relevant expertise and futurists that can foster imagination and long-term thinking. The process generates a multidisciplinary

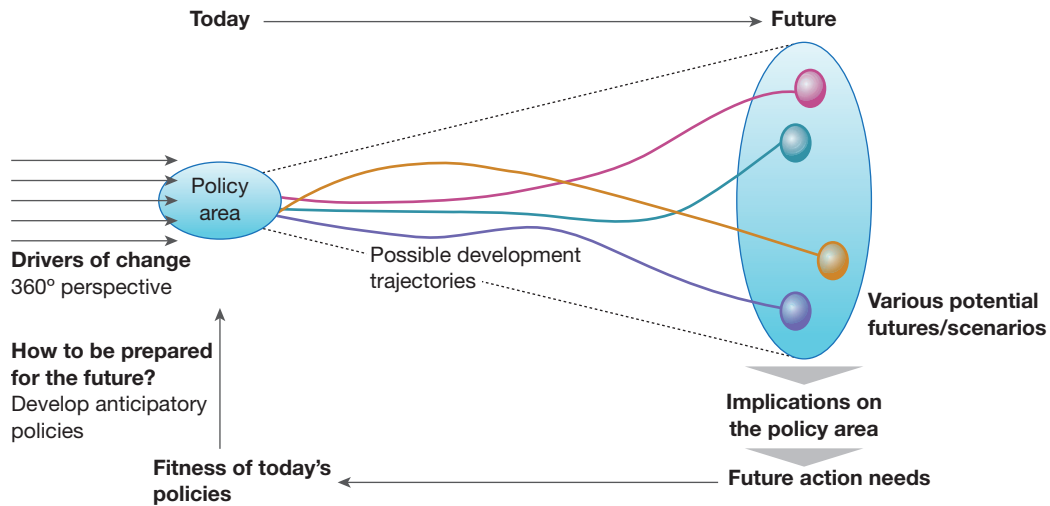


FIGURE 5 Process approach of a strategic scenario analysis (Eckhard Störmer (JRC)). (Adapted from [Hancock and Bezold \(1994\)](#).)

and multidimensional understanding of the field as well as a shared understanding of possible developments. Creative elements help to enrich the scenario narratives and to broaden the range of possible strategies to deal with upcoming challenges.

- *Speculative Design: Experimenting With New Products, Services and Policy Instruments*

Even though foresight tools and approaches strive to create images of the future that are as concrete as possible, a certain degree of abstraction often remains, especially when dealing with very specific issues at the micro scale. There then is a strong need to make potential options and solutions visible. This calls for creative approaches.

Speculative design is one such approach. It enables speculation on how things could be and thus helps imagine possible futures. Like scenario building, it poses ‘what if’ questions to open a debate about the future in a tangible and concrete way ([Dunne and Raby, 2013](#)). Problems are explored by creating provisional solutions and participants act as co-researchers. New plausible but provisional insights are generated (Kimbell, 2015). In the JRC ‘Blockchain4EU’ project, for example, prototypes of potential blockchain applications for industrial transformations were used as core research components. They provided a critical space to expand the understanding of the blockchain and its potential, both through specific moments of co-creation and broad stakeholder engagement. The creation of fictional artefacts triggers forward-looking

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Creative elements help to enrich the scenario narratives and to broaden the range of possible strategies to deal with upcoming challenges.
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discussion ([Nascimento et al., 2018](#)). In the project on the ‘Future of Government (2030)+’, design schools were asked to provide prototypes of government concepts to generate innovative ideas unrestricted by path dependencies. Furthermore, the creation process can be seen as a ‘futures dialogue’ where young students apply their own future expectations and reflect their views as citizens on government ([Vesnic-Alujevic et al., 2019](#)).

- *Serious Games as a Way to Make Foresight More Applicable and More Concrete*

Foresight projects often run collective intelligence processes that help participants develop knowledge and systemic understanding about broad issues (e.g., mobility, water management, the EU, renewable energy, etc.) . This can end up being a set of scenarios describing alternative worlds functioning according to specific constraints. While such exercises are valuable in themselves, their usefulness can be limited by three main factors:

- While they clearly benefit the participants in the foresight process, their results can be difficult to share with others;
- Reading scenarios is often insufficient to help people answer concretely the specific questions that they are facing in their own contexts. Most people want to know ‘*and what does that mean for me?*’
- As the future does not exist today, experimentation upon its issues is often difficult.

However, participants in foresight processes can use their knowledge of the past and the present to develop intuitions about what could be possible. Can this then be used to test what would happen if certain events or circumstances were to appear? Serious gaming techniques can be a powerful way to address these questions. As explained by [Sweeney \(2017\)](#), serious games provide a practical way to experiment *with* (rather than upon) the futures created through foresight.

Foresight-oriented serious gaming is well-developed and growing. [Dufva et al. \(2015\)](#) propose a classification of foresight serious games within a space delimited by three key functions: to inform, to experience or to generate ideas. Recent experience seems to indicate that a greater engagement of participants is achieved through the use of physical games, which include card-based games, board games and role-playing, rather than digital games ([Dufva et al., 2015](#)). Recent examples of such games include the following:

- The ‘SES’ (the *Scenario Exploration System*), a simulation/experience board game developed by the JRC’s EU Policy Lab ([Bontoux et al., 2016](#));
- ‘IMPACT’, a foresight game focussing on emerging technologies and the future of society, developed by Idea Couture using content from the Canadian emerging technology scanning study ([Policy Horizons Canada, 2014](#));
- ‘*The Thing from the Future*’ offering a mind opening and fun experience developed by the Situation Lab ([Candy and Dunagan, 2017](#)) and
- The ‘*foresight eXplorer*’, a board game to imagine a group’s preferred future developed by the Centre for Postnormal Policy and Futures Studies ([Sweeney, 2017](#)).

Serious games apply many core characteristics and classic practices of future studies: systemic thinking, fun, exploration, engagement, collaboration, curiosity, anticipatory action and learning through experiential approaches ([Sweeney, 2017](#)). They can be applied as a final step



of a foresight process or as a way to engage diverse publics, either with the outcomes from a foresight process or with self-generated future questions. In the latter case, people do not need to have any prior knowledge of foresight or of the specific topic of the foresight project. Rather, the experience often relies on the methods and skills of a moderator.

These characteristics make serious games very suitable to apply in a policy context. Indeed, the aim of policy is to create a desirable future. What better way to test before application whether a policy is likely to deliver the expected effects or whether some important implementation parameter has not been overlooked? The JRC has extensive experience in applying the Scenario Exploration System to explore policy-relevant issues as diverse as the sustainable transition, migration, food safety and nutrition, new technologies, etc., with policymakers and a wide range of other stakeholders ([Bock and Bontoux, 2017](#)).

Way Forward

Methodological Innovation to Make the Approach Fit for Purpose

Foresight can rely on a broad set of tried and tested methods and practices. However, foresight is also at the forefront of novel policymaking practices and is subjected to increasingly diverse demands. As the framings and contexts of foresight projects are evolving fast, the fact that foresight operates in a tailor-made fashion forces it to adapt its approaches constantly. Complexity in policies and other areas also increases and must be addressed. Therefore, looking towards the future using only conventional methods has become difficult ([Kuribayashi et al., 2017](#)) and new needs arise:

1. integration of new research methods and information processing tools, like automated semantic analysis tools, utilisation of crowd intelligence building platforms and new forms of interactive surveys, combination of quantitative modelling and qualitative analysis,
2. inclusion of new actor groups in the discourse, particularly citizens and lay people with their values and expectations ([Wilhelmer, 2016](#)),
3. innovations in the design of participatory exercises ([Guimarães Pereira et al., 2018](#); [Burmeister et al., 2018](#); [Vesnic-Alujevic, 2019](#)) and design of new tools (EU Policy Lab); see more in [Chapters 8 and 13](#),
4. use of speculative design in the projection of futures ([Nascimento et al., 2018](#)),
5. innovations in deriving strategic implications and opening up the space for possible actions ([Störmer et al., 2009](#)),
6. new forms of communication of future stories using art and design, speculative fiction and other forms of storytelling and story visualisation,
7. new ways of engaging the audience with assumptions about the future to launch a reflection about needs for strategic action and start a dialogue ([Bontoux et al., 2016](#)).

The scope for methodological innovation is large, especially as foresight operates at the interface between numerous disciplines such as social sciences, economics, natural sciences, business administration, political sciences, modelling, design, arts, communication, etc.



JRC approach

Witness to this trend, the EU Competence Centre on Foresight (CC-Foresight) at the JRC is committed to the development and dissemination of new methods to address particular needs and constraints encountered in EU policymaking. It develops new approaches not for the sake of being innovative but to provide better anticipatory capacity to EU policymaking. To stimulate and facilitate this capacity to innovate, the CC-Foresight is embedded into the EU Policy Lab (see more in [Chapter 13](#)), whose remit is to experiment and to co-design tailor-made approaches to improve EU policymaking.

Mainstreaming of Anticipatory Thinking in Policymaking

The use of foresight and other futures approaches to inform policymaking has an extensive track record as testified by their long established practice in, e.g., the Finnish and Canadian governments, the European Commission and many others. However, moving from a few large strategically relevant foresight projects to mainstreaming forward-looking approaches in the daily routines of policymakers is still a challenge. Large continuous efforts are still needed to include basic elements of anticipatory and systemic thinking in the training curricula of policymakers and to overcome the presentism bias still dominating in the daily routines of policymaking work.

To introduce the long-term perspective that policymaking needs to deal with a VUCA world facing issues of sustainability, it is a strategic imperative to include foresight into policy development, ex-ante policy evaluations and REFIT exercises.