

Chapter 1

In Search of Foresight Methodologies: Riddle or Necessity

Maria Giaoutzi and Bartolomeo Sapio

*I also realized along the way that the goal is not everything.
Going through the process all together is important.*

Michel Godet (2012)

To study the future is to study potential change – unveiling what is likely to make a systemic or fundamental difference over the next 10–25 years or more. Studying the future is not simply economic projection or sociological analysis or technological forecasting, but a multidisciplinary examination of change in all major areas of life in order to find the interacting dynamics that are creating the next age.

Futurists have not yet reached consensus on the name or definition of their activity. Some prefer the term ‘futures research’, meaning the use of methods to identify systematically both the consequences of policy options and alternative futures with policy implications for decision makers. Others prefer the term ‘future studies’, meaning the study of what might happen, and what we might want to become. Still others, apparently in Europe and francophone Africa, prefer ‘prospective studies’, meaning the study of the future in order to develop a strategic attitude of mind with a long-range view of creating a desirable future.

Foresight is a professional practice that supports significant decisions, and as such it needs to be more assured of its claims to knowledge (methodology). Foresight

M. Giaoutzi (✉)

Department of Geography and Regional Planning,
National Technical University of Athens (NTUA),
Heron Polytechniou str. 9, Zographou Campus, 15780, Athens, Greece
e-mail: giaoutsi@central.ntua.gr

B. Sapio

Fondazione Ugo Bordoni,
Viale del Policlinico 147, Roma, 00161, Italy
e-mail: bsapio@fub.it

is practised across many domains and is not the preserve of specialised ‘futurists’, or indeed of foresight specialists. However, the disciplines of foresight are not well articulated or disseminated across domains, leading to reinventions and practice that does not always make best use of experience in other domains.

Futures research can be directed to large- or small-scale issues, in the near or distant future, and can project possible or desired conditions. It is not a science; the outcome of studies depends on the methods used and the skills of the practitioners. Its methods can be highly quantitative or qualitative. It helps to provide a framework to better understand the present and expand mental horizons.

The value of futures research lies less in forecasting accuracy than in its usefulness in planning and opening minds to consider new possibilities, and thus change the policy agenda. Its purpose is not to know the future, but to help us make better decisions today via its methods that force us to anticipate opportunities and threats, and consider how to address them – strategically it is better to anticipate, rather than just respond to change.

The purpose of futures methodology is to systematically explore, create, and test both possible and desirable futures to improve decisions. It includes analysis of how those decisions might change as a result of the implementation of policies and actions, and the consequences of these policies and actions.

The use of futures methods enhances anticipatory consciousness, which in turn improves the foresight, thus making it possible to act faster or earlier, and making the organisation or individual more effective in dealing with change. The ability to anticipate gives extra time to better understand threats and opportunities, develop more creative strategies, create new product opportunities, and create and share vision for organisational change.

The methodological development of foresight is an important task that aims, firstly, to strengthen the pool of the tools available for application, thus empowering the actors involved in the realm of foresight practice. Secondly, elaborating further on methodological issues, such as those presented in this book, enables the actors involved in foresight to begin to critique current practice from this perspective and, thirdly, to begin to design foresight practice with greater reflexivity.

The present trends towards methodological concerns indicate a move from ‘given’ expert-predicted futures towards a situation in which futures are nurtured through the dialogue between ‘stakeholders’, i.e. those with a stake in the future of the particular issue under study.

The focus of this book is on recent developments in foresight methodologies and relates in its greater part to the work done in the context of the COST A22 network of the EU on foresight methodologies.

This book has five parts elaborating on a set of aspects of foresight methodologies.

In Part I, Chap. 1, ‘In Search of Foresight Methodologies: Riddle or Necessity’, by Maria Giaoutzi and Bartolomeo Sapiro, elaborates on the insights and perspectives of the foresight practice and presents the organisation of this book.

In Part II, a set of three chapters focuses on ‘Theorizing About Foresight Methodologies’.

More precisely in Chap. 2, ‘Defining the Future: Concepts and Definitions as Linguistic Fundamentals of Foresight’, Ruud van der Helm stresses the importance of semantics that warrants an analysis of how language functions and what it contributes to a better understanding of the future. This chapter focuses on one particular dimension of this wide domain of semantic research: concepts and definitions. The objective of this contribution is to provide more insights into how definitions of future relevant terminology are shaped and laid down in semantic research. Finally, the chapter draws some conclusions on how to proceed with semantic research and the enrichment of the futures domain that it may yield.

In Chap. 3, ‘Classification of Tools and Approaches Applicable in Foresight Studies’, Jan E. Karlsen investigates the inherent ontological and epistemic premises embedded in the application of quantitative and qualitative foresight methods and tools and provides a taxonomy for the classification of such approaches. His conclusion challenges researchers in the field by maintaining that an optimal combination of qualitative and quantitative approaches is only limited by the ingenuity of the researchers themselves, not by the intrinsic characteristics of the approaches.

In Chap. 4, ‘Bridging Qualitative and Quantitative Methods in Foresight’, Matthias Lüdeke focuses on the shortcomings of epistemological approaches to prediction, oriented to the case of classical mechanics, which appears as a more or less singular stroke of luck in the history of science. First, the role of quantitative models in foresight studies is presented. Then, after a short overview of the four main approaches to foresight according to Kreibich (2006), the chapter proceeds with a discussion of qualitative, as compared with quantitative, concepts in science and concludes with a range of approaches that bridge the gap between the two traditions.

In Chap. 5, ‘New Emerging Issues and Wild Cards as Future Shakers and Shapers’, by Victor van Rij, *the* focus is on wild cards which in his view represent the occurrence of singular (idiosyncratic, historically original), sudden (abrupt, fast), surprising (unexpected, startling), and high-impact (severe) events. Thus, wild cards circumscribe the following: (1) one-of-a-kind discrete incidents (2) that arise rapidly (3) in a way not fully recognisable *ex ante* from past information and (4) that lead to profound perturbations and alterations in the known state of affairs. Hence, wild cards not only have an impact in quantitative terms on the absolute level of a pre-existing trend or alter its rate of growth but also are likely to transform the qualitative attributes of the phenomenon, possibly setting new directions for future evolution. This chapter explains how the wild cards are identified and can be used to safeguard policies against their unwanted effects.

In Part III, six chapters are included which elaborate on ‘System Content Issues’.

In Chap. 6, ‘Forms of Reasoning in Pattern Management and in Strategic Intelligence’, Tuomo Kuosa deals with the issue of strategic intelligence, an emerging field of business consulting that presents large, complex, or complicated issues

of transformation in a more understandable form. Pattern management is seen as one field of strategic intelligence based on empirical data and formal structures of strategic intelligence, but also on a heuristic approach enabling inter alia, quantitative data, reasoning, and narratives to be integrated. The main aim of this chapter is to show the most commonly used ways of managing, finding, drawing, reasoning, or anticipating patterns in our environment, but also to locate how the concept of *pattern* can be perceived in different ways.

Péter Alács, in Chap. 7, 'Micro-meso-macro: From the Heritage of the Oracle to Foresight', provides a methodological framework for designing and better understanding the foresight process. Towards this end, he presents a three-level approach, where *uncertainty*, *complexity*, and *time* are dealt with differently at each level. At the meso-level, both narratives and numbers are used to assess the knowledge on the foresight issues, while at the micro-level, this is prevented by not integrating narratives and numbers. Finally, integration is possible only at the macro-level by using narrative tools. The chapter shows that the above methodological approach to foresight not only expands the potential of the foresight activity but also clarifies its methods.

In Chap. 8, 'Going from Narrative to Number: Indicator-Driven Scenario Quantification', by Eric Kemp-Benedict, the focus is on the limitations of the predictive mathematical models, conventionally used in policy analysis, in their potential capacity as exclusive tools in futures studies, since they cannot integrate the sudden changes seen in real societies. As an alternative, the field of complex systems has successfully produced similar changes in simplified model systems but has been less successful in practical futures work.

Some recent scenario exercises are presented, such as the IPCC, UNEP's GEO-3 scenarios, the work of the Global Scenario Group, and the European VISIONS project, which have all addressed this issue by combining wide-ranging narratives with quantitative models, demonstrating that a synthesis between qualitative and quantitative approaches is possible.

The characteristics of computer models, appropriate for use in foresight, are presented, and examples of appropriate models are described.

In Chap. 9, 'On Foresight Design and Management: A Classification Framework for Foresight Exercises', Totti Könnölä, Toni Ahlqvist, Annele Eerola, Sirkku Kivisaari, and Raija Koivisto claim that while the expansion of foresight scope to include systemic processes and societal considerations has provided significant opportunities for learning and synchronised action between different business units and/or policy fields, it may also have caused digression and ambiguity in the theory and practice of the management of foresight processes. This is true, in particular, in contract research organisations that have faced major challenges to reorganise their foresight activities, as part of the changes in their innovation practices.

This chapter examines this shift and consequent methodological responses at the VTT Technical Research Centre of Finland. In particular, it considers the design and implementation of recent VTT road mapping and other foresight processes which typically apply and link diverse methods in order to best respond to case-

specific expectations. This chapter also develops a coherent classification framework in support of the design and management of foresight processes. The experience of VTT is geared towards the coherent and modular application of foresight methods and the responsive engagement of stakeholders.

In Chap. 10, Arturs Puga elaborates on the question: ‘Will Entrepreneurship, Knowledge Management and Foresight Emerge in a System?’ by focusing on the results and experience gained by foresight projects and workshops in Latvia and by making the assumption that an understanding of the knowledge management (KM) terminology and processes enables the active and effective participation of researchers in foresight projects. It also facilitates the development of the foresight culture at both the individual and the organisational levels and presents examples of how organisational and personal KM models operate in the development of project activities.

In Chap. 11 on ‘Scenario Transfer Methodology and Technology’, Bartolomeo Sapio and Enrico Nicolò are concerned with facilitating the understanding and exploitation of the results obtained through the application of foresight methodologies by decision makers and strategic planners.

The availability of complex mathematical outputs has often discouraged top managers and decision makers from adopting suggestions derived from the utilisation of these methods and has limited the potential of their conceptual frameworks and computerised tools.

The authors propose that by exploiting the available technological tools, scenario modellers should be able to integrate the capabilities offered by technology to *transfer* effectively and efficiently the acquired results to strategic end-users, so that the comprehension, interpretation, acceptability, and usability of scenario methods and their results can be facilitated and increased. To this end, this chapter introduces some fundamentals of a *scenario transfer methodology and technology*, which are developed within the logical framework of *scenario engineering*.

Part IV, ‘Foresight Tools and Approaches’, consists of seven chapters presenting a broad range of applications of foresight tools and approaches which are included in EU and other projects.

Chapter 12, ‘Willingness of Stakeholders to Use Models for Climate Policy: The Delft Process’, by Serge Stalpers and Carolien Kroeze, focuses on participatory integrated assessment (PIA) approaches which ensure consideration of multiple perspectives on climate change through science-stakeholder dialogues, while simultaneously respecting decision stakes. More precisely, the authors have investigated the information needs of the participants of the Delft Process in order to assess their willingness-to-use (WTU) model results. Building on the Delft Process case, a conceptual model of WTU assessments is presented, assuming that participants often assess WTU implicitly based on their own expectations, and on scattered information provided by scientists.

The Delft Process illustrates how in a PIA, WTU is not always explicitly assessed by the participants. An explicit WTU assessment, such as that suggested by the conceptual model presented in this chapter, could improve the communication between scientists and stakeholders by ensuring that information provided by the

scientists better matches the information needs of participants for assessing their WTU models.

In Chap. 13, 'Linking Narrative Storylines and Quantitative Models to Combat Desertification in the Guadalentín Watershed (Spain)', Kasper Kok and Hedwig van Delden elaborate on a foresight approach, developed in the framework of an EU-financed project, dealing with desertification in the Mediterranean region, where multi-scale scenarios were developed for Europe, the Northern Mediterranean, and four other local areas. This approach involves the participation of stakeholders in the scenario development process, which links all these narrative storylines with an integrated quantitative model. A Policy Support System (PSS) is also presented. Developed in the same project, this PSS has as its main objective to establish a link between the qualitative scenarios and the PSS for the watershed of the Guadalentín River in Spain. From the results of two scenario workshops, three scenarios were selected, each linked to the same Mediterranean scenario. The purpose of this selection was to maximise both the variety in the narrative storylines and the expected output of the PSS. The chapter illustrates the practical potential and pitfalls of linking qualitative storylines and quantitative models. Future research should, however, also focus on the more fundamental theoretical obstacles that can be easily overlooked.

In Chap. 14, 'Scenario Planning as a Tool in Foresight Exercises: The LIPSOR approach', Anastasia Stratigea and Maria Giaoutzi focus on the potential of scenario planning for regional future studies with the support of scenario planning tools. The chapter first discusses the role of scenario planning in foresight, and then considers an application of the scenario planning participatory model LIPSOR, in the region of Crete. Finally, some conclusions are drawn as to the strong and weak points of the suggested approach.

Chapter 15, 'Foresights, Scenarios and Sustainable Development: A Pluriformity Perspective' by Eveline van Leeuwen, Peter Nijkamp, Aliye Ahu Akgun, and Masood Gheasi, concerns future sustainable development strategies from a stakeholders' perspective. The chapter reviews various sustainable development contributions and also addresses various methodological issues pertaining to sustainable development. The literature review lays the foundation for the operational analysis in the chapter. Based on a multidimensional indicator system, reflecting a pluriformity in approaches and viewpoints, a systemic perspective based on a multicriteria model is proposed against the background of an 'amoeba' diagram. By means of this model, a set of local or regional empirical case studies is presented originating from five European countries: namely Italy, Spain, Romania, Finland, and Scotland. To map out and analyse sustainable development of the areas under consideration, four scenarios are developed (Competitiveness, Continuity, Capacity, and Coherence) for each of these five European cases. These cases are evaluated on the basis of the viewpoints of relevant stakeholders regarding future sustainable development. The scenarios are then systematically assessed with a view to the identification of the most preferred future. Their results indicate that, in general, the most preferred sustainable future is that of the Coherence scenario, in which ecological and social factors are the most influential sustainability factors.

In Chap. 16, ‘Methodological Challenges in Combining Quantitative and Qualitative Foresight Methods for Sustainable Energy Futures: The SEPIA Project’, by Erik Laes, Da Ruan, Fre Maes, and Aviel Verbruggen, the focus is on the merits and challenges of combining participatory fuzzy-set multicriteria analysis (MCA) with narrative scenario building, supported by (quantitative) energy system modelling within the context of the SEPIA project (‘Sustainable Energy Policy Integrated Assessment’). SEPIA aims to provide tools and methods to support deliberations on a sustainable energy future for Belgium. The project set-up presented includes the following phases: methodological reflections on sustainability assessment; participatory construction of long-term sustainable energy futures; participatory construction of a value tree, including sustainability criteria; and a deliberation on these futures with the aid of a fuzzy-set MCA decision support tool that is both methodologically sound and legitimate from a stakeholder point of view.

Chapter 17, ‘Building Strategic Policy Scenarios for EU Agriculture: AG2020’, by Maria Giaoutzi and Anastasia Stratigea, first focuses on the development of a methodological framework, in support of the decision-making process for reforms in the Common EU Agricultural Policy (CAP). The use of this framework will support the structuring of a range of backcasting policy scenarios, based on quantitative and qualitative analysis of the future. The chapter then describes the methodological approach for building strategic policy scenarios for AG2020. Following on from this, the process of building the Images of the Future in EU agriculture in 2020 is presented. This is put into practice in building the policy framework that will support the target achievement in the Images of 2020. The chapter closes with some conclusions, and future prospects are discussed.

In Chap. 18, ‘Opportunities for Combining Quantitative and Qualitative Approaches in Scenario-Building: The Experience of the “Estonia 2010” Project’, Erik Terk claims that the qualitative and quantitative approaches, or narratives and numbers, are one of the most exciting problems in the development of the methodology of foresight/futures studies. The building of user-oriented scenarios is not just one of the futures studies methods but rather a broader methodological construction, providing a discussion platform on how the qualitative and quantitative methods in scenario building could be combined so as to ensure both the consistency and cohesion of the created constructs, and also their user-friendliness for the decision makers. The chapter also considers the delicate issue of integrating numbers or narratives with alternating weighting procedures throughout the scenario-building period and policy implementation.

References

- Godet, M. (2012). To predict or to built the future? Reflections on the field and differences between foresight and ‘la prospective’. *The Futurist*, 46(3).
- Kreibich, R. (2006). Future issues and future science. Research report No26 Berlin: IZT- Institute for future studies and technology assessment.